Abstract:

BACKGROUND: Any knowledge that can help us influence more people to use condoms saves lives and plays a key role in arresting the HIV pandemic. My motivation for writing this thesis was to determine whether a change in attitude towards the use of condoms among youths in Zambia had occurred between 1995 and 2003. Evidence from surveys suggests that there has been a positive change in sexual behavior. During the eight year period, data from the same population show a marked increase in the use of condoms, particularly among urban women and in individuals in the population with an above average educational attainment. Unfortunately the changes have not been as great as expected. Therefore knowledge of the change in attitude regarding the use of condoms might give us vital information and have an impact on policy interventions. It was necessary as part of this assessment to explore how well selected aspects of attitude explain the use of condoms, and whether these relationships have changed during the eight year period.

METHOD: By analyzing selected attitude-items from three population-based surveys conducted in 1995 (n=1720), 1999 (n=1946) and 2003 (n=2637), I predicted changes in attitude among Zambian youth classified by residence, gender and educational attainment. Analyses of a single item attitude and a joint item attitude were conducted by creating an attitude-index. Further logistic regression was used to examine variables associated with the use of condoms when assessing the association between attitude and behavior.

RESULTS: The most important finding in the single attitude-item analysis revealed was that young people have become more skeptical regarding the safety of the condom during this time period. The attitude-index analysis showed that despite a significant increase in the reported use of condoms in the population, the observations indicated no substantial changes in attitudes. The attitudes did not change over time with respect to educational attainment. However, there was a small but significant change among rural women. In addition, regression models indicated that the attitude index towards condom usage was strongly associated with the actual use of condoms. The findings also reveal that the association between attitude and behavior was substantially stronger among young women and in the age
group 25-49 in the data from the initial survey in 1995 than in the observations eight years later.

CONCLUSION: It is alarming that young people have become more skeptical towards the safety of the condom. My recommendation is that the National AIDS council in Zambia organizes all stakeholders to communicate a joint message that is in line with what is the scientific basis, i.e. condoms are safe.

The attitude-behavior relationship is far more complicated than most prevention campaigns assume. Both evidence accumulated in this thesis and prevailing theories on attitude-behavior association illustrates this. The existing theories and models, however, are not sufficient to explain the findings in this thesis. We need to develop an interdisciplinary model/theory that can better explain how attitudes influence sexual behavior (and vice versa) on different levels of society.

The evidence accumulated in this thesis indicates the importance of monitoring attitude change towards the use of condoms as well as actual behavior change. When monitoring attitudes towards the use of condoms, it is also crucial to include other determinants for the use of condoms on the micro, meso and macro levels. A further recommendation is to generate an “attitude-towards-condom-use scale” that is customized for Zambian youth. That will help us to obtain a broad knowledge of attitude changes among Zambian youth, from which functional guidelines for policy intervention might be constructed. These measures would play a key role in helping to reduce the HIV epidemic.
Preface:

I am a firm believer that we can win the battle against the AIDS pandemic. We are still in the middle of a raging pandemic, where future success depends heavily on good prevention strategies. If prevention is to succeed, we need to change our approach. Monitoring attitudes towards the use of condoms can contribute to formulating guidelines for prevention campaigns. By improving prevention campaigns, social attitudes will change and in the end contribute to ending the war against AIDS.

Living in Zambia as an adolescent in the mid-1990s made me very aware of the AIDS epidemic at a personal level as well as professionally. There was no choice but to engage in the fight against the pandemic, and therefore I hope that this thesis can contribute in some way.

Having cheerleaders around is underrated. It gives you confidence and strength to perform your utmost. In addition to interesting discussions and invariably good advice, my advisors, Randi Wærdahl and Torkild Hovde Lyngstad, had that cheerleading effect on me, for which I am most grateful.

I would like to express gratitude to the NUFU-administered project between the University of Zambia and Center for International Health, University in Bergen, for giving me access to the data material. In 2003 I was producing the documentary “The War against AIDS” in Zambia. In that connection I was fortunate to observe the collection of the data material in 2003 which again gave me valuable information and knowledge to write this thesis.

I would like to thank “the A-team”, the research team walking door-to-door to collect valuable data in Zambia. I was privileged to observe their work, which was a great inspiration to me.

I thank my father for his patience, optimism, support, advice and inspiration.

I thank the rest of my family for great support, smart suggestions and encouraging words.

And last, but not the least, Henrik and Andreas; the best people in my life.

Gunvor Knag Fylkesnes, September 2008
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Abbreviations

HIV  Human Immunodeficiency Virus
AIDS  Acquired Immune Deficiency Syndrome
MCAS  UCLA Multidimensional Condom Attitude Scale
UNAIDS  United Nations Joint program on HIV/AIDS
STI  Sexually Transmitted Infection
STD  Sexually Transmitted Disease
TB  Tuberculosis
ANC  Antenatal Clinic-Based
TPB  Theory of Planned Behavior
HBM  Health Belief Model
ARRM  AIDS Risk Reduction Model
OR  Odds Ratio
AOR  Adjusted Odds Ratio
CI  Confidence Interval
1. Introduction

Lives are at risk

“The impact of AIDS is no less destructive than warfare itself, and by some measures, far worse.” Former United Nations Secretary General Kofi Annan, quoted in AIDS epidemic update UNAIDS 2000 (Singhal and Rogers 2003:204,)

In the time it took to read this paragraph, approximately five people in some parts of the world became infected with HIV. The pandemic is by far the most severe epidemic to hit today’s humanity. AIDS is one of the leading source of mortality in the world and the primary cause of deaths in Sub-Saharan Africa (UNAIDS 2007a). Almost 30 years have passed since the virus was discovered. Still, the spread of HIV is continuing at a high rate. The transmission of the virus appears more and more to be socially patterned, leaving the poor, the vulnerable and the weak most affected. Despite the devastating facts, there is optimism for the future. The world has committed itself to the fight against the pandemic through the United Nations Millennium Development goal no. 6, namely: by 2015 to halt and begin to reverse the spread of HIV/AIDS. Already there is some sign of downward trends in some countries and selected groups (UNAIDS 2007a; Sandøy, Michelo, Siziya and Fylkesnes 2007; Zambia Country report 2008). If the world is to win the battle, condoms are a key to victory.

Condoms are lifesavers

Condoms have been proved to be one of the most cost-effective weapons against the spread of HIV. There are several examples of countries and groups that have seen a significant drop in HIV infections by embracing the condom. Gay communities in western countries represent one success story. Another is Uganda, where a substantial decrease in the prevalence of HIV was already reported in the 1990s, and in 2005 the prevalence was only 6.7% compared to 11.8% in 1991 (Bongaarts, Buettner, Heilig and Pelletier 2008). All over the world stakeholders have tried to change people’s attitudes towards condoms in order to achieve increased condom usage in the population. Different countries in Sub-Saharan Africa including Zambia now report a decline in high-risk behavior partly because of an increase in condom protection (UNAIDS 2007a; Sandøy et al. 2007; Slaymaker and Buckner 2004).
Motivation for conducting the study

The government of Zambia, together with civil society and the international community, has made a massive effort to influence people’s attitudes towards the use of condoms in Zambia. As previously mentioned the prevalence of HIV is now declining. One assumes therefore that people’s attitudes have also changed. Until now, however, to the best of my knowledge, no study has been conducted to examine the extent to which people’s attitudes towards the use of condoms have changed.

The epidemic exploded in Zambia in the late 1970s, but comprehensive preventive efforts were not initiated until ten years later when strategic plans and social marketing plans were developed to promote safe sex. Both national and local population-based surveys have been conducted in Zambia on a regular basis since 1995 to monitor the prevalence of HIV and behavioral change. Zambia therefore has well documented data on prevalence and how the reported use of condoms has changed during the decades of the epidemic. It is therefore good news that surveys now reveal an increase in the use of condoms, and this is interpreted as evidence of the effect of preventive programs. Changes in the use of condoms have thus been monitored on a regular basis, but whether people’s attitudes towards the use of condoms have been successfully changed has not yet been examined.

Even though we are witnessing behavioral changes, these are less marked than expected. Gaining knowledge about attitudes towards the use of condoms can help us understand why behavioral changes are not more substantial. This knowledge can further function as part of the guidelines in planning both what attitudes and what groups to target in prevention campaigns.

No surveys have been conducted purely to measure attitude change towards the use of condoms in Zambia. Fortunately, six attitude-items were included in three population-based surveys conducted in 1995, 1999 and 2003 that address attitudes towards the use of condoms. The attitude-items are to be analyzed for the first time in this thesis.
Asking questions and finding answers

Using attitude-items from the three population-based surveys in Zambia carried out in 1995, 1999 and 2003, I will explore in this thesis the role of attitudes in explaining the observed increase in the use of condoms between 1995 and 2003 among young people aged 15-24. Given the positive trends in the use of condoms, my main hypothesis is that young people in general in the 2003 sample will have adopted more positive attitudes towards the use of condoms than those in the earlier samples.

The main research questions I ask in this study are:

1. Was there a change in attitudes towards the use of condoms among young people in Zambia in the period between 1995 and 2003?
2. How well do the selected attitude-items explain the use of condoms?
3. Did the relationship between attitudes and behavior change between 1995 and 2003?
4. Do we have good theoretical models that can help us understand the relationship between attitudes and behavior?

By analyzing data from the three population-based surveys in Zambia that took place between 1995 and 2003, I will seek to find answers to the three first research questions. Further, I will explore how different theoretical models can give an appropriate understanding of the relationship between attitudes and behavior.

Outline of the thesis

This thesis is organized in eight chapters. The second chapter includes an overview of the epidemic, both its history and its magnitude. The magnitude of the epidemic is briefly presented in a worldwide as well as a regional and national perspective. Because the surveys were conducted in Zambia, a brief introduction to the country is necessary, as well as a focus on how Zambia has met the challenges of the epidemic.

The third chapter consists of a literature review. No published research on attitude change in Zambia exists, so this chapter includes research on methods for measuring attitudes towards the use of condoms and also changes in sexual behavior in Zambia and neighboring countries. I deduce hypotheses gradually throughout the chapter on the basis of related research. These hypotheses will be tested in the data analysis.
In chapter four I look at different theoretical models that might explain the relationship between attitude and behavior. This issue has been studied extensively within different professions, but are there existing models that can help us to understand the relationship between attitudes and behavior among young people in Zambia?

Chapter five functions as an introduction to the data analysis (presented in chapters five and six). I present the datasets available to me and the specific methods that I used in the analysis, including a description of the most important variables. To end the chapter I discuss the limitations implicit in studying only young people.

In chapter six I explore whether there was a change in attitudes towards the use of condoms between 1995 and 2003. My basis for investigating attitude change is the six attitude-items derived from the population-based surveys conducted in 1995, 1999 and 2003. In addition I examine the validity of the attitude-items.

The seventh chapter provides an analysis of the relationship between attitudes and the use of condoms using logistic regression as a tool. Using data from 1995 and 2003 I look at whether the relationship between attitude and behavior has changed, stratified by age group and gender.

Finally, chapter eight consists of a discussion based on elements from both the data analysis and the theoretical models. Concluding in chapter eight I sum up the most important findings and discussions, ending the thesis with future recommendations.
2. HIV/AIDS: history and extent

History and facts

In the late 1970s the first signs of a bizarre disease started to appear in some European hospitals. However, the first documented case of AIDS was not until 1980 at the University of California (Singhal and Rogers 2003). Researchers trying retrospectively to trace the origin of the epidemic have found HIV in stored blood samples from Africa as early as 1959 (Zhu, Korber, Nahmias, Hooper, Sharp and Ho 1998). Still, the epidemic did not explode until the 1980s, especially in gay communities in western countries and among heterosexuals in developing countries (Singhal and Rogers 2003).

Human Immunodeficiency Virus (HIV) invades a living white blood cell and reprograms it to reproduce the virus. One HI virus can actually make 10 billion copies of itself, with a mutation rate of 1 in 10,000, i.e. the virus duplicates itself with different characteristics. This mutation can make the body immune to drugs and renders the development of a vaccine very difficult. The virus attacks the white blood cells, the very cells that are supposed to protect us against infections. After perhaps 5-10 years post-infection the immune system becomes very weak because the numbers of white blood cells in an HIV-positive person have fallen drastically. At this stage the person usually develops opportunistic infections and is said to have Acquired Immune Deficiency Syndrome (AIDS). During the incubation years the person looks healthy but can infect others (Singhal and Rogers 2003).

HIV is spread mainly through sexual intercourse in which bodily fluids such as blood or semen are exchanged. This is why the most sexually active group between 15 and 45 are especially vulnerable. HIV is also spread through sharing of contaminated needles and in some early cases through blood transfusion. A vast global problem is mother-to-child transmission, resulting in millions of sad cases of infected infants. Today about 2.5 million children are living with the virus (UNAIDS 2007a).

Various attempts have been made to develop drugs that can kill the virus, but unfortunately there has been no clear success to date. The most effective drugs of today are antiretroviral drugs (ARV). Receiving antiretroviral therapy (ART) slows the mutation rate of the virus. Still, there is a chance that some mutations keep multiplying, making the person resistant to the drug. Consequently AIDS is developed (Singhal and Rogers 2003). ART is an expensive
treatment and this results in inequality on a world basis. While those in need in the western countries have free access to ART, only 31% of those in need in developing countries are on ART (AIDS 2008)¹. The executive director of HIV research at Chelsea and Westminster Hospital, Anton Pozniak, gave a speech at the 2008 AIDS Conference in Mexico and made a justified comment about the unfair situation: “I’ve run out of fingers and toes to count the inequalities” (Kaisernetwork 2008a).

**HIV/AIDS epidemic overview**

“Universal Action Now!” was the theme for the XVII International AIDS conference held in Mexico City, August 2008. An estimated 22,000 activists, scientists, politicians and leaders were gathered to discuss priorities and inspire each other for the future fight against the HIV epidemic. Preventing transmitting of the virus received most attention at the conference, where failure and success of prevention were discussed. Many contributed to underlining the complexity of the epidemic and the importance of “knowing your epidemic and knowing your response” (UNAIDS 2008b). The following is an overview of epidemic globally, regionally and at a national level.

**Global**

An estimated 33.2 million (30.6-36.7 million) men, women and children were living with HIV in 2007. About 2.5 million people became infected in 2007 and around 2.1 million people lost their lives to AIDS; 76% of these deaths occurred in Sub-Saharan countries. It is said that the epidemic reached its peak in the late 1990s and has now stabilized. Even some countries in Asia, Latin-America and Africa report evidence of a slight decline in incidence (UNAIDS 2006; Stoneburner and Low-Beer 2004, Gregson, Garnett, Nyamukapa, Hallett, Lewis, Mason, Chandiwana and Anderson 2006; Cheluget, Baltazar, Orege, Ibrahim, Marum and Stover 2006). Still, because life-prolonging medicine is now more readily available, more and more people are living with the virus. Every day 6800 persons become infected with HIV and 5700 die from AIDS (UNAIDS 2007a). Experts who gathered at the London School of Economics in May 2008 to discuss the long-term effects of the HIV epidemic defined it as “a 'long-wave' event whose full social and economic effects will be with us for decades”

¹ Still, this is a great improvement from 2000 where only an estimated 1% of the infected in poor countries had access to ART.
Young people are an especially vulnerable group, and 50% of all HIV infections occur in the age range 15-24 years (Global Campaign for Education 2005; Global HIV Prevention Working Group 2003). The pandemic has formed two patterns: Sub-Saharan Africa is the most seriously affected region in the world, while the epidemics in the rest of the world are primarily concentrated among high-risk groups such as men who have sex with men, injecting drug users, and sex workers and their sexual partners (UNAIDS 2007a). The disparity between Sub-Saharan Africa and the rest of the world is illustrated in figure 2.1. Sixty-eight percent of infected adults in the world live in Sub-Saharan countries, while more than 90% of the infected children live in this region. The figure also illustrates how the gap between the two worlds has evolved during the last decade (UNAIDS 2007a).

![Graph: Estimated adult (15-49) HIV prevalence (%) globally and in sub-Saharan Africa, 1990-2007]

Figure 2.1. Estimated prevalence among adults from 1990-2007. Source: UNAIDS 2007a:5

That being said, there is some light at the end of the tunnel; many countries in Sub-Saharan Africa report that their national prevalence of HIV has either stabilized or is declining (e.g. Côte d’Ivoir, Kenya, Zambia and Zimbabwe). Countries in Asia such as Cambodia, Myanmar and Thailand also report a decline in prevalence. Experts agree that these declines partly reflect the results of prevention programs that are leading to behavioral changes (UNAIDS 2007a).
Feminization of the pandemic

The epidemic is talked about by many as the epidemic of poverty. However, a speech at LSE by the UNAIDS executive director Peter Piot in May 2008 gave another name to it. He talked about a disease of inequality: inequity between men and women, inequality in economics and inequality of sexual orientation (Piot 2008). The epidemic has a disproportionate impact on women in general, specifically in Sub-Saharan countries; three women are infected for every two men, and among youth the ratio is still more unbalanced - three young women are infected for every man (UNAIDS 2007a). Already in 2002, the former Secretary General of United Nations, Kofi Annan, recognized that the epidemic had become the fate of the woman (Annan 2002). The imbalance has worsened since then. There are many reasons for this. First, women are biologically more vulnerable to the virus. Second, because of gender relations, women very often do not have a say in the use of contraception such as the condom (Annan 2002; Pullum, Cleland & Shah 2005). Figure 2.2 illustrates Kofi Annan’s alarm at the feminization of the pandemic. The figure also shows a global stabilization of the ratio between men and women since 2000, while Sub-Sahara continues to show an increasing trend. Unlike other regions, the majority (61%) of people living with HIV in Sub-Sahara are women.

Figure 2.2: The feminization of the epidemic. Source: UNAIDS 2007a:9
Consequences

The costs of the epidemic are immense in both low- and high-prevalence countries, leaving scars on individuals, families and communities and hindering human development. In the high-prevalence countries the epidemic is responsible for destroying decades of health, economic and social progress. In the most extreme cases it reduces life expectancy by almost 20 years and has a huge impact on poverty with chronic food shortage (UNAIDS 2006b). The most productive individuals are those who are the most vulnerable to the virus. Consequently, countries lose skilled staff trained in agriculture, teaching, health care, public services, etc. Youth is especially exposed. Of all the people who became infected during the past 20 years, about half became infected between the ages of 15 and 24. As a result countries lose future leaders.

Sub-Saharan Africa

Sub-Saharan Africa is the region in the world that is hit hardest by far by the epidemic; of all the people living with HIV/AIDS, more than two thirds (68%) live in this region. The consequences during the last couple of decades have been immense and tragic, resulting in a reduction of life expectancy from about 60 to 40 years (Agha, Hutchinson and Kusanthan 2006). The overall prevalence rate in Sub-Saharan is 5% (UNAIDS 2007b), but the rate in different countries varies hugely from less than 2% to more than 15%. Actually, eight countries had prevalence rates exceeding 15% in 2005, namely Botswana, Lesotho, Namibia, South Africa, Swaziland, Zimbabwe and Zambia. Nowhere else has the spread of HIV reached such levels (UNAIDS 2007b). The shocking concentration in Sub-Saharan and the uneven prevalence in the region are illustrated by the world map in figure 2.3. Fortunately, evidence shows that most countries in the region are reaching a plateau and in some countries and subgroups a decline in the epidemic is reported (e.g. Zambia). One country, Mozambique, is exceptional in reporting an increased prevalence in the latest HIV data. Studies of sexual behavior trends among young people indicate a positive change with a decrease in high-risk behavior. This is interpreted by many researchers and stakeholders as evidence that prevention campaigns are having an impact (Michelo 2006; UNAIDS 2007a; Sandøy et al. 2007).
The Republic of Zambia is located in south-central Africa and covers an area of about 2.5% of the continent. It is a landlocked country and shares borders with nine others: Mozambique and Malawi to the east, Botswana and Zimbabwe to the south, Namibia to the southwest, Angola to the west and the Democratic Republic of the Congo and Tanzania to the north (see map below). The country has nine provinces and 72 districts.
Zambia became independent from Britain on the 24th of October 1964 and is today estimated to have a population of 11.7 million, 64% living in rural areas. Despite the devastation of the HIV epidemic, the population has grown by about 1 million in 5 years. This is mostly because of the high fertility rate, estimated at 5.23 children per woman (CIA 2008). Still HIV has its impact; life expectancy at birth decreased from 57 years in the mid 1980s to an estimated 39 years in 2008 (The Zambian Central Statistical Office 2005; CIA 2008). Between 50 and 75% are Christians, 24-49% are Muslim and Hindu while an estimated 1% hold indigenous beliefs. There are more than 70 languages in Zambia. Because it was a British colony, however, English is the official language. Over 80% of the population above 15 years can read and write English (CIA 2008). The climate is tropical with three distinct seasons; the cool and dry, the hot and dry and the hot and wet seasons. Zambia has massive natural resources, including copper and cobalt, and has a rich supply of water from rivers and lakes. The most famous natural wonder is the Victoria Falls, which lies on the border between Zambia and Zimbabwe (The Zambian Central Statistical Office 2005).

Zambia has an estimated prevalence of HIV of 15.6% among the 15-49 age group. The percentage of young people aged 15-24 who are HIV infected is 12.5%. Divided into
subgroups, 11.6% of 15-19 year olds are infected, while as many as 17.8% of the 20-24 year olds are infected (Zambia Country Report 2008).

Major efforts to influence attitudes

Comprehensive efforts have been made to influence people’s attitudes towards the use of condoms. The Zambian government and civil society have shown great commitment to the fight against the epidemic. Together with the international community, immense amounts of time and money have been spent on social marketing campaigns promoting safe sex. The first effort to control the epidemic on a national level was the Zambia National HIV/AIDS/STD/TB strategic framework and the First Medium Term Plan (1988-1992). This first plan put particular emphasis on information, education and communication. But it was not until the Second Medium Term Plan (1994-1998) that condom promotion became central in the fight against the epidemic (The Zambian Central Statistical Office 2005). In 2001 the Zambian government established a national HIV/AIDS council that was to coordinate all the multi-sectoral response to the epidemic (Zambia National HIV/AIDS council 2008). The different ministries have all incorporated a strategic response plan guided by the council. Combating AIDS is also a focus in the private sector.

Everyone in Zambia is affected by the epidemic in some way. Either they have lost family members or friends to the epidemic or they are infected themselves. This has also had its effect on involvement in civil society, where hundreds of NGOs have appeared in recent decades trying to influence people's sexual behavior. Numerous efforts have also been made to influence youth. For example, Club NTG (new teen generation) is a radio program made for and by young people. Their main focus is to discuss sexual health issues openly among youth on the air. Topics such as teen pregnancies, the obstacles you meet when going for VCT (voluntary HIV counseling and testing), as well as sexuality and the use of condoms in general are discussed. Similarly, An Inside Look is an interactive television talk show that addresses health and social issues. In addition, many campaigns have made use of dance, drama, music and print media (such as the youth magazine Trendsetters) to reach out to young people.
Summing up:

The pandemic is severe, leaving Sub-Saharan countries and particularly women to suffer the most. There are two alternative ways to stop or at least reduce the spread of HIV; either abstain or use a condom. The first is not an option for most young people. That is why countries like Zambia have tried to influence youth to start practicing safe sex and to develop more favorable attitudes towards the use of condoms. So the question that remains to be answered is: to what extent have attitudes towards the use of condoms changed among young people in Zambia?
3. Related research

Introduction:

In this section an outline of related research will be presented. It is relevant to both look at methodological obstacles in regards to attitudes towards condom use and in relation to behavioral change. This chapter therefore has two headings in regards to this thesis: (1) how to measure attitude towards condoms; (2) sexual behavior change in Sub-Sahara. Ideally I should have presented research on attitude change in Zambia or at least in Sub-Sahara, but to the best of my knowledge no related studies have been published that have monitored possible changes in attitude towards the use of condoms over time.

When presenting methods or scales for different ways of measuring attitude towards the use of condoms I will keep a global perspective. The literature search revealed six different methods that have been developed worldwide. I will present these scales and compare them with the items used in the three population-based surveys from Zambia.

I will limit my review of research on behavioral change geographically by focusing mainly on Sub-Saharan Africa, with particular emphasis on research from Zambia and neighboring countries. The main reason for this limitation is that sexual culture varies immensely from continent to continent. We also know that sexual cultures differ hugely among Sub-Saharan countries (Cleland, Ali and Shah 2005). Whether trends from neighboring countries are applicable to Zambian conditions will be revealed when the data are analyzed. As the chapter progresses I will deduce hypotheses, which will be tested in the data analysis.

Measure attitude towards condom use

Is it possible to measure attitudes?

The measurement of people’s attitudes towards the use of condoms is to some extent a survey of their sexual behavior. This is because it involves asking people about their sexual practices. Measuring sexual behavior is plagued with many possibilities of reporting biases. First of all it is based on what people say they do and not necessarily what they actually do. The validity of findings from surveys on sexual behavior has been evaluated and intensely debated in the
literature. In 1994 a team of researchers published “The Social Organization of Sexuality: Sexual Practices in the United States”. They concluded that the American people were much more conservative than previously assumed. Critics of this survey propose that such a survey does not generate reliable data. For instance; 45% of men between 80 and 85 years old claim they have sex with their partners. That, the critics say, is not likely to be true. This in turn calls the whole survey and surveys on sexual behavior in general into question (Giddens 1997). However, findings from various HIV surveys in Africa contradict this position. Surveys that measure risk behaviors and HIV transmission concomitantly have demonstrated that reported risk taking and HIV transmission are correlated over time, e.g. subgroups in the population who reported the most marked reduction in risk taking over time were the same ones who reduced their transmission rates most substantially (Sandøy et al. 2007; Michelo et al. 2006)

Although a great deal of research on attitudes towards the use of condoms has been conducted on a world basis, methodological studies are rather limited. The literature search revealed only six different condom-attitude scales: Brown’s attitudes towards condoms scale, the UCLA multidimensional condom attitude scale, the 22-item use of condom barriers scale, the 57-item condom attitude scale developed for the American university students, an adolescent version of the 57-item scale, and the six-item tailor-made attitude-towards-condom-use scale. In the following section I will briefly present these and further assess their compatibility with the attitude-items from the three population-based surveys from Zambia.

**Brown’s scale**

Brown’s *attitude towards the use of condoms scale* was developed as an assessment instrument for evaluating the impact of prevention campaigns and for gaining knowledge about existing attitudes towards the use of condoms. It consists of 40 items divided into five subgroups: safety and reliability, comfort, embarrassment, sexual arousal/excitement and interruption of sexual intercourse. Half the items are positively worded and the other half are negatively worded. All 40 questions are answered by specifying the respondent’s level of agreement with the given statement on a scale from 1 to 5 (Brown 1984).

Many researchers have used this scale but simplified it by selecting 10 items in different combinations. The Brown scale has been criticized by the scientists who developed the UCLA
multidimensional condom attitude scale. Their critique is based on factor analysis. They argue that more than 25% of the items (i.e. more than 10 questions) might be unreliable or invalid because they did not have loadings greater than 0.35 on any factor (Helweg-Larsen and Collins 1994). This problem may be even more severe when researchers “select” 10 questions unsystematically without bearing the factor loadings in mind. Still, this is not the place to discuss the Brown scale in full.

**The multidimensional condom attitude scale**

The UCLA multidimensional condom attitude scale (MCAS) was developed by psychology professors with the aim of finding good independent determinants of condom-use behavior. MCAS consists of five subscales: reliability and effectiveness of condoms, sexual pleasure associated with the use of condoms, the stigma attached to persons using condoms, embarrassment about negotiation and use of a condom, and embarrassment about buying a condom. Two of the subgroups of the Brown scale map directly on to MCAS factors (embarrassment about use and reliability). The remaining three subgroups in the Brown scale (comfort, interruption and sexual arousal) can be subsumed under the MCAS pleasure factor. So the MCAS introduces two new aspects - identity stigma and purchase embarrassment. The researchers who developed the MCAS discovered that attitudes towards the use of condoms are multidimensional and therefore cannot be summed up by a single global score. They also found that attitudes towards condoms differ between men and women (Helweg-Larsen and Collins 1994). It is said, however, that the scale has a strong focus on birth control and less on questions related to HIV (Madu and Peltzer 2003).

**The 57-item scale**

The 57-item condom attitude scale developed for American university students consists of eight subgroups: interpersonal impact (e.g., “If partner suggested, I'd feel relieved”), effect on sexual experience (e.g. “condoms are a hassle to use”), self-control (e.g., “I'm concerned about AIDS, but in the heat of the moment it wouldn't stop me from having sex without a condom”) global attitude (e.g. “condoms protect against sexually transmitted diseases”), perceived risk (e.g. “If I'm not careful, I could definitely catch AIDS”), inhibition (e.g. “I'd be embarrassed to buy condoms”), promiscuity (e.g. “people who carry condoms are just looking
for sex”) and relationship safety (e.g. “a condom is not necessary when you are with the same person for a long time”) (Sacco, Levine, Reed and Thompson 1991). The subgroups of the 57-item scale are similar to those of the MCAS, but this scale does not address issues concerning the reliability and effectiveness of the condom. In that sense, one can argue that the UCLA multidimensional condom attitude scale is an improved version of both the Brown scale and the 57-item scale.

Adolescent version of the condom attitude scale

The 57-item condom attitude scale was not specifically developed for youth, especially in view of its length and required reading level. Researchers therefore saw the need to reduce the 57 items and to adjust the reading level so that adolescents could understand it. The adolescent version was created for adolescents in general and especially validated for use with African American samples\(^2\). The subscales are the same as the 57-item scale but contain only 23 items. Also, the readability was adapted for adolescents between 14 and 18 years and had an average of 6.8 words per sentence. The developers of the adolescent version of the 57-item scale argue that it is “a useful measurement tool for survey and intervention research with adolescents at risk for HIV infection” (Lawrence, Reitman, Jefferson, Alleyne, Brasfield and Shirley 1994: 358). However, this scale is subject to the same critique as the original 57-item condom attitude scale, i.e. it does not address the reliability and effectiveness of the condom.

The 22-item scale

The only scale developed on the African continent is the 22-item the use of condom barriers scale (22-scale). It was developed in order to identify obstacles to the use of condoms in Nigeria and is structured into three subgroups: condom sexual satisfaction (e.g. reduces sexual urge, is boring, hinders orgasm); condom health hazard (e.g., the condom bursts, starts itching, causes pain during sexual intercourse); and condom sexual interest (e.g., it’s against one’s religion, the smell is a turnoff, it’s embarrassing to buy condoms). Each item can be answered in four possible ways: (a) “I have the experience all the time” (3 points), (b) “I have the experience often” (2 points), (c) “I have the experience occasionally” (1 point) or (d) “I do

\(^2\) African American youth are at greater risk of being infected by HIV because the epidemic is disproportionately high in this group compared to the American youth in general (Lawrence et al. 1994).
not have the experience at all” (0 points). The higher the score, the greater the reported barrier to the use of condoms. The initiators argue that this scale can be used cross-culturally as well (Sunmola 2001).

Compared to the previous scales, the 22-scale lacks many factors such as reliability, gender relations and embarrassment about using condoms. In addition, all the items are negatively worded. This might cause an agreeing-response bias, also known as the acquiescence problem, i.e. respondents tend to agree with the statement presented to them (Schuman and Presser 1996)\(^3\). In the end, this scale might overestimate the barriers connected with the use of condoms. Moreover, I am puzzled by Sunmola’s suggestion about the cross-cultural use of the scale because it was tailor-made specifically for the Nigerian population.

**The six-item tailor-made scale**

The six-item tailor-made attitude-towards-condom-use scale was originally constructed for the Indian population. It is therefore peculiar that the researchers themselves believe it is also possible to use it in “any rapid survey for assessing existing beliefs and attitudes towards condoms and for evaluating efficacy of intervention program” (Talukdar, Bal, Sanyal, Roy and Talukdar 2008:55). The respondents specify their level of agreement to each statement on a scale from 1 to 5, where the statements are as follows: (1) “Condoms are uncomfortable”, (2) “The idea of using condoms doesn’t appeal to me”, (3) “Proper use of condoms can enhance sexual pleasure”, (4) “I intend to try condoms”, (5) “Using condoms makes sex unenjoyable”, (6) “In my opinion condoms are too much trouble” (Talukdar et al. 2008). This scale is very simplistic and does not seem to correspond with the fundamental thinking derived from the previous scales mentioned. While the previous scales have common ground in social psychology, this scale has its basis in a medical discipline.

It is contradictory that the developers of all the scales presented above (apart from UCLA MCAS) suggest that their specific scales can be used cross-culturally. Although each scale was developed and validated for one specific culture, they also believe that each can be used in other cultures on other continents without obstacles. This view is reminiscent of an orientalist position, completely denying the importance of culture when it comes to sexual behavior and interpretation of the statements.

\(^3\) For further discussion on acquiescence, go to page 60, chapter five.
Introducing the items used in the Zambian surveys 1995-2003

My basis for analyzing attitude change among young Zambians is the six different statements/items that were included in the population-based survey in 1995 and then repeated in both 1999 and 2003. The main motives for conducting the population-based surveys were first and foremost to provide data suitable for assessing the validity of antenatal clinic-based (ANC) data gained from the national HIV surveillance system (Fylkesnes et al. 2001). So the interest was on the prevalence of HIV and on social and behavioral issues. Attitudes towards condoms became a secondary concern. The questionnaire was therefore not developed in order to measure all possible attitudes towards the use of condoms, just a selection. The six items used in the surveys are therefore not as extensive as they would have been if the surveys had been “purely” to measure attitudes towards condoms. With two positively loaded statements and four negatively loaded ones, the six items are as follows: (1) “Condoms are safe preventing HIV/AIDS”, (2) “Using condoms shows responsibility”, (3) “Condoms are embarrassing to obtain”, (4) “Using condoms is against my religion”, (5) “Most women don’t like men to use condoms” and (6) “Most men don’t like using condoms”. The respondents were asked to agree or disagree with the statements.

Taking previous research on how to measure attitudes towards the use of condoms into consideration, the items used in the Zambian survey are deficient in two respects. First, the respondents were asked only to agree or disagree with the statements, not to specify their answers on a Likert scale from 1 to 5. Second, it is legitimate to ask whether the six items manage to capture the population’s attitudes towards condoms. Do they also measure faith and norms in society (e.g. “most men don’t like using condoms” and “using condoms is against my religion”)? On the other hand, the selected items were tailor-made for the Zambian context and in my view are not compatible with other scales. The items used can indeed give us valuable and unique information on the issue, especially since this is the only series of surveys that has been conducted on attitudes towards the use of condoms in Zambia. It might be difficult to draw conclusions on the basis of six items, but still they can give us indications about what might be happening in Zambia. They can also tell us whether there is a need for

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4 Further readings about population-based surveys from Zambia see chapter 5.
further research on the subject. Further assessment of the six attitude items will be discussed in chapter 5.

**Sexual behavior change in Sub-Saharan Africa**

*Possible effects of efforts to influence people’s use of condoms*

A survey related to selected radio and television programs promoting the socially marketed *Maximum* condoms in Zambia tried to measure the impact of these campaigns on the reported use of condoms. It was found that those who were exposed to the campaign were more likely to use a condom (Rossem and Meekers 2007). It is likely that the multiple programs run to influence people’s attitudes towards the use of condoms during the past 15 years have positively affected those attitudes among young Zambians, leading to higher or more consistent use, as revealed in other surveys (Sandøy et al. 2008).

*Reported use of condoms and barriers in Sub-Saharan countries*

It has been estimated that in order to protect all sexually active people, 24 billion condoms would have to be used in one year. Overall between 6 and 9 billion condoms were used in Sub-Saharan Africa (Population Service International 2002). So there is definitely a potential for more people to use condoms more consistently. There are several explanations for this “condom gap” including lack of access to condoms or even lack of demand because of stigma and embarrassment attached to their use. Research suggests that perceived risk of becoming infected with HIV is an important factor in deciding whether or not to use a condom. Individuals make this decision by judging their partner (Agda, Kusanthan, Longfield, Klein and Bergman 2002). A third factor in not using a condom may be lack of knowledge on how to use it. Research from Burkina Faso, Ghana, Malawi and Uganda shows that adolescents exposed to a demonstration on how to use a condom are 2-5 times more likely to use it (Biddlecom, Hessburd, Singh, Bankole Darabi 2007). Nevertheless recent years show a change in sexual behavior and an increase in the use of condoms.
Decline in high-risk behavior

Research from different Sub-Saharan countries shows a decline in the prevalence of HIV among young people. Further, this research indicates an association with a decrease in high-risk sexual behavior, mainly involving fewer sexual partners and increased use of condoms (Stoneburner and Low-Beer 2004, Gregson et al. 2006, Cheluget et al. 2006, UNAIDS 2007a). This also corresponds with research from Zambia. The Zambia Sexual Behavior Survey from 2005 further reports a decline in high-risk behavior (Central Statistical Office 2005; Sandøy et al. 2007). Compared to data from 2005, the steepest increase in the use of condoms in Zambia nowadays is among those who have had more than one sexual partner during the past twelve months. In numbers, there was an increase from 5.3% in 2006 to 45.6% in 2007 (Zambia Country Report 2008).

Covering the time period 1995 to 2003

There is a need to look at data covering the period between 1995 and 2003. That makes the findings from other research more relevant to my data samples. Fortunately, Zambia was unique in conducting many different surveys on sexual behavior, addressing issues such as the use of condoms. Two household surveys were carried out by Zambia Demographic and Health Surveys in 1996 and 2003, exploring a wide range of topics including questions on sexual behavior. Three sexual behavior surveys were conducted in 1998, 2000 and 2003 by the Central Statistical Office. Finally, three population-based surveys were conducted in two selected rural and urban areas in 1995, 1999 and 2003, and these are the data sets to be used in this study.

The population-based surveys from Zambia report a decrease in high-risk behavior and an increase in the reported use of condoms between 1995 and 2003. The most significant changes were found in urban areas, where 57% of young women reported using a condom during their last sexual intercourse, compared to 36% in 1995. The use of condoms also increased among highly-educated groups, especially among rural women, where 70% reported using a condom during their last sexual intercourse compared to 22% in 1995 (Sandøy et al. 2007). The two Zambia Demographic and Health Surveys and the three Sexual Behavior Surveys also show an increase in the use of condoms, especially in the age group
There has been a significant change in young people reporting sex with a non-cohabiting partner in the last year and not using a condom on the most recent occasion with that partner; the odds for reporting this behavior decreased by 4% each year for men and 15% for women compared with the previous year (Slaymaker and Buckner 2004). Because of the reported increase in the use of condoms I assume that an increase in positive attitudes towards the use of condoms will be found.

Evidence for a close attitude-behavior relationship

Research from Sub-Saharan Africa shows that the more positive a person is towards condoms, the more likely he/she is to use one. A survey was conducted in Zambia, South-Africa, Kenya, Zimbabwe, Tanzania and Uganda by the World Health Organization (WHO). It focused particularly on the relative importance on male and female partners’ motivations and attitudes as determinants of family planning and the use of condoms. Even though the population of interest in this paper is different, it shows some relevant findings. The use of condoms increased from 7.6% to 19.5% as the attitudes towards them became more positive among women, and an even stronger increase appeared among men - from 4.4% to 23.0% (Pullum et al. 2005).

To sum up: research from Zambia (both population-based surveys and other surveys) as well as research from Sub-Saharan Africa as a whole reveal a consistent pattern of increasing use of condoms during the past 10-15 years. The Sub-Saharan research also suggests a clear association between attitudes and behavior. The following hypotheses based on these findings seem realistic as a basis for testing my data analysis:

Hypothesis 1a: There was an increase in positive attitudes towards the use of condoms between 1995 and 2003 among young people.

Hypothesis 1b: Urban females became even more positive than the general young population towards the use of condoms between 1995 and 2003.

Hypothesis 1c: More highly educated groups showed a more positive change in their attitudes towards the use of condoms than less educated groups between 1995 and 2003.
**Difference among subgroups**

A well known distinction is the difference in sexual behavior between rural and urban areas. The same difference seems to be present in attitudes towards prevention. The Zambian survey on adolescents’ knowledge, attitudes and self-efficacy reported a difference in attitudes towards AIDS prevention between rural and urban areas; urban adolescents stated they had more positive attitudes towards AIDS prevention than rural adolescents (Slonim-Nevo and Mukaka 2005).

The Zambian survey on adolescents’ knowledge, attitudes and self-efficacy also revealed a significant difference between younger and older adolescents; positive attitudes towards prevention were more likely among older adolescents (Slonim-Nevo and Mukaka 2005).

**Gender**

The cross-country survey of Sub-Saharan countries also pinpoints the complexity of the use of condoms among couples. It shows that the actual use of condoms among couples is more reflective of the man’s attitude than the woman’s. Discussion groups conducted in relation to the survey in the six different countries concluded that the reason why condoms are little used among couples is because the male opposes them. Both men and women stated that the use of condoms is incompatible with marriage, and women risk a violent answer if they suggest using a condom (Pullum et al. 2005).

Further, research on adolescents in Zambia shows that only 38% of males and 44% of females thought a woman can negotiate sexual behavior, including the use of a condom, if her husband has a sexually transmitted infection (STI) (The Zambian Central Statistical Office 2003). Research on sexual behavior in urban Zambia also suggests that positive attitudes appear to be more powerful determinants of the use of condoms for men than for women. This is explained by men’s higher status and therefore greater power to enforce or reject the use of condoms. Further suggestions are that approaches to prevention should target men first and foremost. Teaching women how to negotiate safe sex is only effective when women have control over decision-making. This is not the case for most women in Zambia. Some even say that inequity has remained unaltered since independence in 1964, and is manifest on social, cultural, political and constitutional levels (Agda 1998).
These findings correspond with other research on the subject, where women’s positive attitudes failed to result in increased use of condoms because they felt they had to rely on a male partner to buy, keep and supply them (Hingson, Strunin and Berlin 1990). Moreover, results obtained during the development of the MCAS (UCLA multidimensional condom attitude scale) indicated that women may not be in control of the decision to use condoms, and their attitudes are therefore not related to past use of condoms. They strongly recommend that future research should analyze results separately for men and women (Helweg-Larsen and Collins 1994).

On the basis of the previous research mentioned I expect to find a strong association between attitudes and behavior, suggesting that the following hypotheses constitute a realistic target for testing in my data analysis:

**Hypothesis 2a: Men’s attitudes influence the use of condoms more than women’s.**

Although men might have more control over the use of condoms then women, the cross-country survey from Sub-Saharan countries shows that both male and female attitudes are crucially important for the use of condoms. Both partners’ attitudes are significantly associated with reported use (Pullum et al. 2005). A survey of adolescents’ knowledge, attitude and self-efficacy in Zambia also reported a causal relationship between attitudes and high-risk behavior; negative attitudes towards AIDS prevention predicted a high level of engagement in high-risk behavior (Slonim-Nevo and Mukaka 2005). I therefore add a second hypothesis concerning the attitude-behavior relationship that also will be tested in my data analysis:

**Hypothesis 2b: Attitudes have a significant effect on young people’s use of condoms.**

Summing up:

A methodological overview of condom-attitude scales presented in the first section of this chapter revealed that the selected attitude-items (which are the basis for the data analysis in this thesis) are limited in numbers and response alternatives. Still, because of repeated measurements, the items can give us a valuable and unique indication of any attitude change. Related research also gives us reasons to believe that there has been change in attitudes.
towards the use of condoms among youth during the time period between 1995 and 2003. Subgroups such as urban women and those with above average educational attainment are especially expected to have more favorable attitudes towards the use of condoms. In addition, there is reason to believe that men’s attitudes are more powerful determinants of usage than women’s because of inequity in regard to negotiating contraception. On the basis of these findings, five hypotheses were deduced incorporating both attitude change and the attitude-behavior relationship, namely:

**Hypothesis 1a:** There was an increase in positive attitudes towards the use of condoms between 1995 and 2003 among young people.

**Hypothesis 1b:** Urban females became even more positive than the general young population towards the use of condoms between 1995 and 2003.

**Hypothesis 1c:** More highly educated groups showed a more positive change in their attitudes towards the use of condoms than less educated groups between 1995 and 2003.

**Hypothesis 2a:** Men’s attitudes influence the use of condoms more than women’s.

**Hypothesis 2b:** Attitudes have a significant effect on young people’s use of condoms.

These hypotheses will function as a basis for the data analysis conducted in chapters six and seven. Before that, however, the related research reveals a pressing need for assessment of different theories about the nature of the association between attitude and behavior. The following chapter will therefore deal with this association.
4. Theoretical considerations

When logic fails

“We need to change our mode of operating when it comes to prevention. It is not as easy as putting up a billboard encouraging people to have safe sex.” – Peter Piot, Executive Director, UNAIDS, addressing the XIV AIDS Conference in Mexico (Kaisernetwork 2008b).

It seems that HIV prevention campaigns have been based on a logical framework that assumes attitudes to be predictably related to behavior. One of the best-known models is the KAP model. In short, this is based upon the belief that new knowledge leads to a change in attitude, which in turn leads to change in behavior. This model seems logical, simple and understandable; the only problem is the lack of evidence to support it. Actually, research shows that giving people information about protection against HIV is unlikely to change the behavior of more than one in four, and these are the more educated (Campbell 2003). So the KAP model provides little if any theoretical or empirical basis for the assumption of a relationship between attitude and behavior. Societal relationships on the micro, meso and macro levels are completely absent. This may be one of the reasons why prevention campaigns built on the KAP model had been reported again and again to have little or no impact on people’s attitudes.

In this chapter I will therefore explore different theories about the relationship between attitudes and behavior. Before I do that, it is necessary to clarify and if possible to define both attitudes and behavior.

Defining attitudes and behavior

Defining attitudes

An attitude is a disposition to respond favorably or unfavorably to an object, person, institution or event (Ajzen 2005: 3). Attitudes can be expressed verbally or non-verbally, the latter being more difficult to measure. There are various definitions of ‘attitude’, but common to most definitions is the evaluative characteristic (for-against, pleasant-unpleasant). In other
words, if I have an attitude towards an object, I experience it to some degree as more or less desirable, more or less pleasant. I evaluate what I experience. This evaluative dimension of an attitude often involves of some kind of value judgment. Most theorists also agree that attitudes are subjective but at the same time understandable to others. That may seem obvious, but nevertheless a subjective private experience can become public and understandable through language (Eiser 1986). How attitudes are related to behavior seems to be much disputed and will be discussed later.

The three-component view of attitudes

An attitude is normally classified into three different categories of response: cognition, affect and conation. The cognitive response reflects what a person thinks or believes that she/he knows about an object (Rosenberg, Hovland, Mcguire, Abelson and Brehm 1966). Some attitude statements used in the population-based surveys from Zambia seek to elicit a cognitive response towards the use of condoms. An example is “Condoms are safe preventing HIV and AIDS”. In agreeing with this statement you are expressing a belief that links the condom with a certain characteristic; namely the condom has a quality that can protect you against HIV and AIDS. In that sense the respondent shows a favorable attitude towards the use of a condom. On the other hand, in disagreeing with the statement the respondent communicates disbelief in the protective character of the condom.

The second category of response reflects a person’s evaluation and feelings (and the strength of those feelings) towards someone or something (Rosenberg et al. 1966). Feelings can be expressed in many different ways. One might show admiration or antipathy towards something or someone. Thus, if a person claims to “feel good” when using a condom, he or she shows a favorable attitude towards usage. Returning to the questionnaire used in the population-based studies in Zambia, a question such as “Condoms are embarrassing to use” seeks to elicit attitudes of affective nature. In agreeing with the statement the respondent shows an unfavorable attitude towards the use of condoms because it makes him/her feel embarrassed.

The third and last category, responses of conative nature, refers to behavioral intentions; in other words, what a person says he does or plans to do (Rosenberg et al. 1966). People with positive attitudes towards the use of condoms state that they encourage their friends to use
them, or that they intend to use them during their next sexual intercourse. People with negative attitudes towards the use of condoms state this by saying that they do not intend to use condoms, or that they never do so. To be specific in regard to the questionnaire used in the surveys in Zambia, a question with a conative character is “I always use condoms nowadays.” In agreeing with the statement the respondent states that he or she always uses condoms and also intends to use them in the future.

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<td>individuals, situations, social groups</td>
<td><strong>ATTITUDES</strong></td>
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Figure 4.1: The three-component structure of attitudes. Source: Rosenberg et al. 1966.

In summary, a person’s attitude can be a cognitive response, reflecting his/her understanding of an object; it can be affective, referring to feelings towards the object; and it can be conative, indicating what she/he does or plans to do (Ajzen 2005). Figure 4.1 shows the relationship between these three components. It also illustrates that “attitudes are predispositions to respond to some class of stimuli with certain classes of response” (Rosenberg et al. 1966:3). Still there are some uncertainties concerning this model. It is unclear whether the same set of attitudes and stimuli concurrently causes specific cognitive, affective and conative responses. Also, the model says nothing about how the three responses might affect each other. These uncertainties allow theorists some freedom in using the model as they wish. Theorists can explain a discrepancy between attitude and behavior by asserting that only one of the three attitude components has been measured; but in order to determine a person’s attitude towards an object, one needs to measure all three. On the other hand, if one succeeds in predicting behavior through attitude measurement by looking only at (say) the affective response, it indicates that this component is closely linked to the cognitive and conative responses (Eiser 1986).
This way of defining attitudes is disputed. Some include all three components when investigating the relationship between attitudes and behavior (Eiser 1986), while others take a different view (Albarracín, Johnson, Zanna and Tumkale 2005; Eagly and Chaiken 1993; Ajzen 2005). The latter position distinguishes attitudes from affect, behavior and beliefs. Attitudes can both be inferred from and have an influence on behavior, feelings and what a person thinks. In other words, the three components are seen as interacting with attitudes rather than as being parts of attitudes. Nonetheless, as I will show later, well known models of the relationship between attitudes and behavior depict a clear line between beliefs, attitudes, intentions and behavior.

*Defining behavior*

The theories presented in this chapter try to explain the relationship between attitudes and behavior. The term *behavior* seems to have different meanings within different disciplines. Social psychology and sociology for instance define behavior surprisingly differently. “Behavior” within sociology is often related to behaviorism. Behaviorism is based on the belief that any behavior is a result of a certain stimulus. This tradition has a weak position in sociology. Therefore “social action” is a more commonly used expression within this discipline, describing people’s actions within a social context. Max Weber stipulates that there is a distinct difference between behavior and social action. Weber defines behavior as an automatic response that does not entail any kind of reasoning or thinking. Social action, on the other hand, is intentional, where the action has a subjective meaning and the actor considers other people’s actions (Cuff, Sharrock and Francis 1998).

The concept of social action is used to observe how certain behaviors are modified in certain environments. Some may say that studying social action is the very heart of sociology and divides the classical theories into two types, structure and actor (Giddens 1997). Do we believe that social action is created by the individuals themselves or are social actions steered by structures in society? Action theory focuses on the individual as a subject and believes that social action is created, shaped and reshaped by individuals within a context to which they give meaning. The fact that people act rationally is recognized by many sociologists, but at the same time they include non-rational elements in explaining action. Weber developed a typology of action that involved traditional, affectual/ emotional, value-oriented and rational actions (Cuff et al. 1998). Reaching a definition of the term ‘action’ is difficult and indeed
unfeasible. It is difficult because hundreds of definitions exist, and it is unfeasible simply because no “universal” definition is appropriate for all contexts.

In contrast, social psychologists use the terms “behavior” and “action” as synonyms: “A behavior is any overt action that an individual, a group of individuals, or some living system (e.g. business, a town, a nation) performs. An action has a denotable beginning and a denotable ending and is performed in an environmental context in which the individual or group is embedded” (Jaccards and Blanton 2005: 128). So it seems as though the term behavior is given the same meaning here as sociologists give to social action. Although the expression behavior is unpopular within sociology, I will make use of it for the purpose of this thesis. There are two main reasons for this. First, attitude-behavior relationships are broadly studied by social psychologists and thus parts of the theories that will be presented in this chapter are found within that discipline. Probably because they define behavior similarly to Weber’s definition of social action, they seemingly have no obstacles to using the term. Second, the term ‘behavior’ is internalized in different theories concerning the relationship between attitudes and behavior, and it would be unnatural and unwise to redefine expressions that “belong” to the theory.

Further, social psychologists such as Icek Ajzen and Martin Fishbein distinguish between single action and behavioral categories (which embed similar single actions). Throughout history, attitude-behavior scientists have made the mistake of measuring general attitudes in order to predict specific behaviors, e.g. a person’s general attitudes towards the church cannot predict whether he/she will donate money the following Sunday. In relation to this thesis it would have been a blunder to examine the relationship between attitudes towards sex in general and the actual use of condoms; it would probably have resulted in inconsistency between attitudes and behavior. A single behavior can be defined as “an action directed at a target, performed in a given context, at a certain point in time” (Ajzen and Fishbein 2005).

Embracing this definition, the main behavioral variable used later on in this thesis is a single behavior: I am examining whether people used a condom (action) with their partner (target) among Zambia youth (context) during their last sexual intercourse (time).
The attitude-behavior relationship

When logic fails

The relationship between attitude and behavior has been of interest among scientists for a long time. They have tried to understand how attitudes and behavior are connected and affect each other, and there have been both confusing and clarifying periods in this history. Research as early as 1934 marked the beginning of a confusing period where one questioned the very relationship between attitudes and behavior. Psychologist Richard LaPiere accompanied a Chinese couple in their travels, visiting 251 restaurants throughout the United States. Only two restaurants refused them service. Half a year later he sent the same restaurants a letter asking whether they would accept members of the Chinese race as guests in their establishments; 92 % answered “No”. Even though many have questioned the validity of the study, these findings raised uncertainties about the assumption of a strong relationship between attitudes and behavior for the first time. LaPiere suggested that there is no consistent connection between attitudes and behavior (Semin and Fiedler 1996). However, most researchers were not willing to give up the connection. Instead, many argued that LaPiere’s findings illustrated the complexity of the attitude concept (Eiser 1986). The following are different theories about the relationship between attitudes and behavior, both individual and more structural theories.

Individualistic approaches

Rational choice theory

Jon Elster summarizes rational choice theory by stating: “when faced with several courses of action, people usually do what they believe is likely to have the best overall outcome” (Elster 1989a: 22). Socially complex phenomena can be explained as the results of individual actions. This standpoint derives from Weber and is called methodological individualism; or as Elster describes more in detail: 'The elementary unit of social life is the individual human action. To explain social institutions and social change is to show how they arise as the result of the action and interaction of individuals' (Elster 1989a: 13) There are several different directions in rational choice theory, some of which also consider all the obstacles an individual might meet when making a choice of action. Jon Elster accepts that not all action can be explained by rational choice. Social norms for instance are not outcome-oriented and cannot be
explained rationally. He then argues that rational choice actions and normative obligations are complementary in the creation of social action (Elster 1989b). He explains the basis of a rational choice by opportunities and desires – what a person can do and what he/she wants to do. If a person would like to use a condom when engaging in a sexual act, but does not have a condom available, she/he ends up not using a condom because of limited opportunities. Opportunities and desires are given independently of each other and can vary independently of each other, but at the same time they can affect each other (Elster 1999). The relationship between opportunity, desire and action is summarized in figure 4.2.

Further desires and opportunities can have a common cause in a precursor variable (Elster 1999); e.g. a person does not have a condom available and does not want to use it because of his religious beliefs. This causality is illustrated in figure 4.3.

Elster gives four reasons for not managing to predict a certain outcome/behavior: (1) we have too little knowledge, (2) we have too much knowledge, (3) we fail to use the knowledge, (4) no amount of knowledge can help us determine behavior (Elster 1989b). Attitudes are not explicitly mentioned in rational choice theory, but according to my interpretation of Elster, attitudes are part of desire. Still, there is a need to look more deeply into theories that consider
attitudes more explicitly. The attitude-behavior relationship is a long-established and well-known topic of interest within social psychology. In the following I will therefore present different theories about this relationship derived from social psychology.

*Consistency theories*

Consistency theories are built upon the assumption that people struggle for consistency between their own attitudes and behavior (Olson and Stone 2005). The most famous example is Festinger’s theory of cognitive dissonance. When there is an inconsistency between two cognitive elements (for example attitude and behavior), disharmony emerges. This situation is assumed to be unpleasant and motivates the individual to change one of the cognitive elements in order to eliminate the dissonance/disharmony (Festinger 1957). A second hypothesis found in this theory is “when dissonance is present, in addition to trying to reduce it, the person will actively avoid situations and information which would likely increase the dissonance” (Festinger 1957:3). Translated into a Zambian context: if a person has unfavorable attitudes towards the use of condoms, but at the same time finds himself using one, he would strive to change his attitude towards a more favorable one. On the other hand, if a person has favorable attitudes towards condoms but does not use one in the heat of the moment, he would struggle to internalize unfavorable attitudes towards the use of condoms instead. In that way he would eliminate the unpleasant dissonance between attitude and behavior. Furthermore, he would try to avoid information such as condom promotion in order to maintain the harmony between attitude and behavior.

Cognitive dissonance theory dominated social psychology during the 1960s and ‘70s but has completely lost its place on the podium. It failed to convince other scientists. The reason might be that scientists believe that attitudes affect behavior and not the other way round.

*Pseudo-inconsistency theory*

Psychologist Donald Campbell did not accept the conclusion derived from the LaPiere case; he considered the suggestion that there was no connection between attitudes and behavior to be too simple. He therefore developed pseudo-inconsistency theory. The basis of this theory is that attitudes and actions could be inconsistent with each other, but at the same time serve as
valid indicators of an underlying attitude. One example is the LaPiere case. While it is considerably more difficult to refuse service to the Chinese couple face-to-face, it is easier to write it in a letter. The underlying attitude that LaPiere actually found out was that the establishments showed a moderately unfavorable attitude towards Chinese people (Campbell 1963). Converted into a question about the use of condoms: a person can have an unfavorable attitude towards condoms, but in the actual situation it becomes more difficult to refuse to use one. The underlying attitude that is actually measured is the person’s fear of being infected. So even though he/she has unfavorable attitudes towards the use of condoms, that is not enough to prevent him/her from using them.

**The other-variable approach**

This approach presumes that a person’s attitude is only one of a number of factors that influence behavior, and if other variables are taken into account then better behavior predictions could be made. Examples of such variables are social norms, peer pressure, the range of alternative behaviors available, a person’s intellectual and social ability, etc. (Wicker 1971). This approach does not come as a surprise to sociologists, many of whom see social norms and social context as more influential than personal dispositions as determinants of human action. Applying this approach to the relationship between attitudes towards the use of condoms and actual use among youth in Zambia, I would expect to find only a weak association between attitudes and behavior. According to this approach it is of little use to study the attitude-behavior relationship without including other variables. This approach has been criticized as lacking a systematic way of deciding which of the many other variables might be relevant for a given behavior. As in my case, it suggests that other factors have influenced behavior, but it fails to pinpoint what kind of factors these may be or to what extent they exert influence.
The theories presented above can be summarized in the following models.

LaPiere:

Cognitive dissonance

Pseudo-inconsistency

Other variables

Most of the above theories suggest a close association between attitudes and behavior. Embracing this approach and keeping in mind that there has been a positive behavioral change in Zambia, one should expect that people have become more positive about the use of condoms.

Theory of reasoned action

One cannot study the attitude-behavior relationship without bearing the theory of reasoned action in mind. This theory has played a dominant role since the beginning of the 1980s. It has two things in common with the theories mentioned above. First, they are all based on the assumption that “all human beings are usually quite rational and make systematic use of the information available” (Ajzen and Fishbein 1980: 5). Second, their goal is to try to predict
and understand behavior. But as research on attitudes and behavior has developed, the influence of society on a person’s actions has come to be seen as more and more important. Now there is a wide consensus that attitude is only one of many variables that influence behavior. Nevertheless, it is also agreed that attitude plays a central role as a determinant for behavior.

In order to predict behavior, the theory of reasoned action views a person’s intention to perform or not to perform a behavior as the immediate determinant of the action. So normally, in most circumstances, the person will act in accordance with his or her intention. A person’s intention is a function of two basic determinants: personal and social influence. The personal factor is an individual’s positive or negative assessment of acting upon the behavior and is therefore called *attitudes towards the behavior*. The social influence factor refers to the individual’s understanding of the social pressure put on him to perform or not to perform the behavior. This factor is therefore called the *subjective norm*. Figure 4.4 summarizes the theory of reasoned action (Ajzen and Fishbein 1980).

![Figure 4.4](image-url)

**Figure 4.4. Theory of reasoned action (Ajzen and Fishbein 1980)**

Consider a person holding negative attitudes towards use of condoms. At the same time he perceives social pressure to use them. Whether he intends to use a condom depends on the strength of the influence of the subjective norm compared to his attitude towards the behavior.
It is important to note that the theory distinguishes between attitude towards the behavior and attitude towards the object. A person who strongly dislikes the condom (the object) may nevertheless believe that using condoms will lead to more positive than negative consequences. So even though most men dislike condoms, they value the positive consequences of using them. In other words, men can be negative towards condoms but have positive attitudes towards using them and therefore intend to use them.

The theory recognizes the potential importance of external variables such as gender, age, social class, personality, and the influence these variables can have on a person’s attitude and subjective norm. But such variables are not a part of the model. That is because of the inconsistency of the relationship between determinants of intention and external variables: it can vary and change over time and contexts (Ajzen and Fishbein 1980).

Direct experience of the behavior can make the relationship between intention and behavior stronger (Ajzen and Fishbein 2005). For example, a person’s experience with the condom makes him more determined about whether he will use one the next time. A woman can intend to use a condom the first time she has sex, but because of her relationship with her boyfriend this may prove difficult to implement. Next time she is asked the same question, she has experienced the difficulty with using the condom and might answer differently; i.e. she might say that she does not intend to use a condom.

*Theory of Planned Behavior*

The theory of reasoned action has been criticized for disregarding behavior that is not under voluntary control. It was therefore developed further and renamed the theory of planned behavior by Icek Ajzen. This theory attempts to encompass non-voluntary behavior by including a third variable: perceived behavioral control\(^5\). Figure 4.4 illustrates how this variable is linked to the other variables in the model. Perceived behavioral control refers to the perception of ease or difficulty in performing a behavior that can affect intentions over and above the effects of attitude and subjective norms. An example of measuring perceived behavioral control is “I am able to use a condom next time I have sex” (refers to whether a person has enough knowledge actually to be able to use a condom). So according to the

\(^5\)“Perceived behavioural control” seems to be inspired by Albert Bandura’s Theory of Self-Efficacy, proposed as early as 1977. He defined self-efficacy as “a judgement of one’s capability to accomplish a certain level of performance” (Bandura 1986:391).
model, the more positive a person’s attitudes and subjective norms are towards using a condom, and the more perceived control regarding using a condom, the more likely she/he is to intend to use a condom. On the other hand, if the person both has positive attitudes and perceives positive signals from society but at the same time does not know how to use a condom, she/he may end up not using one. Figure 4.4 below summarizes the theory. Combining the three constructs (attitudes, norms and perceived behavioral control) leads to the formation of behavioral intention, which again is the most direct determinant of behavior. At the most basic level in the theory are behavioral, normative and control beliefs. First of all, attitudes are considered to be influenced by behavioral beliefs, that is a person’s belief that executing the behavior leads to a certain outcome (e.g. “if I use a condom I will not get HIV”), leading to the person’s attitudes to that outcome (e.g. “I am afraid of catching HIV”). Likewise, subjective norms are influenced by normative beliefs (e.g. “my girlfriend wants me to use a condom” leading to “I want to do as my girlfriend believes I should do”). Finally, perceived behavioral control is a function of control beliefs (e.g. “tomorrow I will attend a course on how to use a condom at the local health clinic” followed by “it will be easier to use a condom next time I have sex if I have learned to use a condom at the local health clinic”) (Ajzen 2005; Myklestad 2007).

![Diagram of the Theory of Planned Behavior](image)

**Figure 4.5: Theory of planned behavior (Ajzen 1991)**

In order to achieve changes in behavior, the theory of planned behavior suggests that we need to produce changes in beliefs (Ajzen 1991). So if we achieve good data on these underlying beliefs, this information can function as guidelines when planning prevention campaigns.
Adding Other Variables to the Theory of Planned Behavior

The theory of planned behavior has been quite successful in predicting behavior (Myklestad 2007). The use of condoms has been most studied in relation to the theory of planned behavior; the three determinants (attitudes, subjective norms and perceived behavioral control) predict the intention to use condoms fairly well. Analysis also shows that the attitude component is the strongest predictor of condom intentions. Still, many have noted weaknesses in the theory (Abraham, Sheeran and Johnston 1998; Empelen and Kok 2008). Among other things, it is said that the theory does not manage to capture the whole range of normative influence. Therefore moral norms have been included as an additional predictor (Myklestad 2007). Further, Abraham et al. (1998) suggested that injunctive norms (what other people think you should do) should be differentiated from descriptive norms (a person’s perception of what others do). According to the latest research, moral or personal norms have also been included as an additional concept in the theory of planned behavior (Empelen and Kok 2007).

Adding other variables to the theory of planned behavior is not in conflict with that theory; as mentioned earlier, Ajzen and Fishbein stipulated that they recognized the influence of other variables. Other variables can be included in the model as long as they enhance the prediction of behavior. But these authors did not include such variables because of their context- and time-dependence (Ajzen and Fishbein 1980).

Others, however, have proved that the theory falls short. Empelen and Kok (2008) studied the steps that adolescents need to take to attain the goal of using condoms, i.e. intention to use a condom, buying a condom and carrying a condom. They concluded that intention to use was not sufficient as the immediate determinant of the use of condoms; it did not necessarily lead to buying and carrying one. They found that attitudes could have a direct effect on behavior, without intentional elaboration.

Even though the theory of planned behavior is especially popular within the health behavior area, it has not been developed specifically for predicting the use of condoms. However, two theories, namely the Health Belief model and the AIDS Risk Reduction model, are often used in AIDS-related research and prediction of the use of condoms.
The Health Belief Model

The Health Belief Model was developed as an attempt specifically to explain behaviors related to health. In harmony with the foregoing, it uses the attitudes and beliefs of individuals in order to explain behavior. The model has also been used by many to explain the transmission of HIV and is probably the most widely used model for predicting the use of condoms (Janz and Becker 1984; Family Health International 1996). It is based on two variables, namely (a) the desire to avoid illness and (b) the belief that a specific action can prevent illness. The theory consists of five dimensions. Perceived threat consists of both a person’s perceived vulnerability to contracting the virus and the severity of the consequences of contraction it. This relates to both feelings regarding vulnerability and feelings regarding the seriousness of contracting HIV. Perceived benefits relate to the benefits of certain actions that can reduce the disease threat. More specifically: a person believes that condoms can protect him/her from contracting HIV. Perceived barriers refer to the causes that can hamper the use of condoms. This dimension is often thought of in terms of cost-benefit balance, where the individual weighs the positive effect of using a condom against barriers such as unpleasantness, expense, inconvenience or time-consumption. Cues to action incorporate events that motivate people to take a certain action (e.g. influence of media and promotion campaigns to use/not to use a condom). This dimension is believed to be the trigger to make the right decision. The last dimension, Self-efficacy, refers to the “judgment of one’s capability to accomplish a certain level of performance” (Bandura 1986:391). For example, a person is confident that he is able to use a condom. Even with a different “label” this dimension is also found in the theory of planned behavior, namely perceived behavioral control.

In a literature review of all the Health Belief studies published from 1974 to 1984, the authors concluded that perceived barriers were the dominant variable for predicting behavior, while perceived threat came as a close second (Janz and Becker 1984). Subsequently, the self-efficacy variable has been found to exert a strong influence (Bandura 1986).

So even though the Health Belief model does not explicitly verbalize attitudes as one dimension, it gives us valuable information about other even more important variables that affect health behavior. This indicates that attitudes do not necessarily have a strong effect on behavior.
The Health Belief Model has been criticized, however, for not including other societal variables such as economic or environmental factors. It also lacks the influence of social norms and pressure from friends on people’s decisions regarding their health behaviors (Janz and Becker 1984). The latter critique is especially relevant in revising young people’s sexual behavior because of strong peer-pressure.

Aids risk reduction model

The Aids Risk Reduction Model (ARRM) was introduced in 1990 and tries to both predict and explain people’s effort of trying to avoid contracting HIV through sexual intercourse. Further the model is meant help understand why people do not change sexual behavior when they are at high risk. E.g. as in Zambia; even though there has been behavioral change the alterations were not as high as expected. The framework of the model is derived from prior models such as the Health Belief Model (Janz and Becker 1984) and Self-efficacy theory (Bandura 1986). The relevance of using the model here is because it is made specifically to understand sexual behavior related to HIV. The model consists of three stages: (1) recognition and labeling of one’s sexual behaviors as high risk for contracting HIV, (2) making a commitment to reduce high risk sexual behavior and raise low risk actions and (3) looking for and enacting strategies to obtain these goals (Catania, Kegeles and Coates 1990). The causal chain can better be illustrated through following figure 4.6 (next page). The figure further illustrates the consequences of denial the different stages, leading to no continues high risk behavior. Simply recognizing and labeling oneself to be at risk of getting infected, may not lead to sexual behavioral change. A great commitment is needed for accomplishing behavioral change. In addition some people may need self help and support from professionals to manage to stay out of risk (Catania, Kegeles and Coates 1990). The ARRM tries to incorporate different theories such as the Heath Belief model and Self-efficacy theory. The causality between attitudes and behavior is very clear in ARRM; attitudes determine behavior. As the prior model, the ARRM illustrate that attitudes is one of many determinants of sexual behavior.

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6 The use of the term *stage* might be misunderstood. In this context it is “not meant to imply that labelling, commitment and enactment are invariant, unidirectional, and irreversible states. The term “stage” is used here as a communication convenience only.” (Catania, Kegeles and Coates 1990:53)
Critique of the Individualistic Approaches

Individualistic theories are criticized for overlooking the importance of structural elements (Campbell 2003; DiClemente, Salazar, Crosby, Rosenthal 2005). Even the concept of choice becomes meaningless in a context where one must engage in risky behavior as a survival strategy (Siplon 2005). Catherine Campbell writes in her book “letting them die” (2005) that individualistic approaches has been far too dominant in studies on the HIV and AIDS epidemic. Many studies have linked sexual behavior to properties of the individual, such as attitudes and perceived social norms. Other macro scientists have drawn attention to the ways in which factors such as poverty, inequalities and global capitalism shape the contexts within which the epidemic flourishes. But strangely enough, Campbell says that little attention has
been paid to the way in which these micro and macro factors interact at the local community level. It is also accepted that the individualistic approach is limited when it comes to analyzing sexual behavior. Sexual behavior is much more complicated; factors at the micro, meso and macro levels affect the outcome of behavior (Campbell 2003).

Pierre Bourdieu states that “human action is not an instantaneous reaction to immediate stimuli” (Bourdieu and Wacquant 1992). This is simply because the response of a person to another is packed/loaded with the whole history of these individuals and of their relationship. So knowledge of stimuli cannot enable us to understand action unless we has some idea of the *habitus* they embody. By recognizing/acknowledging “habitus”, one affirms that the individual is social. Habitus is socialized subjectivity (Bourdieu and Wacquant 1992:126). Introducing habitus as a new dimension to the whole attitude-behavior relationship illustrates the complexity further.

*The Socio-ecological Model*

Socio-ecological models try to describe the relationship between health behaviors and interpersonal, organizational, community and social subsystems. Embracing this concept, researchers stipulate the limitations inherent in an individual approach to understanding behavior (Green, Richard and Potvin 1996). Researchers have further used the concept of socio-ecological thinking and developed a model to understand sexual behavior. Using this concept they try to fill the gap between structural and individualistic approaches by examining “the behavior of individuals within the context of their social and physical environment” (DiClemente et al. 2005: 826). Socio-ecological factors in sexual behavior include peer influence, societal influence, and cultural and familial influence. Figure 4.6 illustrates how these different factors are connected. The innermost sphere represents the individual and her psychological characters and behaviors. Further the family, intimate partners and peers all have strong influences on adolescents’ behavior. The outermost sphere represents society at large (politics, media, gender, socio-economic status etc.) and this also influences adolescents’ sexual behavior. The aggregate influence of all the spheres surrounding the individual ultimately shapes adolescents’ sexual behavior.
On the individual level, an association between alcohol use and risky sexual behavior such as having sex without a condom has been demonstrated (Træen and Kvalem 1996). On a family level, parental monitoring is found to have a protective effect against risky sexual behavior among adolescents (Myklestad 2007). On a peer level, support from friends is found to have the effect of discouraging young people from engaging in unprotected sex. Peer pressure can also act in the opposite way, as shown in a community-based study from South Africa; a boy who failed to have sex with his girlfriend would be teased and taunted (Campbell 2003).

On a societal level there are, as we know, many variables that affect social action. A study from South Africa describes how health personnel insult and harass youths at health clinics. As a result, the youths will not return to the clinics either to test themselves for STIs or to acquire free condoms (Campbell 2003). A second factor on the society level is gender, which no doubt has a strong influence on sexual behaviors. Again, the study from South Africa reveals good examples of the negative effects of gender on the use of condoms. For instance, if a girl is carrying a condom she is seen as promiscuous. If a boy wants to use a condom, the girl may say this is because he disrespects her, insinuating that she is promiscuous. Another interesting finding on the societal level is how social capital plays an important role in health promotion. People are less likely to put their health at risk if they live in communities that offer a high level of participation, trust and support, where the citizens feel that their needs and views are respected (perceived citizen power) and have channels to participate in
decision-making processes. So people are more likely to have better health in communities with high levels of social capital (Campbell 2003).

Thus, the socio-ecological model seeks to illustrate and structure the effects of determinants on different levels on sexual behavior. In that way it tries to resolve the interminable debate between action and structure theories. Further, because of its concrete character, the model can easily be transferred and used as a tool in different context. On the other hand it fails to show how strongly attitudes and behavior are related or in what direction the causal chain goes. Also, it does not take a standpoint on the question of rationality. Therefore it might be useful to go further into Bourdieu’s theory of practice.

**Bourdieu: habitus and action**

Pierre Bourdieu is a well known critic of rational choice theory partly because of the assumption that humans are rational (Bourdieu and Wacquant 1992). Nevertheless, he speaks of bounded rationality. A person’s rationality is limited for two reasons; first because the information available to the individual is curtailed both because the human mind is limited and because the individual very often has to take hurried actions; and second because the human mind is socially structured.

Through his theory of practice he tries to cross the line between what he calls subjectivism (the notion that social life is a product of people’s conscious reflections, intentions and actions) and what he calls objectivism (the idea that social structure determines human behavior) (Bourdieu and Wacquant 1992). In order to elaborate on how my findings can be explained through Bordieu’s theory of practice, it is necessary to consider his theory in greater depth; the notions habitus, capital and field are central to understanding why people act in the way they act. In other words, I raise the question, in Bordieu’s spirit: how are attitudes and action related?

By introducing the notion of habitus he tries to build a bridge between subjectivism and objectivism. He argues that all human beings have a habitus. Habitus can be defined as “durable, transposable dispositions” (Bourdieu 1977:72). In other words, it is a set of acquired (internalized) patterns of thought, behavior and taste, which Bourdieu explains as the bridge

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7 This critique would probably also apply to social psychological models such as Theory of Planned Behavior, Reasoned Action, Health Belief Model, AIDS Risk Reduction Model, etc.
between social structures and social practice (Bourdieu 1977). Some understand dispositions to be attitudes, but the notion has a wider meaning, with a broad spectrum of cognitive and affective factors; or as Bourdieu puts it, thinking and feeling. Bourdieu states that the dispositions that make up the habitus are the “generative basis” of practices (Jenkins 1992: 78). By saying this, he also indicates that there is a causal link between habitus and practice. Translated into the issue of this thesis, Bourdieu implies that there is a relationship between attitudes and action. That does not mean a deterministic relationship, as many critics have declared. Practice is produced/created in and by the encounter between the habitus and the dispositions (attitudes) on the one hand, and the limitations, demands and opportunity in society on the other. So even though a person’s habitus (within which lie attitudes) suggests one practice, the influence of society may make her/him produce a different and unexpected one. In other words, a person can withhold negative attitudes towards the use of condoms, but at the same time use them because of the influence of society. It is this very encounter between habitus and practice that makes Bourdieu’s theory transcend the constant battling between structure and actor approaches. In this way, it reminds me of Fensinger’s theory of cognitive dissonance. They both imply that changes in beliefs and attitudes follow a change in behavior. Interestingly, this causal chain is opposite to that found in the social-psychology models and rational choice theory presented above.

*Summing up;*

The history of research on attitude-behavior association reveals that there are disagreements on how the two affect each other. The prevailing theories on the attitude-behavior relation are individualistic approaches based on rationality. These theories are criticized for the principle of rationality, especially when trying to understand sexual behavior. Furthermore, they lack to predict how structure is affecting attitude and behavior. The structural approaches mmm. The different approaches opens an interesting discussion on whether the approaches are sufficient for understanding the findings from Zambia. This will further be discussed in the last chapter of this thesis.
5. Research Questions, Data, and Methods

In this chapter I will first introduce my three specific research questions. Further, I will describe the survey data sets that are available to me, the background to conducting the surveys, how they were collected and the sampling strategies used. Subsequently, I will explain the specific methods and describe important variables used in the data analysis. Finally, I will discuss the limitations implicit in studying only younger individuals.

I have three research questions that I shall attempt to answer by empirical analyses in the following two chapters. They are:

1. Was there a change in attitudes towards the use of condoms among young people in Zambia during the period between 1995 and 2003?
2. How well do the selected attitude-items explain the use of condoms among young people in Zambia?
3. Did the relationship between attitudes and behavior change between 1995 and 2003?

Question one is answered in chapter six, while questions two and three are answered in chapter seven.

Presentation of the data

The data used in this thesis are unique to Sub-Saharan Africa in the sense that they represent the only effort to measure changes in attitudes over time on the basis of repeated surveys conducted in the same geographical areas. The surveys are comprehensive with a wide range of questions and topics and have been analyzed extensively by researchers from Zambia and Norway (Sandøy et al 2007; Michelo 2006; Fylkesnes and Siziya 2004; Fylkesnes, Musonda, Sichone, Ndhlovu, Tembo, Monze 2001; Fylkesnes, Musonda, Kasumba, Ndhlovu, Mluanda, Kaetano, Chipaila 1997).
Population-based surveys: background

The Norwegian Program for Development, Research and Education (NUFU) is a Norwegian program of academic research and educational co-operation based on equal partnership between institutions in the South and Norway. A NUFU-administered mutual HIV surveillance project has been established between the University of Zambia (School of Medicine, Department of Community Medicine and the Institute for Economic and Social Research) and the Center for International Health at the University for Bergen, Norway. The results of this collaboration are the three population-based surveys mentioned earlier. There have also been other co-operations in Zambia with the Ministry of Health through the National HIV/AIDS/STI/TB Council and the Central Statistical Office. The ownership of the database is vested in the Central Statistical Office in Zambia. They have a mandate regarding the storage, usage and distribution of the data.

Survey Sites

The first population-based HIV survey in Zambia was conducted in 1995, followed by two surveys in 1999 and 2003. The study sites for the three surveys were Chelston in urban Lusaka and Kapiri Mposhi district (see map 5.1). These two sites were chosen because they are typical urban and rural populations whose socio-demographic profiles matched typical urban and rural communities. Chelston is a typical urban suburb, situated on the eastern part of the capital city. Kapiri Mposhi district has a low-density rural population that is village-based and widespread, contrasting with a densely-populated small-town population (Fylkesnes, Ndhlovu, Kasumba, Musonda and Sichone 1998; Michelo 2006). The prevalence of HIV in the areas selected has been shown to approximate the national level for urban and rural populations (Fylkesnes et al. 1998).
Map 5.1: The arrows show the locations of the survey sites, namely Lusaka and Kapiri Mposhi.

**Sampling**

The Zambian standard population mapping system was used to establish a sampling framework consisting of 24 standard enumeration areas (SEAs or clusters) in urban Chelston and 26 in Kapiri Mposhi. The SEAs consisted of 2786 households in Chelston and 5225 in Kapiri Mposhi. Furthermore, a cluster sampling design was used to select the SEA that was to take part in the surveys (“probability proportional to the measure of size”). The sample size was fixed at 10 SEAs in both areas, Chelston and Kapiri Mposhi district (Michelo 2006; Fylkesnes, Musonda, Sichone, Ndhlovu, Tembo and Monze 2001).

In the sampled clusters, all households and household members aged 15 years or over were listed and contacted for a personal interview. The interview consisted of questions about education, socio-demographic characteristics, mental health and sexual risk behavior including questions on the use of condoms. The respondent was also asked to supply an anonymous saliva sample in order to register HIV status. The final part of the interview included questions on previous HIV testing and an offer to be tested. Arrangements were made for those indicating an interest in being tested, where a trained counselor conducted a pre-counseling session, collected a blood sample and returned to the household for post-
counseling (Sandøy et al. 2007). Table 5.1 gives an overview of participation in the surveys. Between 15 and 20% were absent for interview in all three surveys. Between 1.3 and 3.4% refused to be interviewed, while slightly over 90% agreed to give a saliva test. The response rates were quite high in 1995 and 2003 ranging above 70%, while there was a 64.5% response rate in 1995. Between 50 and 55% of the respondents were aged between 15 and 24 years; this group is also the main focus of this thesis.

<table>
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<th>1995</th>
<th>1999</th>
<th>2003</th>
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<td>6235</td>
<td>6791</td>
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<tr>
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<td>927  (15.9%)</td>
<td>1763  (28.3%)</td>
<td>1346  (19.8%)</td>
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<tr>
<td>Found</td>
<td>4920</td>
<td>4474</td>
<td>5445</td>
</tr>
<tr>
<td>Refused interview</td>
<td>108 (2.2%)</td>
<td>53 (1.2%)</td>
<td>185 (3.4%)</td>
</tr>
<tr>
<td>Interviewed</td>
<td>4812 (97.8%)</td>
<td>4419 (98.4%)</td>
<td>5260 (96.6%)</td>
</tr>
<tr>
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<td>4499 (93.5%)</td>
<td>4021 (91%)</td>
<td>4913 (93.4%)</td>
</tr>
<tr>
<td>Sample (interviewed &amp; tested)</td>
<td>4337 (88.2%)</td>
<td>3757 (84%)</td>
<td>4751 (87.3%)</td>
</tr>
<tr>
<td>Final sample age 15-59 years</td>
<td>3158</td>
<td>3731</td>
<td>4751</td>
</tr>
<tr>
<td>Response (%)</td>
<td>77.4%</td>
<td>64.5%</td>
<td>72.3%</td>
</tr>
<tr>
<td>Age-group 15-24</td>
<td>1720</td>
<td>1946</td>
<td>2637</td>
</tr>
<tr>
<td>% age-group 15-24</td>
<td>54.5%</td>
<td>52.2%</td>
<td>55.5%</td>
</tr>
</tbody>
</table>


The National AIDS research Committee in Zambia approved the protocols for the two first surveys in 1995 and 1998, while the University of Zambia ethics committee approved the protocols for 2003. Informed consent was required of all participants in the first two surveys and written consent in the 2003 survey, and everyone was informed that the saliva-based HIV test would only be used for research purposes. Participants were also offered voluntary counseling and testing free of charge using blood samples, as required by the national guidelines for HIV testing (Fylkesnes and Siziya 2004; Sandøy et al. 2007).

**Statistical Methods**

These three research questions imply different outcome measures and require different statistical methods. When exploring attitude change I employ both single-item analysis and attitude-index analysis. For assessing the attitude-behavior relationship, logistic regression is a suitable method. In the following I will present the outcome measures and methods in more detail.
Outcome measure for predicting attitude-change

The aim in chapter five is to look at attitude change; the outcomes, or dependent variables, consist of six different attitude-items, namely:-

“Condoms are safe preventing HIV/AIDS”,
“Using condoms shows responsibility”,
“Condoms are embarrassing to obtain”,
“Using condoms is against my religion”,
“Most women don’t like men to use condoms” and
“Most men don’t like using condoms”.

All these attitude-items are dichotomous; the respondents were asked to agree or disagree with the statements. As discussed above, the items are somewhat limited in number and the response alternatives given were restricted to agreement or disagreement. In addition, the statements might not only measure attitudes but also norms and beliefs in society (e.g. condoms and religion, condoms and perceptions of others).

The problem with using two response-alternatives in surveys is known to be acquiescence or agreeing-response bias. This refers to a “presumed tendency for respondents to agree with attitude statements presented to them” (Schuman and Presser 1996:203). In fact this has been heavily discussed in the research literature, and as a result many researchers (mainly within psychology) prefer to use the Likert five point scale instead (strongly agree, agree, agree nor disagree, disagree and strongly disagree). Psychologists have found that acquiescence is more strongly associated with low education than high education (Schuman and Presser 1996). So for the Zambian surveys, the number of respondents with low education who agree with each attitude statement might be overestimated. Even though acquiescence might be a problem in the Zambian surveys, this is not a major issue in my analysis because I will only assess changes over time, not focus on the proportions among different groups. If acquiescence was a problem in the 1995 sample, it would be just as big a problem in the 2003 sample. Therefore, it is not likely to have affected the changes substantially. It is also important to mention that the Zambian items have both positive and negatively loaded statements, making it possible to spot agreeing-response bias.

A second possible problem with using two response-alternatives in questionnaires is that the response might be unspecific. E.g. a person might find the condom safe when the condom
does not burst. Will the respondent agree or disagree with the statement “condoms are safe preventing HIV/AIDS”? If the respondent had been given five alternative replies following the Likert five-point scale, he/she would have been able to discriminate his/her answer more finely. Also it might have been possible to capture more marked changes between 1995 and 2003. On the other hand, the fact that the items and reply alternatives were the same in all three surveys makes them compatible, and that is a definite positive feature.

The number of attitude-items used in the Zambian surveys is low compared to e.g. the UCLA scale or the 57 item-scale. That may limit the control-effect of questions, and at present we cannot be sure that some of the items measure attitudes and not beliefs or norms in society. On the other hand; although the statements might measure norms and beliefs, they can also measure attitudes related to the use of condoms at the same time.

Last, but not the least, the population-based surveys constitute a large sample of respondents and use some critical indicator questions about attitudes. I will examine the extent to which the attitude-items are associated with actual use as a good indicator of their validity. So even though the statements are few and lack a Likert scale definition, the data can give us valuable and unique information on attitudes towards the use of condoms among youth in general and will reveal any trends.

**Outcome measure for assessing the attitude-behavior relationship**

As I am interested in exploring the relationship between attitude and behavior in chapter seven, I use a logistic regression model to examine variables associated with the use of condoms. The main dependent variable is the use of condoms during the most recent sex, coded 0 and 1. In the logistic regression analysis, the denominator was the number of respondents who have had sexual relations. This obviously excluded some respondents, but was crucial for exploring the relationship between behavior and attitude\(^8\). There is one weakness with using this specific variable, namely the respondents in relationships. As we know it is not normal to use a condom when a couple has been together for some time. They might even have tested themselves for HIV. Still, this couple might have favorable attitudes

\(^8\) Interestingly enough, researchers have found that attitudes based on direct experience are more predictive of subsequent behavior than are attitudes based on second-hand information (Fazion and Zanna 1981). This is also confirmed by Ajzen and Fishbein (2005). This fact makes me assume that the association between attitudes towards the use of condoms and actual the use of condoms is stronger among those who have experienced a sexual relationship.
towards the use of condoms. This results in a weakening of the association between attitudes and behavior with such cases.

One approach to assessing this type of bias was use the statement “did you use a condom during your last casual sex?” as a dependent variable, but the group of young people who reported having sex with a casual partner was relatively small. In addition, this group mainly consisted of men. That might imply that women underreport their sexual relationships with casual partners.

Overall, the question “did you use a condom during your most recent sex?” suits the age group on which I am focusing since the majority of young people in the age group 15-24 are single (71% in the 2003 sample and 76% in the 1995 sample). Therefore my main dependent variable is the use of condoms during the most recent sex. In addition, I will make use of the use of condoms during last casual sex as a second dependent variable in order to assess whether the attitude-behavior relationship strengthens. However, because of the limited number of cases among women, I only include men when analyzing the relationship between attitudes and casual sex.

Single attitude-item analysis

The basis for this analysis will be the six attitude-items included in the population-based survey in Zambia in 1995 and repeated in 1999 and 2003. First I will analyze the items separately through a cross-table analysis, including gender and residency as independent variables. This will help us spot possible changes in these subgroups. For a long time now, analysts have steered away from commenting on single-item percentage results (Schuman and Presser 1996). However, the six attitude-items are distinct from each other. Therefore, I see the need to look more closely at each one before proceeding. Important differential relationships may be revealed between the single items and gender or residency, which might have been lost had I chosen only to assess a joint attitude-item analysis through an attitude-index.
Attitude-index analysis

The six items might tell us more collectively. Therefore, my second step in the analysis is to create an attitude-index. I will simply add together suitable attitude-items to form a reliable summary index. The reliability of the attitude-index will be tested using Cronback’s alpha coefficient. By using the index as a dependent variable in cross-table analysis, we can discover more about the overall change in people’s attitudes towards the use of condoms. Also, an attitude-index makes it possible to explore hypothesis 1b, namely to identify any attitude changes among young females and highly educated groups.

Logistic regression analysis

Using logistic regression I will explore how attitudes influence behavior. I defined “Did you use a condom when you last had sex?” as my behavioral dependent variable where the response values were “yes” (coded as 1) and “no” (coded as 0). Linear regression is not an option since this requires a continuous dependent variable and assumes linearity and homoscedasticity (Skog 2004). Logistic regression, on the other hand, allows for a dichotomous dependent variable and does not require the same assumptions as linear regression. Logistic regression allows us to include other possible predictors such as gender, education, marital status and so forth. This method can be used to analyze the independent effects of the included predictors on the possibility that the incident studied will occur.

Interpretation of the logistic regression coefficients

The equation of logistic regression is: Log (P'/1 – P') = βX’

P’ represents the probability that respondents used a condom during their last sexual intercourse. X’ represents his or her value on the independent variables, while β is the parameter vector. The odds for having used a condom during last intercourse equals the ratio between the probability of having used one and the probability of not having used one (Skog 2004).

Odds ratio (OR) is a standard effect measure in logistic regression. It shows whether the probability/odds of a specific event (e.g. the use of condoms) is the same for two groups. In
other words, OR tells us how much more or less the odds are when we increase the independent variable by one unit (Skog 2004), i.e.:

\[
\text{OR} = \frac{\text{Odds}(X+1)}{\text{Odds}(X)}
\]

In this thesis I calculate the odds for a population to have used a condom with the last partner given their values on the different independent variables/predictors. An odds ratio of 1 implies that the event is equally likely in both groups. If the odds ratio is greater than 1, the effect on the dependent variable is positive. On the other hand, if the odds ratio is below 1, the independent variable has a negative effect on the dependent variable (Skog 2004). For example: an odds ratio of 2.0 shows that this category of respondent has twice the odds for using condoms as the reference group.

The 95% confidence intervals of the odds ratio are given in the last two columns of the table. If the confidence interval does not contain the value 1, the variable has a significant effect (Chatterjee, Hadi and Price 2000).

**Goodness of fit**

When regression models are used to analyze the effects of determinants of a dependent variable, it is also helpful to employ a measure of “how good” the developed regression model is. I will make use of Nagelkerke’s $R^2$, a value that measures how well all the variables in the model can explain the variance of the dependent variable (Tufte 2000). However, I will not place undue emphasis on the $R^2$ measurement. If my intention was to find good predictors of values for the use of condoms, then $R^2$ would be an interesting measure. But my main purpose is to study the association between attitudes and behaviour; how one specific variable affects the dependent variable after taking into account the effect of variables that might act as confounders. In that sense, Nagelkerke’s $R^2$ might not add substantial information. Another problem with $R^2$ is that the measure is often sensitive to coincidences in the sample size (Tufte 2000). On the other hand, since I also include other variables in the regression model, it is useful to see how well the different models predict the use of condoms.
The selected predictors of the use of condoms

In addition to the attitude-index, I have included gender, place of residence, age, educational attainment and marital status as predictors of the use of condoms. The attitude-index holds four categories: category 0-1 represents respondents who hold the least positive attitudes towards the use of condoms, while category 4 represents respondents with the most positive attitudes. Further, gender is of course divided into men and women, while place of residence is also dichotomous, separated into urban and rural. Educational attainment is a continuous variable and not categorical. This is because, when predicting the effect of education on the use of condoms, I saw that this effect was the same in the different categories. Therefore I recoded it as a continuous variable.

Why study only young people?

Zambia is one of the countries in the world that is hardest hit by HIV/AIDS. The incidence, i.e. new HIV infections, is highest among young people. In this thesis my main focus is on young people between 15 and 24 years of age. The motivations for this focus are several. First of all this group is especially vulnerable. Young people are at the very beginning of their sexual careers and they are seen as a priority group to reach in an attempt to influence them to practice safe sex, also using cost-effectiveness arguments. In order to influence this group successfully, it is necessary to generate knowledge about their attitude towards safe sex including the use of condoms to guide preventive programs better. The position here is therefore that analyses of the attitude-items from the population-based surveys (where we might be able to reveal signs of changes in young people’s attitudes towards the use of condoms) might be important to policy makers. Knowledge of variations in attitude indicators by subgroups in the population, by socio-economic position, place, age and gender will for example be of vital importance in guiding preventive efforts, i.e. prevention campaigns can especially target subgroups that show the most negative attitude trends towards the use of condoms.
6. Attitude change in selected sites in Zambia 1995-2003

This chapter focuses on the extent to which there was a change in young people’s attitudes towards the use of condoms between 1995 and 2003. As discussed in chapter three there is an expectation of finding a positive change in people’s attitudes, both because of the great efforts made to influence attitudes during this time period and because of the observed increase in the use of condoms over the past 10-15 years. Four of the hypotheses deduced from chapter three will therefore be tested in this chapter:

Hypothesis 1a: There as an increase in positive attitudes towards the use of condoms among young people between 1995 and 2003.

Hypothesis 1b: Urban females became even more positive than the general young population towards the use of condoms between 1995 and 2003.

Hypothesis 1c: More highly educated groups showed more positive changes than less highly educated ones in their attitudes towards the use of condoms between 1995 and 2003.

Single attitude-item analysis

The six statements that are to be analyzed are as follows: “condoms are safe preventing HIV/AIDS”, “using condoms shows responsibility”, “condoms are embarrassing to obtain”, “using condoms is against my religion”, “most women don’t like men to use condoms” and “most men don’t like using condoms”. The analysis in this chapter (both the single attitude-items and the index analyses) was stratified by residence and by gender to assess possible interactions in associations. The tables presented below show respondents in the age group 15 to 24.
Reliable condoms

Whether a person finds a condom safe to use or not may be the most crucial determinant of the actual use of condoms. It is therefore interesting to observe whether young Zambians consider the condom safe for preventing HIV/AIDS and to what extent this opinion changed over time.


<table>
<thead>
<tr>
<th></th>
<th>1995 % (n)</th>
<th>1999 % (n)</th>
<th>2003 % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>70.8 (1709)</td>
<td>70.4 (1924)</td>
<td>67.1 (1656)</td>
</tr>
<tr>
<td>Men</td>
<td>75.3 (673)</td>
<td>73.0 (784)</td>
<td>70.5 (1022)</td>
</tr>
<tr>
<td>Rural</td>
<td>77.7 (197)</td>
<td>77.9 (289)</td>
<td>77.4 (327)</td>
</tr>
<tr>
<td>Urban</td>
<td>74.4 (476)</td>
<td>70.1 (495)</td>
<td>67.2 (695)</td>
</tr>
<tr>
<td>Women</td>
<td>67.9 (1036)</td>
<td>68.6 (1140)</td>
<td>64.8 (1445)</td>
</tr>
<tr>
<td>Rural</td>
<td>68.3 (259)</td>
<td>70.9 (419)</td>
<td>73.5 (486)</td>
</tr>
<tr>
<td>Urban</td>
<td>67.7 (777)</td>
<td>67.3 (721)</td>
<td>60.4 (959)</td>
</tr>
</tbody>
</table>

Table 6.1 shows young people’s attitudes towards the safety of the condom in the years 1995, 1999 and 2003. Significantly fewer people believed that the condom was safe in 2003 than in 1995 (p=0.006\(^9\) using the linear-by-linear association), but the change was limited in magnitude (close to 4% difference). The description becomes more polarized when stratified by residence. A downward trend occurred among urban men and women: 67.2% of urban men believed that condoms were safe in 2003 compared to 74.4% in 1995 (p=0.01). Among urban women, 60.4% believed in the safety of the condom in 2003 compared to 67.7% in 1995. Here again the change is significant (p=0.001). While rural men did not change their attitudes, remaining stable at about 77%, more rural women believed that condoms are safe preventing HIV/AIDS (from 68.3 to 73.5%), but the change was not statistically significant in this subgroup (p=0.1). To sum up, we see two different trends separating urban and rural youth: (1) more urban men and women questioned the safety of the condom in 2003 than in 1995, (2) there was no change among rural men and women between 1995 and 2003 in believing that the condom is safe in preventing HIV/AIDS.

\(^9\) Some may define this statement as a knowledge-related statement and not an attitude item. But in a Zambian context it is definitely also related to attitude. The reason for this is the heated debate about whether the condom is safe or not. As long as uncertainty is placed on the safety of the condom, the statement no longer refers to knowledge level but attitude.

\(^{10}\) The p-value used is a linear-by-linear association, which is the most commonly used association when trying to test trend data. In this case it measures whether the results are significantly different from each other.
Responsibility

If a person wants to be responsible, and considers that using the condom shows responsibility, this may affect the actual use of condoms.


<table>
<thead>
<tr>
<th></th>
<th>1995 % (n)</th>
<th>1999 % (n)</th>
<th>2003 % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>74.6 (1704)</td>
<td>79.3 (1922)</td>
<td>82.7 (2464)</td>
</tr>
<tr>
<td>Men</td>
<td>78.7 (671)</td>
<td>82.1 (783)</td>
<td>83.4 (1021)</td>
</tr>
<tr>
<td>Rural</td>
<td>82.7 (197)</td>
<td>83.7 (289)</td>
<td>84.7 (327)</td>
</tr>
<tr>
<td>Urban</td>
<td>77.0 (474)</td>
<td>81.2 (494)</td>
<td>82.9 (694)</td>
</tr>
<tr>
<td>Women</td>
<td>71.9 (1033)</td>
<td>77.3 (1139)</td>
<td>82.2 (1443)</td>
</tr>
<tr>
<td>Rural</td>
<td>66.0 (259)</td>
<td>71.8 (418)</td>
<td>77.1 (485)</td>
</tr>
<tr>
<td>Urban</td>
<td>73.9 (774)</td>
<td>80.6 (721)</td>
<td>84.8 (958)</td>
</tr>
</tbody>
</table>

This table reveals a clearer pattern of positive change in attitudes towards the use of condoms than the previous table. While we saw a negative change in young people’s conviction about the condom’s safety, there was a significant positive change among young people in believing that using condoms shows responsibility (p=0.000). The greatest changes (over 10%) were among women in both the urban (p=0.000) and the rural (p=0.001) areas. Among men the change was limited and not significant in the rural area (p=0.55), though it was more prominent and significant among urban men (p=0.017). Furthermore, more men than women considered it responsible to use condom in 1995, but because of the more positive trend among women than men, this discrepancy between the genders had vanished by 2003. To sum up, more young people in 2003 believed that using condoms shows responsibility than in the earlier samples. The most positive change occurred among women, removing the discrepancy between genders.
**Embarrassment**

If a person finds it embarrassing to buy a condom or ask for one, this may limit the intentions of acquiring one.

Table 6.3. Respondents in the age group 15-24 agreeing with the statement “Condoms are embarrassing to obtain” in 1995, 1999 and 2003, stratified by gender and place of residence.

<table>
<thead>
<tr>
<th></th>
<th>1995 % (n)</th>
<th>1999 % (n)</th>
<th>2003 % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>29.6 (1707)</td>
<td>24.8 (1922)</td>
<td>28.5 (2467)</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td>23.6 (673)</td>
<td>20.9 (784)</td>
<td>26.4 (1022)</td>
</tr>
<tr>
<td>Rural</td>
<td>18.3 (197)</td>
<td>25.6 (289)</td>
<td>30.9 (327)</td>
</tr>
<tr>
<td>Urban</td>
<td>25.8 (476)</td>
<td>18.2 (495)</td>
<td>24.3 (695)</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>33.6 (1034)</td>
<td>27.4 (1138)</td>
<td>30.0 (1445)</td>
</tr>
<tr>
<td>Rural</td>
<td>36.3 (259)</td>
<td>34.7 (418)</td>
<td>33.5 (486)</td>
</tr>
<tr>
<td>Urban</td>
<td>32.6 (775)</td>
<td>23.2 (720)</td>
<td>28.2 (959)</td>
</tr>
</tbody>
</table>

First of all it is worth noting that table 6.3 shows a discrepancy between men and women. More women than men found it embarrassing to acquire a condom in 1995. This discrepancy diminished between 1995 and 2003. Overall there was no significant change in finding the condom more or less embarrassing to obtain (p=0.86). Stratified by gender, there were opposing 3% overall changes among men and women, but they were not significant. Further stratification by residence shows that significantly more rural men found it more embarrassing to obtain a condom; 30.9% in 2003 compared to 18.3% in 1995, with a p-value of 0.002. Other groups showed no significant change. To sum up: rural men find it more embarrassing to acquire a condom, with a significant change of almost 13%. Also, the numbers of young men and women finding the condom embarrassing were more similar in 2003 than in 1995.
Religion

If using condoms is against a person’s religion, there is less chance that he/she will use one.

Table 6.4. Respondents in the age group 15-25 agreeing with the statement “Using condoms is against my religion” in 1995, 1999 and 2003, stratified by gender and place of residence.

<table>
<thead>
<tr>
<th></th>
<th>1995 % (n)</th>
<th>1999 % (n)</th>
<th>2003 % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>32.4 (1685)</td>
<td>34.9 (1917)</td>
<td>35.3 (2456)</td>
</tr>
<tr>
<td>Men</td>
<td>31.8 (666)</td>
<td>33.1 (780)</td>
<td>36.5 (1014)</td>
</tr>
<tr>
<td>Rural</td>
<td>30.5 (197)</td>
<td>45.5 (288)</td>
<td>41.2 (325)</td>
</tr>
<tr>
<td>Urban</td>
<td>32.4 (469)</td>
<td>25.8 (492)</td>
<td>34.3 (689)</td>
</tr>
<tr>
<td>Women</td>
<td>32.8 (1019)</td>
<td>36.1 (1137)</td>
<td>34.5 (1442)</td>
</tr>
<tr>
<td>Rural</td>
<td>38.0 (258)</td>
<td>46.8 (419)</td>
<td>37.7 (485)</td>
</tr>
<tr>
<td>Urban</td>
<td>31.0 (761)</td>
<td>29.9 (718)</td>
<td>32.8 (957)</td>
</tr>
</tbody>
</table>

Table 6.4 shows that more young people reported that using condoms is against their religion in 2003 than in earlier years. Still, this increase is not significant (p=0.074). Stratification by gender reveals a significant increase among men reporting that using condoms is against their religion (p=0.037). Further stratification by residency reveals a different picture: 15% more rural men stated that using condom is against their religion in 1999 than in 1995, but the number declined by 4% in 2003. The change between 1995 and 2003 was, however, not significant (p=0.067). There was no significant change among urban men over the same time period, nor can we find significant changes among women. Almost 9% more rural women stated that using condoms is against their religion in 1999 than in 1995. By 2003, the 1995 number had been restored. Therefore, there was no significant overall change among women. It is interesting to note that there was an increase among rural men and women between 1995 and 1999. To sum up: in general, and stratified by gender and residency, there was no significant change among youth in reporting that condom use is against their religion.

Perception of women’s negative attitude towards condom use

The following two attitude items, “most women don’t like men to use condoms” and “most men don’t like using condoms”, are meant to provide information about the respondent’s perception of women’s and men’s negative attitudes towards the use of condoms. Also,
because the interview was carried out face-to-face, the respondent might have found it easier to answer questions about other people’s attitudes than about their own.

The attitude-item “most women don’t like men to use condoms” is meant to provide information about the respondent’s perception of women’s negative attitudes towards the use of condoms.

Table 6.5: Respondents in the age group 15-24 agreeing with the statement “most women don’t like men to use condoms” in 1995, 1999 and 2003, stratified by gender and place of residence.

<table>
<thead>
<tr>
<th></th>
<th>1996 % (n)</th>
<th>1999 % (n)</th>
<th>2003 % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>46.9 (1684)</td>
<td>40.4 (1912)</td>
<td>42.1 (2454)</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td>54.9 (668)</td>
<td>44.6 (778)</td>
<td>48.3 (1017)</td>
</tr>
<tr>
<td>Rural</td>
<td>65.5 (197)</td>
<td>54.7 (289)</td>
<td>62.1 (327)</td>
</tr>
<tr>
<td>Urban</td>
<td>50.5 (471)</td>
<td>38.7 (489)</td>
<td>41.7 (690)</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>41.5 (1016)</td>
<td>37.6 (1134)</td>
<td>37.8 (1437)</td>
</tr>
<tr>
<td>Rural</td>
<td>65.3 (259)</td>
<td>47.8 (418)</td>
<td>50.2 (486)</td>
</tr>
<tr>
<td>Urban</td>
<td>33.4 (757)</td>
<td>31.6 (716)</td>
<td>31.4 (951)</td>
</tr>
</tbody>
</table>

In table 6.5 we find that respondents’ overall perception of women’s negative attitude towards the use of condoms decreased significantly from 46.9 to 42.1 (p=0.014). In other words, young people believe that somewhat more women have become positive about the use of condoms. It is also interesting to see that about 13% fewer women thought that women were negative about the use of condoms compared to men in 1995. This difference decreased to about 4% in 2003.

Stratifying by gender shows a slight decline among men’s perception of women’s negative attitude towards the use of condoms (difference of 6.5% between 1995 and 2003, p=0.04). On the other hand, there was no significant change in women’s perception of women’s negative attitudes towards condoms (decrease of slightly under 4%, p=0.095).

Stratifying further by place of residence reveals a substantial difference among urban and rural youth. Considerably more rural men and women thought women were negative to the use of condoms. Significantly fewer urban men believed that women were negative towards the use of condoms in 2003 than in 1995, with a decrease of about 9% and a p-value of 0.014. The positive change was not apparent among rural men. It is worth noticing, however, that there was a positive 11% change between 1995 and 1999. This was reversed by 2003 leaving
rural men’s perception of women’s negative attitude to the use of condoms at the same level as in 1995. On the other hand there was a significant positive change among rural women’s perceptions; about 15% fewer women thought women were negative to the use of condoms in 2003 than in 1995 (from about 65% to 50%, p=0.002). Urban women remained stable, with slightly over 30% agreeing with the statement.

Summing up; slightly more young people believed that more women are positive to the use of condoms in 2003 than in 1995. Urban men and rural women were responsible for the positive change.

Perception of men’s negative attitudes towards the use of condoms

The intention behind the attitude-item “most men don’t like using condoms” was to obtain information about the perception of men’s negative attitudes towards the use of condoms, as mentioned earlier.

Table 6.6. Respondents in the age group 15-24 agreeing with the statement “most men don’t like using condoms” in 1995, 1999 and 2003, stratified by gender and place of residence.

<table>
<thead>
<tr>
<th></th>
<th>1995 % (n)</th>
<th>1999 % (n)</th>
<th>2003 % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>49.5 (1689)</td>
<td>43.3 (1907)</td>
<td>52.1 (2457)</td>
</tr>
<tr>
<td>Men</td>
<td>44.3 (671)</td>
<td>37.1 (781)</td>
<td>45.2 (1019)</td>
</tr>
<tr>
<td>Rural</td>
<td>39.1 (197)</td>
<td>41.5 (289)</td>
<td>42.2 (327)</td>
</tr>
<tr>
<td>Urban</td>
<td>46.4 (474)</td>
<td>34.6 (492)</td>
<td>46.7 (692)</td>
</tr>
<tr>
<td>Women</td>
<td>52.9 (1018)</td>
<td>47.6 (1126)</td>
<td>56.9 (1438)</td>
</tr>
<tr>
<td>Rural</td>
<td>57.9 (259)</td>
<td>44.5 (418)</td>
<td>52.3 (486)</td>
</tr>
<tr>
<td>Urban</td>
<td>51.3 (759)</td>
<td>49.4 (708)</td>
<td>59.2 (952)</td>
</tr>
</tbody>
</table>

In table 6.6 we see a small but significant increase of young people’s perception of men’s negative attitude towards condom use, 49.5% in 1995 to 52.1% in 2003 (p=0.009). In other words; slightly more young people believe that men are negative to condom use.

Stratified by gender, significantly more women believed that men are negative towards condom use with a difference of 4% and p=0.008. There is no significant change among men. But when stratified further by place of residence, the picture becomes different. Among urban and rural women the trend goes in opposite direction, but the change is only significant among urban women. 8% more urban women believe men are negative to using condoms, with a p-value of 0.000.

Summing up; significantly, but slightly, more young people believe men are negative towards condom use. Urban females stand for the biggest change.
Table 6.6 shows a small but significant increase in young people’s perception of men’s negative attitude towards the use of condoms, 49.5% in 1995 to 52.1% in 2003 (p=0.09). In other words; slightly more young people believed that men are negative to the use of condoms.

Stratification by gender shows that significantly more women believed that men are negative towards the use of condoms with a difference of 4% (p=0.008). There was no significant change among men. However, further stratification by place of residence reveals a different picture. Among urban and rural women the trend went in opposite direction, but the change was only significant among urban women: 8% more urban women believed men are negative to using condoms, with a p-value of 0.000.

Summing up: slightly but significantly more young people believe that men are negative towards the use of condoms. Urban females account for the biggest change.

**Conclusion from the single-item analysis:**

All in all, the analysis reveals limited changes over time in the attitude indicators. However, there are some small changes:

- Urban youth became more skeptical about the safety of the condom in 2003 than in 1995.
- More young people in 2003 believed that using condoms shows responsibility than in the earlier samples. The most positive change appeared among women, removing the discrepancy between genders. Still it is important to notice that the positive trend was not marked and was not significant among rural men.
- Rural men found it more embarrassing to acquire a condom, with a significant change of almost 13%. Also, the numbers of young men and women finding the condom embarrassing were more nearly equal in 2003 than in 1995.
- In general, and stratified by gender and residency, there was no significant change among youth reporting that using condoms is against their religion.
- Slightly more young people believed that more women are positive to the use of condoms in 2003 than in 1995. Urban men and rural women were responsible for the positive change. Slightly but significantly more young people believed that men are negative towards the use of condoms. Urban females accounted for the biggest change.
Attitude-index analysis

The different attitude-items show stability; there were some changes in both positive and negative directions but these were marginal. Hypothesis 1a predicted a positive change in people’s attitude over time. However, it might be questionable to conclude on the basis of the single attitude items analysis that there has been a significant change.

Maybe an attitude index can tell us whether these marginal changes are significantly positive or negative. As mentioned earlier, the attitude-items used in the surveys in Zambia are limited. Nevertheless I ventured to create an attitude-index. This index can help us consider whether there has been an overall change in people’s attitudes towards the use of condoms. I chose to exclude two of the items from the index, namely perceptions of women’s and men’s negative attitudes towards the use of condoms. The reason is that they asked respondents to speculate about other people’s attitudes and not their own. In that respect they are incompatible with the other items.

The attitude index-variable therefore includes the following four statements: “condoms are safe preventing HIV/AIDS”, “condom use shows responsibility”, “condoms are embarrassing to obtain” and “using condoms is against my religion”. Each statement was coded 0 and 1 with value 0 for a negative statement and 1 for a positive statement, so the sum of all four indicators gave an index with values from 0 to 4. When creating the attitude index I chose to pool together the two lowest categories because the number of cases was limited. Category one represents respondents who answered “positively” on none or one of the four indicators/attitude statements. Category two represents respondents who answered “positively” on two out of four, and so forth. So the attitude index divides the respondents into four different levels, from negative to favorable attitudes towards the use of condoms. Group 0-1 represents respondents who are least positive towards the use of condoms, while group 4 represents respondents with the most positive attitudes.

Reliability of a scale

In addition to discussing the validity of the index, it could also be useful to measure the reliability of the attitude-index, more specifically its internal consistency. This refers to the degree to which the statements that constitute the index are associated. Are the different items measuring the same latent variable, in this case attitudes towards the use of condoms (Pallant
The most frequently used indicator for measuring such reliability is Cronback’s alpha coefficient. Preferably, the value of this indicator should be above 0.7. But Cronback’s alpha values are sensitive when the items included in an index are low, as in this case with only four items. Consequently, with few items in an index, the alpha value is low (e.g. 0.5). Therefore many report the mean inter-item correlation for the items (Pallant 2007). Briggs and Cheek (1986) recommended that the mean inter-item correlation should be between 0.2 and 0.4. Using a linked file including all cases from 1995, 1999 and 2003 I calculated the Cronback’s alpha value. The coefficient in this case was as suspected quite low with a value of 0.58, while the mean inter-item correlation was 0.307. The internal consistency of the attitude-index is therefore satisfactory.

Table 6.7 shows young people’s attitudes towards the use of condoms between 1995 and 2003. As suspected, analysis of the individual indicators shows no significant changes (p=0.951). The results are better illustrated in Figure 6.1, which shows clearly that attitudes towards the use of condoms remained stable during the time period between 1995 and 2003.


<table>
<thead>
<tr>
<th>Attitude index</th>
<th>1995 % (n=1676)</th>
<th>1999 % (n=1914)</th>
<th>2003 % (n=2453)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 (least positive)</td>
<td>14.9 %</td>
<td>12.5 %</td>
<td>12.9 %</td>
</tr>
<tr>
<td>2 (less positive)</td>
<td>18.5 %</td>
<td>19.0 %</td>
<td>19.8 %</td>
</tr>
<tr>
<td>3 (positive)</td>
<td>29.3 %</td>
<td>30.0 %</td>
<td>31.9 %</td>
</tr>
<tr>
<td>4 (most positive)</td>
<td>37.3 %</td>
<td>37.6 %</td>
<td>35.3 %</td>
</tr>
</tbody>
</table>
Figure 6.1. Attitudes towards the use of condoms among respondents aged 15-24 in 1995, 1999 and 2003.

The same tendency of stability was seen when stratifying by gender as seen in Figure 6.2.

Figure 6.2: Attitudes towards the use of the condom among men and women aged 15-24 in 1995, 1999 and 2003.

Figures 6.3 illustrate a further stratification by residence. As the figures show, some changes occurred among rural men. It may seem as though the attitudes have worsened among rural men. That change, however, was not statistically significant (p=0.079).
Urban women retained stable attitudes towards the use of condoms between 1995 and 2003 as shown in figure 6.4. Rural women on the other hand showed some changes. In fact, there were significant positive changes among rural women \((p=0.024)\). The least positive attitudes clearly tended to decline and the most positive attitudes to increase. Even though the changes are not immense, they are there and are heading in a positive direction.
Attitudes towards the use of condoms in different educational groups

Figure 6.5 shows the mean of attitudes towards the use of condoms in different educational groups. The figure illustrates young people’s attitudes towards the use of condoms stratified into three different educational groups: primary school or lower, secondary school, and college or above. The score in the figure goes from 1-4 and gives a mean of the attitude index. As illustrated, the means in all three educational groups were stable.

Figure 6.5: Attitudes towards the use of condoms in different educational groups among youth aged 15-24 in 1995, 1999 and 2003.

Conclusion:

Hypothesis 1a, i.e. “there was an increase in positive attitudes towards the use of condoms among young people between 1995 and 2003” cannot be accepted. The data analysis shows no overall positive change towards the use of condoms among young people.

Further, I found no positive changes in the attitude-index among urban women. Therefore hypothesis 1b, that is “Urban females became even more positive than the general young population towards the use of condoms between 1995 and 2003”, cannot be accepted.

Stratified into educational groups I expected to find a more positive change among the more highly educated, as pointed out in hypothesis 1c, i.e. “more highly educated groups showed a
more positive change in their attitudes towards the use of condoms than less highly educated groups between 1995 and 2003”. Unfortunately I found no evidence of that. Therefore hypothesis 1c fails as well.

However, unexpectedly, I found a slight positive change among rural women: they became more positive towards the use of condoms between 1995 and 2003.

Evidence shows that there has been a positive behavioral change among young Zambians (Sandøy 2007). Surprisingly, this chapter’s data analysis showed that there has not been the same overall positive change in attitudes. On the other hand, a slight positive change among rural women was found. This positive attitude change among rural women does not correspond to the positive behavioral changes. It now remains to examine whether the association between the attitude-index and behavior is substantial or not. The following chapter seven will explore this relationship.
7. Association between attitude and behavior

In this chapter I will study the association between attitudes and behavior, and how this association might have changed over time between 1995 and 2003. While the analysis in chapter five consisted of all respondents between 15 and 24, the following analysis will only include respondents who reported ever having been sexually active. To make it possible to study the association between attitude and behavior I need to see it in context with other possible determinants of the use of condoms. Therefore I will present logistic regression models that show determinants of the use of condoms in different age groups and different genders. In order to analyze changes over time, I will compare results from regression models on determinants of the use of condoms in 1995 and 2003.

In chapter three when presenting related research I also deduced five distinct hypotheses, two of which remain to be tested in this chapter, namely (a) men’s attitude has more influence on the use of condoms than women’s, and (b) attitudes have a significant effect on young people’s use of condoms.

Association between attitudes and the use of condoms

When assessing how attitudes are associated with condom use during the most recent sex, I will apply regression models to the 1995 and the 2003 samples. Starting with the latter sample, I will compare both (1) the younger with the older population and (2) men with women within the age group 15-24. The same comparison will be evaluated with the 1995 sample. In addition I will compare the 1995 sample and the 2003 sample. Finally I will assess how attitudes are associated with casual sex.

2003

Comparison between age groups

The first regression model gives a comparison between young people (15-24) and the older population (25-49). The rationale for this model was to compare young people with the rest of the population. We know from chapter four that young people possess more favorable
attitudes towards the use of condoms than the more mature population. Is the association between attitudes and behavior also different in any way? Are there other associations with the use of condoms that distinguish young people from the rest of the population?

The first row in table 7.1 shows the association between attitudes and the use of condoms among both the younger and the older populations. Attitudes were strongly positively associated with the use of condoms; the more positive attitude a person had towards the use of condoms the higher the likelihood of having used a condom during their last sexual intercourse. However, the association between attitudes and the use of condoms was consistently more prominent among the older age group than among young people both when adjusted for age group and when adjusted for all the variables in the model. A young person with the highest score on the attitude index appeared with 2.8 (95% CI: 1.72-4.51) times higher odds of having used a condom than a person with the least positive attitude towards the use of condoms. The respective odds ratio was strikingly higher among older people; a person with the highest score on the attitude index had a 6 (CI=3.50-10.24) times higher likelihood of having used a condom than a person with the lowest score on the attitude index. Younger women were more likely to have used a condom then men (odds ratio 1.4, 95% CI 1.04-1.97), while the opposite was the case among older people (odds ratio 0.7, 95% CI=0.55-0.91). In the urban population both the younger and the older groups were more likely to have used a condom during the most recent sex than the rural population (OR 1.4, CI=1.04-1.97 and OR 1.7, CI=1.22-2.28, respectively). As expected, the use of condoms declined sharply with age. The sharpest contrast was between the age group 15-19, where 49% reported using a condom during the most recent sex, and the age group 40-49, where only 18.7% reported such use. The proportion using condoms was about 4 times higher among single than married people, and this was consistent across age-groups. Another expected result was the positive association between education and the use of condoms in both age groups. The likelihood of using a condom increased on average by 10% per additional school year attended. The Nagelkerke $R^2$ showed that 32.3% of the variance on the use of condoms was accounted for by the determinants in the model for young people, indicating that 67.7% of the variance was explained by other factors. The Nagelkerke $R^2$ was closely similar among the older age group; it explained 31.5% of the variance, so 68.5% of the variance must be the result of other factors.
Table 7.1: Results of a logistic regression model of determinants of the use of condoms among the age groups 15–24 and 25–49 in 2003.

<table>
<thead>
<tr>
<th>Age-group 15 – 24 years</th>
<th>Age-group 25 – 49 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude index</strong></td>
<td><strong>Sex</strong></td>
</tr>
<tr>
<td>% (n)</td>
<td>OR (95 % CI)*</td>
</tr>
<tr>
<td>0-1</td>
<td>32.7 (113) 1</td>
</tr>
<tr>
<td>2</td>
<td>48.5 (202) 1.9 (1.2-3.13)</td>
</tr>
<tr>
<td>3</td>
<td>47.3 (419) 1.8 (1.19-2.85)</td>
</tr>
<tr>
<td>4</td>
<td>53.3 (548) 2.3 (1.53-3.59)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td><strong>Residence</strong></td>
</tr>
<tr>
<td>Male</td>
<td>54.2 (550) 1</td>
</tr>
<tr>
<td>Female</td>
<td>44.3 (738) 0.7 (0.54-0.84)</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td><strong>Age group</strong></td>
</tr>
<tr>
<td>Rural</td>
<td>28.4 (457) 1</td>
</tr>
<tr>
<td>Urban</td>
<td>59.6 (831) 3.7 (2.90-4.74)</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td><strong>Educational attainment</strong></td>
</tr>
<tr>
<td>15 – 19</td>
<td>49.8 (410) 1</td>
</tr>
<tr>
<td>20 – 24</td>
<td>47.9 (878) 0.9 (0.74-1.17)</td>
</tr>
<tr>
<td>25 – 29</td>
<td></td>
</tr>
<tr>
<td>30 – 39</td>
<td></td>
</tr>
<tr>
<td>40 – 49</td>
<td></td>
</tr>
<tr>
<td><strong>Educational attainment</strong></td>
<td></td>
</tr>
<tr>
<td>School years</td>
<td>8.92 1.3 (1.21-1.31)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>61.9 (918) 1</td>
</tr>
<tr>
<td>Married</td>
<td>15.4 (369) 0.1 (0.08-0.15)</td>
</tr>
<tr>
<td>Nagelkerke R Square</td>
<td>0.323</td>
</tr>
</tbody>
</table>

The use of condoms: measured on the basis of the question “Did you use a condom when you last had sex?”, no vs. yes and coded 0,1.

* Adjusted for age group † All variables in the model
2003: comparison between genders

The Table 7.2 shows the results of the regression analysis among young men and women separately. The rationale for this model is to estimate differences in associations among men and women. The hypothesis deduced from chapter three on gender, *Men’s attitude has more influence on the use of condoms than women’s*, is tested through this model.

As shown in table 7.2 the association between attitude and behavior was stronger among men than among women when adjusted for all the variables in the model. Men with the most favorable attitudes appeared with 3.6 (95% CI=1.85-7.03) times higher odds for the use of condoms than men with the least positive attitudes towards the use of condoms. Meanwhile, female respondents with the most positive attitudes towards the use of condoms had a 2.3 (95% CI=1.10-4.62) times higher likelihood of having used a condom than those with the least positive attitudes. Residence had different effects on men and women; while the likelihood of having used a condom was 2 (95% CI=1.26-3.08) times higher among urban than among rural women, there was no difference between urban and rural men’s probabilities of having used condoms (AOR 1.0, CI=0.65-1.65). Educational attainment had a greater effect on men’s probability of using condoms than on women’s. The likelihood of using a condom among men increased by 20% per school year attended (CI=1.09-1.26). Among female respondents, the odds ratio for having used a condom increased by only 10% per school year attended. Marital status had the same effect on young men as on women: the likelihood of use was about 10 times higher among single than among married individuals. The Negelkerke $R^2$ showed that 21.5% of the variance in the use of condoms was accounted for by the determinants in the model for young, while 40.6% was accounted for by the determinants in the model for women.
Table 7.2. Results of a logistic regression model of determinants of the use of condoms among young men and women in 2003

<table>
<thead>
<tr>
<th></th>
<th>Men, age-group 15–24 years</th>
<th>Women, Age-group 15-24 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n) OR (95 % CI)* OR (95 % CI) †</td>
<td>% (n) OR (95 % CI) * OR (95 % CI) †</td>
</tr>
<tr>
<td><strong>Attitude index</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>40 (50)         1</td>
<td>27.0 (63) 1</td>
</tr>
<tr>
<td>2</td>
<td>44.3 (88)      1.2 (0.59-2.42)</td>
<td>51.8 (114) 2.9 (1.49-5.65)</td>
</tr>
<tr>
<td>3</td>
<td>56.5 (170)     1.9 (1.02-3.70)</td>
<td>41.0 (249) 1.9 (1.02-3.46)</td>
</tr>
<tr>
<td>4</td>
<td>60.3 (237)     2.3 (1.22-4.25)</td>
<td>47.9 (311) 2.5 (1.37-4.53)</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>39.8 (176)     1</td>
<td>21.4 (281) 1</td>
</tr>
<tr>
<td>Urban</td>
<td>61.0 (374)     2.4 (1.64-3.41)</td>
<td>58.4 (457) 1</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 – 19</td>
<td>50.9 (173)     1</td>
<td>48.9 (237) 1</td>
</tr>
<tr>
<td>20 – 24</td>
<td>55.7 (377)     1.0 (0.97-1.12)</td>
<td>42.1 (501) 0.9 (0.89-1.01)</td>
</tr>
<tr>
<td><strong>Educational attainment</strong></td>
<td>Mean number of</td>
<td>1</td>
</tr>
<tr>
<td>School years</td>
<td>Mean number of</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mean number of</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>years=9.48     1.2 (1.19-1.27)</td>
<td>1.2 (1.09-1.26) 1.3 (1.23-1.36)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>59.2 (490)     1</td>
<td>65.0 (428) 1</td>
</tr>
<tr>
<td>Married</td>
<td>13.6 (59)      0.1 (0.05-0.23)</td>
<td>15.8 (310) 0.1 (0.07-0.15)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negelkerke R Square</td>
<td>0.215</td>
<td>0.406</td>
</tr>
</tbody>
</table>

The use of condoms: measured on the basis of the question “Did you use a condom when you last had sex?”, no vs. yes and coded 0,1.

* Adjusted for age group; † All variables in the model.
**1995**

*Comparison between age groups*

Like the first regression model based on data from 2003, table 7.3 gives a similar comparison between the younger (15-24) and the older (25-49) generations using the data collected in 1995. The rationale for making regression models on the 1995 sample was to make it possible to compare 1995 with 2003 in terms of determinants and in particular to examine to what extent the association between attitude and behavior changed during that period.

The association between attitudes towards the use of condoms and the reported use of condoms was definitely strong among both the younger and the older age groups and actually substantially stronger than in 2003. Furthermore, the difference in the association by sex was similar to the 2003 findings. While among the young ones a person with the most favorable attitudes towards the use of condoms had a 5.3 (CI=2.86-9.81) times higher likelihood of having used a condom during the most recent sex than a person with the least favorable attitudes, a person aged 25 years or over with top score on the attitude index appeared with a 10.6 (5.53-20.33) times higher odds of having condoms during their most recent sex than one with the least favorable attitude towards the use of condoms. Gender had an impact on the use of condoms in both age groups; women were less likely to have used a condom during their most recent sex in both the younger age group (OR 0.5, 95% CI=0.38-0.66) and the older age group (OR 0.7, CI=0.52-0.98). Residence had a stronger effect on the older generation; while there was a 1.6 (95% CI=1.15-2.28) times higher likelihood of young people having used a condom in the urban area than in the rural area, there was a 2.6 (CI=1.79-4.28) times higher likelihood that older persons used a condom in the urban area than in the rural area. Stratified into age groups, those aged 20-24 years and 25-29 years appeared with the highest self-reported use of condoms (35.6 and 33.0), in contrast to the youngest and the oldest age-groups, i.e. 19.7% and 13.6% use of condoms respectively. Education had a similar positive effect to that found in the 2003 data in both the younger and older populations with a 10% increase in odds of having used condoms per school year attended. As found in the 2003 data, a markedly higher use among single than among married people was revealed. The Negelkerke $R^2$ showed that 20.3% of the variance in the use of condoms was accounted for by the determinants in the model for young people, while 25.7% was accounted for in the model for older people.
Table 7.3. Results of a logistic regression model of determinants of the use of condoms among the age groups 15-24 and 25-49 in 1995

<table>
<thead>
<tr>
<th>Age group 15 – 24</th>
<th>Age group 25 – 49</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n)</td>
</tr>
<tr>
<td><strong>Attitude index</strong></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>8.4(166)</td>
</tr>
<tr>
<td>2</td>
<td>18.3(235)</td>
</tr>
<tr>
<td>3</td>
<td>31.4(407)</td>
</tr>
<tr>
<td>4</td>
<td>33.8(557)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>36.9(550)</td>
</tr>
<tr>
<td>Female</td>
<td>21.2(836)</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>19.5(380)</td>
</tr>
<tr>
<td>Urban</td>
<td>30.4(1006)</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
</tr>
<tr>
<td>15 – 19</td>
<td>19.7(712)</td>
</tr>
<tr>
<td>20 – 24</td>
<td>35.6(674)</td>
</tr>
<tr>
<td>25 – 29</td>
<td></td>
</tr>
<tr>
<td>30 – 39</td>
<td></td>
</tr>
<tr>
<td>40 – 49</td>
<td></td>
</tr>
<tr>
<td><strong>Educational attainment</strong></td>
<td></td>
</tr>
<tr>
<td>School years</td>
<td>27.3(1376)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>29.9(1024)</td>
</tr>
<tr>
<td>Married</td>
<td>19.9(316)</td>
</tr>
<tr>
<td><strong>Negelkerke R Square</strong></td>
<td></td>
</tr>
</tbody>
</table>

The use of condoms: measured on the basis of the question “Did you use a condom when you last had sex?”, no vs. yes and coded 0,1.

* Adjusted for age group; † All variables in the model.
1995: Comparison between genders

The fourth regression model (table 7.4) gives separate overviews of the determinants of the use of condoms among young men and women in 1995. This regression model is similar to the one based on the 2003 data, making them comparable with each other.

Attitudes clearly had a stronger effect on women than on men in 1995. Women with the most favorable attitudes had a 7.5 (95% CI=2.92-19.24) times higher likelihood of having used a condom during their most recent sex than women with the least positive attitudes towards the use of condoms. Meanwhile, men with top scores on the attitude index appeared with “only” a 4 (CI=1.71-9.26) times higher odds of having used a condom than those with the lowest score. Residence had different effects on women and men. Urban women had a 2.4 (CI=1.39-4.19) times greater likelihood of having used a condom during their most recent sex than rural women. No such difference was found among urban and rural men (CI=0.77-1.93). Among both males and females there was a much higher likelihood of having used a condom in the age group 20-24 than in the age group 15-19. The effect was stronger among men, with a 3.5 odds ratio compared to women with a 2.1 odds ratio. Meanwhile, education had a sturdier effect on men than on women. Men had a 10% (CI=1.06-1.24) greater probability of having used a condom per school year attended, while this educational effect was not significant among women (CI=0.98-1.13) when adjusted for all the variables in the model. Single men had a markedly higher use of condoms than married men. In contrast, the difference among single versus married women was not significant (AOR= 0.7, CI 0.42-1.05). The Negelkerke $R^2$ showed that 19.2% of the variance is explained in the model for men, while 16.5% of the variation is explained in the model for women.
Table 7.4. Results of a logistic regression model of determinants of the use of condoms among young men and women in 1995

<table>
<thead>
<tr>
<th></th>
<th>Men, age group 15 – 24</th>
<th>Women, Age group 15 – 24</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n)</td>
<td>OR (95 % CI)*</td>
</tr>
<tr>
<td><strong>Attitude index</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>15.7 (51)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>32.9 (82)</td>
<td>2.6 (1.09-6.39)</td>
</tr>
<tr>
<td>3</td>
<td>41.9 (172)</td>
<td>3.9 (1.72-8.73)</td>
</tr>
<tr>
<td>4</td>
<td>39.5 (238)</td>
<td>3.5 (1.58-7.79)</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>32.0 (169)</td>
<td>1</td>
</tr>
<tr>
<td>Urban</td>
<td>39.1 (381)</td>
<td>1.4 (0.93-2.01)</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 – 19</td>
<td>25.0 (288)</td>
<td>1</td>
</tr>
<tr>
<td>20 – 24</td>
<td>50.0 (262)</td>
<td>3.0 (2.09-4.30)</td>
</tr>
<tr>
<td><strong>Educational attainment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School years</td>
<td>37.0 (546)</td>
<td>1.2 (1.12-1.29)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>37.9 (499)</td>
<td>1</td>
</tr>
<tr>
<td>Married</td>
<td>28.0 (50)</td>
<td>0.6 (0.34-1.21)</td>
</tr>
<tr>
<td><strong>Negelkerke R Square</strong></td>
<td>0.192</td>
<td></td>
</tr>
</tbody>
</table>

The use of condoms: measured on the basis of the question “Did you use a condom when you last had sex?”, no vs. yes and coded 0,1.

* Adjusted for age group; † All variables in the model.
Comparing 1995 with 2003

The association between attitudes and the use of condoms was clearly stronger in 1995 than in 2003 in both the younger and the older populations. Among younger people in 2003 there was a 2.8 times higher odds that a person with the most favorable attitudes had used a condom compared to those with the least favorable attitudes, while this odds ratio was as high as 5.3 in 1995. The same tendency is shown among the older generation with odds ratios of 6.0 and 10.6 in 2003 and 1995 respectively.

Stratifying the young population further by gender, the difference was highest among women; in 2003 female respondents with the most positive attitudes towards the use of condoms appeared with a 2.3 (95% CI=1.10-4.62) times higher likelihood of having used a condom than those with the least positive attitudes. In 1995, women who scored the highest on the attitude index had a 7.5 (95% CI=2.92-19.24) times higher odds of having used a condom than those with the lowest score. The difference in association between attitudes and behavior was insignificant among men, with odds ratios of 3.6 and 4.0 in 2003 and 1995 respectively. This indicates that there was a decrease in the association between attitudes and behavior primarily among young women between 1995 and 2003.

Casual sex

As discussed earlier, the dependent variable used so far has a weakness when studying the attitude-behavior association. Being in a monogamous relationship often results in not using a condom or even using other contraceptives. However, people in such relationships can have positive attitudes towards the use of condoms. I therefore found it interesting to estimate whether the association appeared to be stronger among people involved in casual sex. Because of the limited number of cases among women, I only included young and older men in the following regression model (table 7.5).

As shown in table 7.5 the finding with regards to the attitude–behavior association appeared to be stronger for those involved in casual sex. Young men with the most positive attitudes had a 7 (CI=2.65-18.33) times higher likelihood of having used a condom than those with the least positive attitudes towards the use of condoms. A similar likelihood appeared among older men (AOR 6.8, CI=2.74-17.9). Another association worth commenting on is that between education and casual sex; both younger and older men had a 20% (CI=1.05-1.27 and
CI=1.13-1.32 respectively) greater probability of having used a condom per school year attended. Thus education had twice as much effect on men involved in their most recent casual sex compared to their most recent sex.
Table 7.5. Results of a logistic regression model of determinants of the use of condoms among men aged 15-24 and 25-49 in 2003

<table>
<thead>
<tr>
<th></th>
<th>Men 15 – 24 years</th>
<th>Men 25 – 49 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (n)</td>
<td>OR (95 % CI)*</td>
</tr>
<tr>
<td>Attitude index</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>21.2 (33)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>38.2 (55)</td>
<td>2.3 (0.85-6.21)</td>
</tr>
<tr>
<td>3</td>
<td>43.3 (104)</td>
<td>2.8 (1.13-7.11)</td>
</tr>
<tr>
<td>4</td>
<td>56.8 (125)</td>
<td>4.9 (1.97-12.09)</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>28.3 (120)</td>
<td>1</td>
</tr>
<tr>
<td>Urban</td>
<td>55.0 (202)</td>
<td>3.1 (1.90-5.01)</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 – 19</td>
<td>34.2 (111)</td>
<td>1</td>
</tr>
<tr>
<td>20 – 24</td>
<td>50.7 (211)</td>
<td>2.0 (1.23-3.18)</td>
</tr>
<tr>
<td>25 – 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 – 39</td>
<td>46.7 (195)</td>
<td>0.7 (0.49-1.13)</td>
</tr>
<tr>
<td>40 – 49</td>
<td>35.4 (82)</td>
<td>0.5 (0.27-0.81)</td>
</tr>
<tr>
<td>Educational attainment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School years</td>
<td>45.3 (320)</td>
<td>1.2 (1.10-1.28)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>46.5 (282)</td>
<td>1</td>
</tr>
<tr>
<td>Married</td>
<td>30.6 (36)</td>
<td>0.5 (0.24-1.07)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negelkerke R Square</td>
<td></td>
<td>0.208</td>
</tr>
</tbody>
</table>

The use of condoms: measured on the basis of the question “Did you use a condom when you last had sex with a casual partner?”, no vs. yes and coded 0,1. * Adjusted for age group † All variables in the model
Summing up:

Table 7.6 gives an overview of the most important findings concerning the attitude-behavior relationship. The association between the attitude-index and behavior appeared to be strong in both 1995 and 2003 in all selected groups. When the association was examined among men involved in casual sex the relationship became even stronger. This confirms hypothesis 2b, i.e. “young people’s attitudes are good determinants of the use of condoms”.

However, that is not the case concerning hypothesis 2a, that is “men’s attitude has more influence on the use of condoms than women’s”. In 1995 the association between attitudes and behavior was much stronger among women than men. Nevertheless the association declined during this eight year period among young women, leaving the association slightly weaker for women than for men. The relationship did not become weaker among men during the same time period.

Table 7.6. An overview of the AOR on attitude–behavior relationship stratified by gender and age group in the years 1995, 1999 and 2003.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>At last sex</td>
<td>4.0</td>
<td>3.6</td>
<td>7.5</td>
</tr>
<tr>
<td>At last casual sex</td>
<td>7.0</td>
<td>6.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.65-18.33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.74-17.09)*</td>
<td></td>
</tr>
</tbody>
</table>

The numbers shown in the table represents odds ratio and confidence intervals for respondents with the most positive attitudes compared to those with the least positive attitudes towards the use of condoms. *The odds ratio and confidence interval for casual sex include only men.
8. Discussion

In this thesis I have tried to ascertain whether there was a change in attitudes towards the use of condoms among young people in Zambia in the period between 1995 and 2003. I have also explored how well selected attitude-items explain the use of condoms and whether these relationships have changed over time. I also aimed to find good theoretical models that can help us to understand the relationship between attitudes and behavior.

The core findings from the surveys conducted in Zambia presented in the previous two chapters indicated that the developed attitude index towards condoms was strongly associated with the actual use of condoms. During the eight year period covered by the data there was a marked increase in the use of condoms, particularly among urban women and the population with above average educational attainment, illustrated here and by Sandøy et al. (2007). However, despite this substantial increase in the reported use of condoms in the same population studied, the observations indicated no substantial changes in attitudes (based on the attitude-index). It was also observed that attitudes did not change over time by educational attainment. Furthermore, the association between attitude and behavior appeared to be substantially stronger among young women and in the age group 25-49 in the data from the initial survey in 1995 than in the survey eight years later.

These findings open an interesting discussion about how well the prevailing theories on attitude-behavior make sense in a Zambian context. But I should like to start this discussion by commenting on possible explanations for the apparent lack of attitude change among young Zambians. I will then discuss possible answers to why the association between attitudes and behavior weakened, particularly among women, during the eight year period. Thirdly, I will discuss how established theories on the attitude-behavior relationship make sense in a Zambian context. Finally, I intend to put forward recommendations on the way the findings can inform policy interventions. Concluding, I sum up the most important findings and discussions, ending the thesis with future recommendations and questions.
1. Lack of change in attitudes towards the use of condoms

As discussed earlier, the attitude items used in the data analysis are not as extensive as one could have wished. In chapter three I compared the selected attitude items used in the population-based surveys from Zambia with other existing condom-attitude scales. The comparison showed that the attitude-items are limited in both numbers and response alternatives. In chapter five I discussed the possible consequences of these limitations. Despite these limitations, the analysis yielded several important findings. The surprising finding that there has been no general attitude change is disappointing. At the same time it may explain why the increase in positive behavior has not been even greater. There is evidence of a slight positive attitude change among rural women. Strangely enough, such changes in attitude are not found where the most positive changes in behavior occurred, among urban women and those with above average educational attainment.

Before discussing possible explanations as to why there has been no overall change in attitudes, it is worth commenting on the small but significant changes revealed in the single attitude-index analysis. There was an encouraging change in that more young people believed that using condoms shows responsibility in 2003 than in 1995. This change might be explained by the effect of numerous condom promotion campaigns.

On a more pessimistic note, the data analysis also revealed that young people in urban areas became more skeptical about the safety of the condom. Meanwhile, there was no change in the rural area. The downward trends in the urban areas are rather surprising, taking into consideration the extensive efforts at condom promotion from different stakeholders. On the other hand the US President’s Emergency Plan for AIDS Relief (PEPFAR) has in the same time period funded hundreds of community-based organizations, international NGOs and government services to stop promoting the condom and start persuading young people to abstain from sex until marriage (Abstain, Behavior change, Youth-ABY). The rationale for this strategy is religious conviction and a belief that abstaining from sex until marriage is an option for young people. This strategy is believed by PEPFAR to be the most effective preventive intervention. NGOs and government services are obliged to follow their strategy if they are to receive economic support for preventive campaigns. Receivers are suddenly in a situation where they have to convince young people not to use condoms. To make this persuasion easier, it has been reported that representatives from different NGOs have spread
false rumors about the condom. There are now widespread messages that condoms have holes in them enabling the virus to penetrate, or that they do not work adequately (Gordon and Mwale 2006). These policy interventions may have affected the convictions about condom safety among young people in urban areas, resulting in more negative attitudes towards the safety of the condom. This perspective may also explain why this trend has not reached the rural area; information flow is much more accessible in urban areas, leaving the rural area unaffected by the false rumors about the condom.

-1+1=0 instead of 1+1=2

Now, why has there been no overall positive attitude change among youth, as expected? One possibility is that the unchanged attitudes are a result of conflicting prevention strategies and messages. HIV preventive efforts in Zambia have a history of involvement of multiple actors, and this may be considered together with weak national coordination and high dependence on external funding. With regard to policies on condom promotion, PEPFAR has had a very great influence and has managed to spread skepticism about the use of condoms (-1), while campaigns promoting the use of condoms have focused on the protective and thus positive effect (+1). Consequently, these differing prevention strategies are likely to have counteracted each other leading to a net “zero effect” on the general population. In neighboring countries such as Uganda, where the prevention campaigns have had great success to date (Bongaarts 2008), we might see similar counteracting campaigns. The BBC has reported that the US Government has offered Uganda more money for HIV work if they put less “emphasis” on condom promotion (HIV Norway 2008). With a prevalence of 6.7% in 2005 compared to 11.8% in 1991 (Bongaarts 2008), will the Ugandan success diminish as a result of such strong interference from the Bush government?

Durable but not eternal

Despite numerous campaigns, are attitudes impossible to change? Maybe Bourdieu’s conviction that our predisposition has a deterministic character can explain why the selected attitude-items remains unchanged. Some say that habitus can be understood as a person’s spinal reflex, and a person thinks and acts on the basis of that reflex. That is how class reproduces in societies (Jenkins 1992). So what we have actually measured is the habitus of young people in Zambia. Even though habitus has a deterministic character it is not necessarily unchangeable; or as Bourdieu points out, habitus is not “fate”: “Being the product
of history, it is an open system of dispositions that is constantly subjected to experiences, and therefore constantly affected by them in a way that either reinforces or modifies its structures” (Bourdieu and Wacquant 1992:133). We cannot expect to find attitude change in such a short period of time, and when monitoring attitudes we might need to have a longer time-perspective than eight years. He concludes by saying that habitus is durable but not eternal. It is the individuals themselves who limit change, or as Bourdieu puts it: “social agents are determined only to the extent that they determine themselves” (Bourdieu and Wacquant 1992:136). Bourdieu himself exemplifies the possibility of changing habitus; despite his working class rural background he managed to work his way up in the system and become part of the French intellectual élite.

Further, habitus becomes more and more rigid the older you grow; all experience is perceived through categories already constructed by prior experience. From that, Bourdieu infers that a person would unavoidably prioritize former experiences. As a result, the possibility of external influence on the dispositions that constitute habitus becomes more and more difficult (Bourdieu 1977). (One should then expect that attitudes among older people in Zambia are more and more difficult to influence than young people’s.) In that sense, even though Bourdieu does not explicitly say this, attitudes and action are closely related. In fact, habitus determines a person’s attitudes and action. A discrepancy between attitude and action is therefore difficult to explain through Bourdieu’s theory of practice.

Still, it is important to address the validity question concerning the selected attitude-items from Zambia. On the bright side the attitude-items are tailor-made for Zambian conditions. As Borudieu points out, it is impossible to understand social action without incorporating the field, which is understood as an arena in which action and social practices are located (Bourdieu 1977). So if one is to understand the complexity of the relationship between attitudes towards condoms and action, it is crucial to incorporate the context/field in which it takes place. On a more critical note, the items do not consider the multidimensionality of condom-attitudes as some previously developed scales have stressed on the basis of evidence. If the scale consisted of multiple indicators (such as MCAS, 57-item scale and Brown’s scale), the data we collected would have been more reliable as well as giving us more information about the additional attitudes that play a role in the use of condoms. Secondly, as the researchers behind the MCAS pointed out, men’s and women’s attitudes towards the use of condoms should be analyzed separately (Helweg-Larsen and Collins 1994). With multiple
scales, the kinds of attitudes that differ between men and women become more understandable. Consequently, if one is interested in predicting or even changing attitudes towards the use of condoms, it is clear that one must identify which specific components of condom attitudes one is interested in changing (Helweg-Larsen and Collins 1994). This identification can only be accomplished by using multidimensional scales. So even though the findings in this thesis give us unique information, further research is needed.

**Boomerang effect**

One should also consider the consequences of the absence of any change in attitudes while behavior is changing. Assume that there are other external determinants that have motivated more people to use condoms, e.g. social pressure or perceived risk of being infected. What happens when the effect of these determinants is weakened? Evidence from the most recent data on the epidemic proves that we are heading towards a further decline in infections (UNAIDS 2008). Hypothetically, the perceived risk of being infected is also likely to decline. Now, if the perceived risk of being infected is motivating people to use condoms today, this will have a limited effect in the future because people will be less worried about becoming infected. Furthermore, if we have not managed to change attitudes towards the use of condoms, we might witness a boomerang effect where an increase in high-risk behavior evolves. This hypothetical scenario proves that monitoring and changing attitudes to a greater extent is important in a country where the prevalence of HIV has become so high.

Considering a comparison with Norway, we are now witnessing an increase in high-risk behavior among men who have sex with men. During the 1980s the epidemic really made an entry, especially among this group. Prevention campaigns were then flourishing, and seemingly had a positive behavioral effect where there was a substantial increase in the use of condoms. Because of the positive results, the government cut funding to prevention campaigns; they considered them to be no longer necessary. But from 2003 to 2006, condom usage declined dramatically in certain groups, and the infection rate among men who have sex with men is increasing again (Folkehelseinstituttet 2008). Are we witnessing a boomerang effect in Norway? Did the prevention campaigns only manage to affect behavior but not attitudes towards the use of condoms? The infection rate is marginal compared to Zambia’s, so a “boomerang effect” in Zambia could have dramatic consequences in the future. This emphasizes the importance of monitoring attitudes in the future as well.
2. The change in attitude-behavior association among women

In chapter seven we found that the association between attitude and behavior fell substantially among women between 1995 and 2003. There are several possible explanations for this change. Changes in reporting bias over time may influence associations. As previously mentioned, reporting bias related to sexual practices including the use of condoms has been reported to be substantial, particularly among women. However, this seems to have changed as a consequence of greater openness with regard to sexual issues (Sandøy et al. 2007). Sandøy et al. (2007) have suggested that the marked increase in the use of condoms among women in particular during the observation period (8 years) might partly be due to reduced underreporting. The effect of such a change (reduction) in reporting bias on the attitude-behavior association is hard to predict, however, and it might strengthen or underestimate the association.

Besides the possibility that reporting biases affect changes in associations, it is possible that other motivations or opportunities for the use of condoms were “taking over” during this time period. It is not evident that the decrease in association can be explained by other determinants among those in the regression models, because no other determinant had such a substantial effect on the use of condoms throughout the period. Among other variables that might have come to play, a more important role for women’s action is the perceived risk of becoming infected. As in the AIDS Risk Reduction model, recognition that their behavior is highly risky makes women alter that behavior (e.g. starting to use condoms) (Catania, Kegeles and Coates 1990).

However, if other motivations have become stronger determinants of the use of condoms for women, why have they not had the same effect on men? On the basis of related research we expected to find a stronger attitude-behavior association among men. The literature review revealed that men’s attitudes are more powerful determinants of the use of condoms than women’s because of inequity in regard to negotiating contraception. However, we could find no evidence on that in this thesis. Quite the contrary: in 1995, women’s attitude-behavior association was stronger than men’s. Further, we know that there has been a strong focus on empowering women to gain greater influence in negotiating sex. The weakened association between 1995 and 2003 may indicate that the opposite has happened. Could the weakened association be an indication that women have diluted their power in negotiating contraception?
On the other hand, we know that the use of condoms has increased particularly among women. Could the weakened association indicate that women have strengthened their power to negotiate safe sex? It is possible that a strengthening of this power might be an important explanation of the substantial increase in use of condoms over the period, and that this dimension was not captured by the attitude-index employed.

This revealed decrease in association might illustrate that the attitude-behavior relationship is not constant but can change over time. That proves the importance of monitoring attitudes, and it also demonstrates that there is not a one-to-one relationship between attitudes and behavior. The relationship changes over time and differs between subgroups. Further, monitoring attitudes in different periods and contexts can generate knowledge about what has an effect in different time-contexts.

3. Discussion on the attitude-behavior relation in a Zambian context

In chapter five I explored different theories on how attitude and behavior are related. In the following I will discuss how these theories and models can explain the findings from Zambia.

“Upside down – boy you’re turning me inside out”- Diana Ross

The findings are somewhat surprising: while attitudes remained stable, behavior changed in terms of a substantial increase in reported use. At first glance, my findings lacked any kind of logic. They are both inverted and opposite to what I was expecting. Normally, when you change attitude, one would suppose that you act accordingly. However, my findings suggest that even though there has been a substantial behavioral change, the attitudes have not changed. So even though there is a significant increase in the use of condoms, young people still fail to show more favorable attitudes towards condoms according to the attitude measures used. Also, according to my logic and previous research (Empelen and Kok 2008), the findings are the other way around. A reasonable assumption should be that more and more people between 1995 and 2003 became increasingly convinced and motivated to use a condom, but on the spur of the moment they failed to act in accordance with their intentions. My findings suggest the opposite. While more people have started using condoms, their attitudes towards condoms remained the same. An uninformed suggestion may be that the discrepancy proves LaPieres proposal that attitudes and behavior have a limited connection (Semin and Fiedler 1996). However, that is not what the findings here support. There was a
strong association between attitudes towards the use of condoms and the actual use of condoms. What the findings indicate is that the relationship between attitudes and behavior is clearly more complicated than LaPiere believed.

Which comes first - the chicken or the egg?

There is a general acceptance in the literature that attitudes and behavior are strongly associated. Evidence from this thesis also suggests this. But the question is still; how do they affect each other? Or rhetorically speaking: which comes first - the chicken or the egg? Cross-sectional survey data can only indicate associations and not directions or causality. The discrepancy found between the selected attitude-items and behavior suggests that there is a need to monitor attitudes towards the use of condoms as well as the reported use of condoms. In that way we can gain knowledge about how attitudes are related to actual behavior as well as about attitude change.

Cognitive dissonance theory suggests that changes in attitudes follow changes in behavior. According to this theory, a change in people’s attitudes towards the use of condoms happens after a change in sexual behavior (Festinger 1957). In a Zambian context, this account could suggest that we observed a positive behavioral change between 1995 and 2003 but could find no attitude change in the same data samples. But according to cognitive dissonance theory there is no need to worry; attitude change will follow. In that way we can say that behavioral change has a jetlag effect on attitudes. Conducting a new population-based survey today would have told us whether a positive attitude change followed the behavioral change. Choosing to believe in cognitive dissonance theory would make research on attitudes redundant; we would only need to monitor behavior change - attitude change always follows. On the other hand this theory does not explain the disharmony between increased skepticism about the safety of the condom and concurrently increased condom usage.

As previously mentioned I interpret the same causal chain in terms of Bourdieu’s theory of practice. In other words, a person can hold negative attitudes towards the use of condoms, but at the same time practice using condoms because of the influence of society on that person. Consequently, people can change their behavior, but it is more difficult to influence their habitus and their attitudes. Habitus is nevertheless not unchangeable; it can change through experience (Bourdieu and Wacuant 1992). According to Bourdieu, like Festinger, monitoring attitudes towards condoms would therefore not be necessary. Instead, constant promotion of
the use of condoms would be necessary in order to change sexual behavior. Ultimately, habitus will change. Still, Bourdieu’s theory does not fit the findings very well. First, the theory does not explicitly discuss the attitude-behavior relationship. Using it to explain the findings in Zambia involves guessing half the time. Second, the theory has a longer time-perspective of action, from generation to generation, making it inappropriate for application to an eight-year period. Therefore, the theory of practice is not adequate for findings limited to such a short time period.

So the egg came first?

The dominant theories of today, such as the theories of reasoned action and planned behavior and the health belief model (Ajzen and Fishbein 1980; Ajzen 1991 and Janz and Becker 1984), all assume that behavior follows attitudes. At first glance one should think that the results from the population-based surveys challenge this assumption: according to these models, attitudes should also have changed in a positive direction. But that would be a misinterpretation of the theories, which recognize other determinants of behavior. Therefore we cannot dismiss these theories on the basis of the findings in this thesis. For instance; the theories of reasoned action and planned behavior would suggest that subjective norms and perceived behavioral control encouraged more people to use a condom while attitudes remained the same.

The theory of planned behavior can help us understand the discrepancy between attitude and behavior (Ajzen 1991). While attitudes towards the use of condoms have been stable the intention to use condoms could have increased drastically. This may indicate that subjective norm and perceived behavioral control have had a greater influence on the intention to use a condom than attitudinal determinants. In other words, a person might not have become more positive towards condoms, but has a stronger perception that their partner/society wants them to use condoms. Also, it is probable that a greater proportion of the adult population has achieved better skills in using condoms.

The theory of planned behavior also differentiates between general and specific attitudes (Ajzen and Fishbein 2005). Maybe the attitude-items in the Zambian survey are too general to be good predictors of the actual use of condoms during the most recent sex. If general attitudes were to predict behavior, the measure of behavior would have to be broadly
representative of the attitude domain, because individual behaviors tend to be influenced not only by attitudes but also by a wide range of other factors (Ajzen and Fishbein 2005). So even though the regression models show a strong association between the attitude-index and the use of condoms during the most recent sex, this might not be sufficient to predict behavior changes.

On the other hand, as mentioned earlier, the theory of planned behavior has been criticized for not including other variables such as peer pressure, gender relations, economical conditions etc. The problem with individualistic approaches, such as the theory of planned behavior and the health belief model, is not that they ignore other determinants of behavior on the meso and macro levels; it is that they exclude these factors by saying that subjective norm, behavioral control and attitudes are the most important determinants of the use of condoms.

Accordingly, other factors in addition to subjective norm and perceived behavioral control may explain the discrepancy between attitudes towards condoms and actual usage among young Zambians. Discovering other determinants for the use of condoms is beyond the scope of this thesis. Still, when studying the attitude-behavior relationship, it is vital to recognize other determinants. It is too easy to leave them out just because we do not know what they are or to what extent they influence behavior.

In relation to sexual behavior there is another interesting point to address, namely the question of rationality. The prevailing attitude-behavior relationship theories all presume that individuals act on the basis of rational thinking (Ajzen and Fishbein 1980; Elster 1989; Ajsen 1991). But when it comes to sexual behavior it might be too easy to assume that rationality operates in one’s choice of sexual behaviors. Or as Ingham (1991) articulated so elegantly: “The cognitive consistency, rational decision-making and complex linear regression comes to naught when the lights are low, the music is sweet and the drink is flowing” (Ingham and Woodcock 1990:4).

So why then is there such a commitment to using individualistic, rational-based approaches when studying attitudes and sexual behavior? Are we taking the easy way out? Theories such as rational choice theory, the theory of planned behavior, the theory of reasoned action, aids risk reduction model and the Health Belief Model might fall short when it comes to young people’s sexual behavior. The theory of planned behavior, for instance, has been criticized for not managing to explain behavior that is irrational or impulsive (Myklestad 2007). Likewise,
young people’s sexual behavior might seldom follow the rationally-based sequence outlined by these theories, compared to behavior that is reasoned and deliberate.

Furthermore, is it possible to explain the findings from Zambia based on theories and models that is originated from and based on the western cultures, living conditions and lifestyles? It might be necessary to developing a theory based on Zambian conditions.

So we may conclude that the individual approach does not provide a satisfying explanation of the Zambian case. In addition, these theories might not function as the right framework when it comes to sexual behavior. The more structural models also have their weaknesses. The socio-ecological model tries to incorporate determinants on the micro, meso and macro levels that affect sexual behavior. However, this model does not focus on the underlying psychological processes of contraceptive decisions. Also, long term, generational approaches such as Bordieu’s theory of practice need to be further developed, so that short-term changes of attitudes are also encompassed. We need to understand the attitude-behavior relationship on different levels simultaneously. Such understanding has consequences for both further research and methodological considerations.

Research gap:

It is clear that there is a lack of research monitoring attitudes over time in Zambia. Furthermore, the research that has been conducted on attitudes has not been guided by already-existing scales on attitude towards the use of condoms (e.g. the multidimensional condom attitude scale) that could have helped not only in data collection but also in the analysis and interpretation of the findings. Future recommendations are therefore to produce a multiple-indicator condom-attitude scale that is tailor-made for Zambian conditions, targeting young people in particular. I should like to stress the importance of not adopting an already existing scale, but of developing a Zambian version instead. Secondly, it is important to develop a scale that acknowledges additional determinants, and ensures that they are monitored as well. It is therefore vital to identify factors on the meso and macro levels that influence the use of condoms, and to include these factors in a multidimensional scale. Theories on gender roles, stigma, negotiation situations, impression management, poverty, peer-pressure etc. must be integrated in the analysis of attitudes towards the use of condoms among youth in Zambia.
Important though it is to conduct attitude surveys based on multi-indicator scales, it is just as important to study attitudes by multiple methods, both qualitative and quantitative, when developing a condom-attitude scale and monitoring attitudes. Importantly, qualitative research should also be conducted in order to guide the development of a local condom-attitude scale. Only then can we develop a good multidimensional scale for condom-attitudes. In line with this it is crucial that different disciplines collaborate in a joint effort to study attitudes towards the use of condoms. We all know that medically trained researchers have a complete different perception of society from e.g. social anthropologists. With such collaboration we can gain both a broader perspective and knowledge about attitudes to the use of condoms, combining individualistic with structural approaches.

4. Policy implications

What are the implications of my findings?

It is important that researchers and policymakers recognize the importance of generating knowledge about attitudes to the use of condoms in Zambia. My recommendations are therefore:

- Different disciplines should collaborate in a joint effort to study attitudes to the use of condoms among youth in Zambia.
- There is an urgent need to develop a multidimensional condom-attitude scale tailor-made for the Zambian context, targeting youth in particular. This work must consider previous scales and research in order to develop good multiple-indicator scales that include interpersonal and external determinants of the use of condoms.
- Furthermore, it is recommended that attitudes are monitored on a regular basis, and in relation to well-developed contextual measures of behavior.
- Development of the multiple-indicator condom-attitude scale should triangulate with qualitative and quantitative methods.

The main goal of monitoring attitudes is of course to increase the use of condoms and consequently to reduce HIV transmission. The knowledge we generate from monitoring attitudes can function as guidelines for policy makers and front liners, i.e. help in identifying and developing specific interventions to influence specific attitudes. Furthermore, improved policy interventions (based on the knowledge of attitudes gained) can prevent a “boomerang
effect” and finally generate systematic social change. Increased understanding of the attitude-behavior relationship (based on monitoring) can also help us to penetrate the difficult issues related to how attitudes are connected to behavior over time and context.

On the basis of the item-specific observations revealed here, there are some pressing intervention needs:

- The single-attitude item analysis revealed that more people in urban areas have become skeptical about the safety of the condom. There are obvious conflicts in messages in this regard in Zambia and in many other African countries with serious HIV epidemics. The National AIDS council will have to involve all stakeholders in a joint effort in this regard in order to get the messages to the public in line with the scientific basis. The findings indicate that the churches are of critical importance in this regard.

- A substantial proportion of young people still report embarrassment in obtaining condoms. An urgent intervention in this regard will be to make condoms available in many different ways and in places where they are needed most (Sandøy et al. 2008), i.e. in toilets and in places where people meet new sex partners.

- “Using condoms shows responsibility”: the favorable changes in this indicator over time should present opportunities for further motivation campaigns in this regard.

- Empowerment of women in terms of negotiating sex is a crucial area for increased focus. The surveys used in this thesis failed to measure this important dimension. It is a formulated strategy in Zambia, but has apparently not been given very high priority in terms of funding and research.

My future recommendations for a tailor-made scale and continually monitoring attitudes are also in line with the recommendations from the AIDS conference in Mexico this year, namely that there is a need for a more tailor-made approach to prevention campaigns specified by the setting/community that one is trying to reach, and for a focus on generating systematic social change (Keisernetwork 2008b). For prevention campaigns to have greater impact on attitude change, we need to change our ways. Or as Peter Piot said: “It’s no longer what we do but how we are doing prevention.” Monitoring attitudes towards condoms can contribute to improved prevention campaigns, which will generate social change and in the end lead to eradication of the epidemic.
Conclusion:

We need to stop young people from becoming more skeptical towards the safety of the condom. There is an urgent need that the National AIDS Council in Zambia needs to involve all stakeholders in order to end the conflicting messages send to the public in regards to condom use.

The evidence from this thesis indicates no overall change in attitudes. Furthermore, we see that the relationship between attitudes and behavior is strong but not constant. Concluding the discussion on theoretical attitude-behavior models, there is a need to develop a framework/model that captures attitudes towards the use of condoms and other determinants of the use of condoms on the micro, meso and macro levels. There is also a pressing need for researchers representing different disciplines to collaborate in a joint effort to develop a multiple-indicator condom-attitude scale that can be the basis for regular monitoring of attitudes towards the use of condoms.
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All sources used in the thesis are included in this list

Total amount of words: 32 937 words
### Appendix 1

#### ZAM CORE EPI: FOLLOW-UP SURVEY 2003

1. **Cluster identification:**
   - [ ] CSA
   - [ ] SEA
   - [ ] Rural/Urban

2. **Housing identification:**
   - [ ] Building
   - [ ] Unit
   - [ ] Household

3. **Personal number:**
   - [ ]

4. **AGE**
   - [ ]

5. **SEX** (Male=1, Female=2)
   - [ ]

6. **What is your mother Language?**
   - [ ] Bemba
   - [ ] Kaonde
   - [ ] Lozi
   - [ ] Lunda
   - [ ] Luvale
   - [ ] Nyanja
   - [ ] Tonga
   - [ ] Other

7. **For how long have you been living continuously in this household?**
   - [ ] (if less than 1 year, code 0, else years)

8. **Just before you moved here, did you live in a 1–Village, or 2–Lusaka, or 3–other city or town?**
   - [ ]

9. **Marital status: Are you now**
   - [ ] Single, never married
   - [ ] Single but engaged
   - [ ] Living as married
   - [ ] Married
   - [ ] Widowed
   - [ ] Separated/div.

10. **If single, never married, skip to Q 14**

11. **For how long have you been married to this person?**
    - [ ] (if less than 1 year, code 0, else years)

12. **How old is this person (spouse)?**
    - [ ]

13. **How old were you when you first got married?**
    - [ ]

14. **Now think back to the past. Apart from this spouse, how many have you been married to/living with in your whole life?**
    - [ ]

15. **What is your highest level of education completed?**
    - [ ] Never attended
    - [ ] Grade 1-4
    - [ ] Grade 5-7
    - [ ] Grade 8-9
    - [ ] Grade 10-12
    - [ ] Higher

16. **Are you still in school?**
    - [ ]

17. **Score for all yes/no Qs: Yes=1, No=2**
   - [ ] Are you employed at present?
     - [ ] Unemployed
     - [ ] Unpaid family worker
     - [ ] Self employed
     - [ ] Employee
     - [ ] Employer
     - [ ] Does your household have
   - [ ] Electricity?
   - [ ] A radio?
   - [ ] A refrigerator?
   - [ ] A bicycle?
   - [ ] A plough?
   - [ ] A donkey?

24. **What is your religion?**
   - [ ] None
   - [ ] Catholic
   - [ ] Liberal protestant
   - [ ] Strict protestant
   - [ ] Muslim
   - [ ] Other

25. **Have you during the past years been on regular trips where you have to stay away from home for several days or more?**
   - [ ] Never
   - [ ] Sometimes
   - [ ] Often
   - [ ] Very often

26. **How would you say your health is at the moment? Is it (1 –) Very poor,
    (2 –) Poor, (3 –) Fair, (4 –) Good,
    (5 =) Excellent**

27. **During the last one year, how many times did you visit**
   - [ ] a traditional healer?
   - [ ] a spiritual healer?
   - [ ] private doctor/clinic?
   - [ ] the local health centre?
   - [ ] the hospital?

32. **How many times were you admitted in hospital during the last one year?**
    - [ ]

33. **If ever admitted in hospital, did you ever receive blood (transfusion)?**
    - [ ]

34. **Are you on any type of medication?**
   - [ ] No
   - [ ] Traditional
   - [ ] Professional
   - [ ] During the last one year, did you suffer from
   - [ ] Malaria
   - [ ] TB

37. **Any STD (sexually transmitted disease)**
    - [ ]
Now I will ask you some few questions related to certain pains and problems, that might have bothered you the last 30 days. If you think the question applies to you and you have had the problem in the last 30 days, answer Yes. If not, answer No. (Codes: Yes=1, No=2, Don’t know=3)

38. Do you sleep badly?  
39. Do you cry more than usual?  
40. Do you find it difficult to enjoy your daily activities?  
41. Do you find it difficult to make decisions?  
42. Is your daily life suffering?  
43. Are you unable to play a useful part in life?  
44. Has the thought of ending your life been on your mind?  
45. Do you feel tired all the time?  
46. Do you often have headaches?  
47. Is your digestion poor?

Do you agree or disagree with the following statements? (Read and obtain a response for each statement; Code 1 when Agreeing, 2 when Disagreeing).

48. Condoms are safe preventing HIV/AIDS  
49. Most women don’t like men to use condoms  
50. Condoms are embarrassing to obtain  
51. Using condoms shows responsibility  
52. Most men do not like using condoms  
53. Condoms are too expensive  
54. Using condoms is against my religion

55. Have you ever had sexual relations?  
If no, skip to Q 67

56. At what age did you first have sex?  
57. Have you had sex the last 12 months?  
58. Have you ever used a condom?  
59. Did you use a condom last time you had sex?

60. Is it easy to get a condom when needed?

61. Did you have a regular sex partner during the last 12 months?  
62. Did you have sex with anyone else apart from your regular sex partner last year?  
63. If yes on Q62: Approximately how old was the last casual sex partner?  
64. Did you use a condom when you last had sex with a casual partner?  
65. With how many different people have you had sex in the last 12 months? (include spouse)  
66. How many different people have you had sex with in your life?

67. Have you ever contracted any STD? If no, skip Q 692

68. Did you tell your partner?

Do you agree or disagree with the following statements? (Read and obtain a response for each statement, code 1 when Agreeing, 2 when Disagreeing).

69. I have less sexual partners at present compared to some years ago  
70. My friends have not changed their sexual behaviour despite the AIDS risk  
71. Some years ago I did not use condoms  
72. Most of my friends never use condoms  
73. I always use a condom nowadays

74. In your situation, do you think that you are at risk of getting (catching) HIV?

Would you say that  
1= You are not at risk, or  
2= the risk is moderate, or  
3= the risk is high, or  
4= the risk is very high

75. How worried are you about actually being infected by HIV/AIDS?  
1= Always worried, or  
2= Sometimes worried, or  
3= Seldom worried, or  
4= Never worried

Now I will ask you some hypothetical questions
76. If a member of your family became sick with the HIV/AIDS virus, would you be willing to care for him or her in your household?  

☐  

77. If you knew that a shopkeeper or food seller had the HIV/AIDS virus, would you buy fresh vegetables from him?  

☐  

78. If a female teacher has the HIV/AIDS virus but is not sick, should she be allowed to continue teaching in school?  

☐  

79. If a member of your family became infected with the AIDS virus, would you want it to remain a secret?  

☐  

92. Have you ever used a condom as your contraceptive method?  

☐  

93. Does your husband have other wives?  

☐  

94. Do you often use traditional agents like herbs or other agents for self-treatment when experiencing vaginal discharge or itching?  

(1=Most often, 2=Sometimes, 3=Never)  

☐  

95. Do you often use traditional agents like herbs or a cloth before having sex?  

(1=most often, 2=sometimes, 3=never)  

☐  

96. Is your usual (regular) male partner circumcised?  

Yes=1, No=2, don’t know=3  

Do you agree or disagree with the following statement: 1=agree, 2=disagree  

97. If my husband had a STD, I could either refuse to have sex with him or I would get him to use a condom?  

☐  

ALL RESPONDENTS  
Inform on saliva samples; anonymity, consent; and on the voluntary option of being counselled and tested  

98. Have you ever been HIV tested?  

☐  

99. If tested: Did you receive the test result?  

☐  

100. Would you like us to arrange for you to be HIV tested?  

☐  

101. Attendance  
1=Completed (both interview and saliva)  
2=Refused saliva  
3=Refused interview  
4=Refused both interview and saliva  
5=Not found  

☐  

102. Number of interviewer  

☐  

103. Date: day:...... /month....../year......
Dear participant,

This is part of a program carried out by the School of Medicine, University of Zambia and the Central Statistical Office. The program staff is here to ask you, and also 6000 other Zambians from different parts of the country, to provide them with some information. This information is needed in order to strengthen the fight against infectious diseases including HIV. The way you can help is simply by spending some time answering questions. Most of them are simple, but some are very personal ones. The information you give will be kept between you and the interviewer. Indeed, everything will be arranged in such a way that your answers are not to be known by anyone else, just for the purpose of research. The information you provide will be put together with the information coming from the other 6000 being invited to answer the same questions. Researchers will then analyse this information in order to learn more about how to reduce the spread of HIV and other infectious diseases.

After the interview you will be asked if you will provide a specimen of your saliva. This will take only about 2 minutes. Your saliva can be used for testing for HIV, but the test result will be anonymous and thus only for research purposes. However, if you will like to know your HIV-status, you will be given the opportunity to see one of the well trained counsellors who are part of our team. Any personal matter can be discussed with the counsellor. Also, if you decide to go for voluntary HIV counselling and testing (VCT), the same counsellor will also take care of that and also inform and guide you about how to receive support and care if this should be needed. Whatever information is shared this will be strictly between you and the counsellor. You will not be charged anything from us.
Voluntary participation: You can have this information form for keep, and you will also be asked to sign a consent form. Your participation is very important for the program, but participation is voluntary which means that it is totally up to you to decide.

Who can you contact if more information is needed?

If you have questions about this program please contact either of the following:

1. Dr Scicor Siziyu, Head, Department of Community Medicine, School of Medicine, University of Zambia, Telephone 252641.
2. Mr Kumbutso Dzukudzeke, Principal Statistician, Central Statistical Office, Lusaka.
   Telephone 255740/251377