

HIV/AIDS in the Muslim-Majority Countries: Formula for Low Prevalence

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Abbreviations and Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral therapy
FGM	Female genital mutilation
FSW	Female sex worker
GDI	Gender-Related Development Index
GGHE	General Government Health Expenditure
HCNLS	National High Council for AIDS
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HPI	Human Poverty Index
MENA	Middle East and North Africa
MMC	Muslim-majority country
MSM	Men who have sex with men
MTCT	Mother-to-child transmission
PLWHA	People living with HIV/AIDS
UNICEF	United Nations Children's Fund
UNAIDS	Joint United Nations Programme on HIV and AIDS
USAID	U.S. Agency for International Development
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Abstract

The Muslim-majority countries long had been considered to be free of HIV/AIDS epidemic because of their strict religious and moral codes. However, the HIV prevalence rates are increasing in some Islamic states, and even more or so rapidly in a several cases that it is no longer valid to assume the Islamic religion protects its followers from the risks of contracting HIV. Contrary to the popular belief concerning the prevention of the HIV/AIDS epidemic, data collected from well-recognized international organizations such as the WHO and Freedom House indicate that democratization, strong government leadership, and wider and equal human rights for men and women are not necessarily the precursors for lower HIV/AIDS rates in the Islamic countries. Rather, it is more deeply rooted and complicated problem that concern religious and socio-cultural factors in the society, which are not always visible in numbers.

This paper presents both quantitative and qualitative researches on Muslim-majority countries with increasing and decreasing HIV prevalence rates to further examine what works in the region in terms of containing further spread of the disease. By doing so, I hope that this paper will fill the gap in the literature, as there is an undeniable lack of study despite the urgent situation.

Introduction

“ Experience around the world proves that societies cope best with HIV and prevent its spread when governments are open; actively provide accurate information and services to all people; are gender aware and sensitive; and collaborate with organizations that represent affected communities, including people living with HIV and those most at risk, to limit both infection and stigma and discrimination.”

- Hull, Kay, Datta, Wahab, & Said, 2010

The Muslim-majority countries (MMCs) have long been considered to be free of HIV/AIDS epidemic for its strict religious and societal norms which restrict risky behaviors including sexual activities outside marriage, drug use, and homosexuality, and in fact, it has been true for many years since the emergence of the first discovery of HIV. This, however, is no longer a valid speculation. Many MMCs are now seeing modernization particularly among the youth, and injecting drug use and sex trade are evident in some areas despite the fact that such forbidden behaviors can be met with serious legal punishments. On the other hand, the governments often still are reluctant to accept the fact that HIV/AIDS do exist within their countries, and that the epidemic is growing slowly but surely, because admitting that HIV/AIDS exist in their country means that they are at the same time admitting that they have populations who commit religiously disallowed behaviors, which evokes the feeling of shame.

While many international organizations warn that these MMCs are at a great risk of major epidemic, there are not a lot of literatures that cover this particular topic. Especially when it comes to empirically exploring what works in the MMCs in terms of avoiding the worst case scenario, the number of such literatures is very limited. One reason behind this is

perhaps due to the lack of awareness about this urgent situation in the MMCs. With the epidemic beginning to dwindle worldwide in the recent years, the issues involving HIV/AIDS is not discussed as much as it used to be in the 1980s and 1990s. Additionally, the prevalence of HIV/AIDS in the MMCs is still at a low level compared to other HIV/AIDS ravished countries, which can be taken as not as noteworthy by many.

This paper attempts to reveal the current situation regarding HIV/AIDS in the MMCs in terms of who are particularly at risk, and what are the causes behind the rising epidemic in order to understand the context of the epidemic. Then through a case study and statistical analyses on various societal and political factors, it explores what might be the preconditions for lowering HIV prevalence particularly in the MMCs. As there are no other literatures that empirically analyze how societal and political changes in a Muslim-majority society might influence the HIV incident rates, I hope that this paper contributes to find a way of containing the disease before it becomes a major epidemic.

Literature Review

HIV at a Global Scale

HIV (Human Immunodeficiency Virus) and AIDS (Acquired Immune Deficiency Syndrome) have become one of the most devastating and persistent global issues in the recent history. HIV infection is a treatable, however not curable lifelong viral infection. Once acquired, an infected individual will go through the incubation period, and then, if left untreated with therapeutic medications such as the antiretroviral therapy (ART) to slow down the viruses' ability to replicate, the patient will develop AIDS and other severe illnesses which weaken the immune system, and eventually cause death. What makes the HIV infection more problematic, along with the complicated and fatal nature of the disease, is the fact that many of those who are infected do not become informed about their positive status

for a long period of time due to the prolonged incubation period which can last for the average of 5 to 8 years. This implies that uninformed HIV patients can transmit the virus without the patient themselves or victims being aware of it. In fact, Shawky et al. (2009) point out that HIV infection normally starts at a low prevalence rate in a country followed by a drastic increase in the number of patients in the absence of adequate preventive efforts, worsening the pandemic of the disease.

The first incidents of HIV were reported by the U.S. Center for Disease Control and Prevention in 1981, which at the time with the total lack of basic understanding of the disease, believed to be contagious only among homosexual men. This supposition was soon to be discovered false by the end of 1982 as more cases of HIV-related immune deficiency were reported among non-homosexual people both within and outside of the U.S. The disease quickly began to spread from region to region, and then from one country to another at an overwhelming speed that after four years since the initial finding of the first incidents of HIV/AIDS, the number of reported cases multiplied up to 17,000 from 71 countries around the world by 1985 (WHO, 1985). Much like a small wake of a long wave, HIV started as what first seemed to be an insignificant incident, but it swallowed literally the entire world at a rapid speed that, in fact, there is no single country that is not affected by the disease today. As of 2007, more than 25 million people had died of HIV-related causes, and there were estimated 60 million people who had been infected with HIV worldwide since the emergence of the disease (Merson, O'Malley, Serwadda, & Apisuk, 2007). According to the research conducted by WHO (2011), approximately 34 million people were living with HIV as of 2010, and 2.7 million of whom were newly infected with HIV in the same year.

Countries in sub-Saharan Africa continue to be the most severely affected in the world, with an estimated 11.1 million people living with HIV in 2009. On the other hand, however, a decades-long commitments and investments are now beginning to see positive

results in overall trends in HIV rates not only in these sub-Saharan countries but also on a worldwide scale. According to the survey published by WHO in 2011, the annual number of people newly infected by HIV around the world has gone down by 16% since 2001, and the number of people dying from HIV-related causes also has been steadily decreasing worldwide as well, dropping from 2.2 million in 2005 to 1.8 million in 2010. The same report also notes that the rate of HIV infection among children has also been on a steady decrease due to the improved and enhanced medical technologies to prevent mother-to-child transmission (MTCT). Also, as an access to services for HIV treatment has increased in low- and middle-income countries, the mortality rate among infected children has decreased as well by 19% between 2004 and 2009. Overall, HIV incidence has fallen by more than 25% between 2001 and 2009 in 33 countries, including 22 of those which are located in sub-Saharan Africa (UNAIDS, 2010.)

HIV Status in the Muslim-Majority Countries (MMCs)

HIV trends, however, largely vary from one country to another. Many scholars warn today that while many countries including those located in sub-Saharan Africa are improving their ability to confine HIV epidemic, MMCs especially Middle East and North Africa (MENA) region is becoming a greater concern due to their vulnerability to HIV and the sharp increases in HIV incidents (UNAIDS, 2010; Shawky, 2009; Jenkins & Robalino, 2003). Although this region was previously considered to be protected from HIV/AIDS largely due to the strict Islamic religious and cultural norms in the society, scholars at the same time remark that it is no longer a valid speculation, and that MENA countries, too, face the risk of HIV spread within the general populations if an action to combat the disease is not taken at an early stage of the epidemic (Abu-Raddad, et al., 2005; Hasnain, 2005; The World Bank, 2005). Even at this point of time, evidence reveals (Fig. 1-6), that the MENA region is experiencing an increased HIV trends opposed to the global trend, showing steadily

increasing curves in the annual number of people living with HIV, number of people newly infected with HIV, and number of AIDS-related deaths.

Figure 1 - Number of people living with HIV in Middle East and North Africa, 1990-2010.

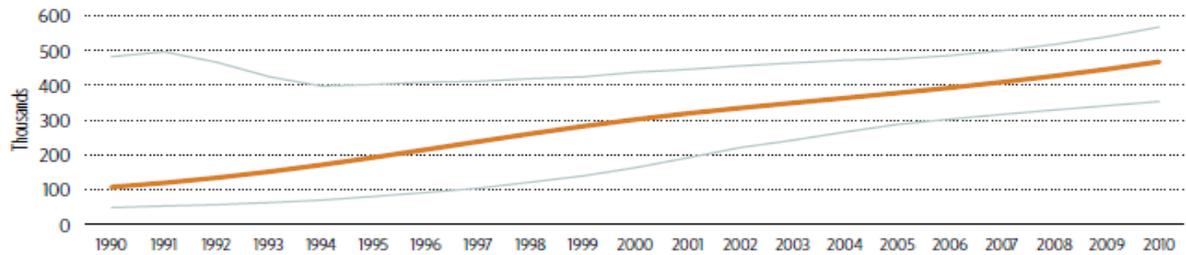


Figure 2 - Number of people newly infected with HIV in Middle East and North Africa, 1990-2010.

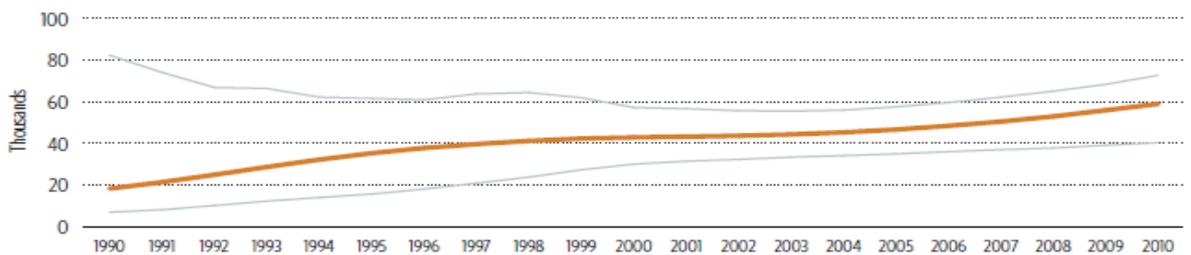


Figure 3 - Number of people dying from AIDS-related causes in Middle East and North Africa, 1990-2010.

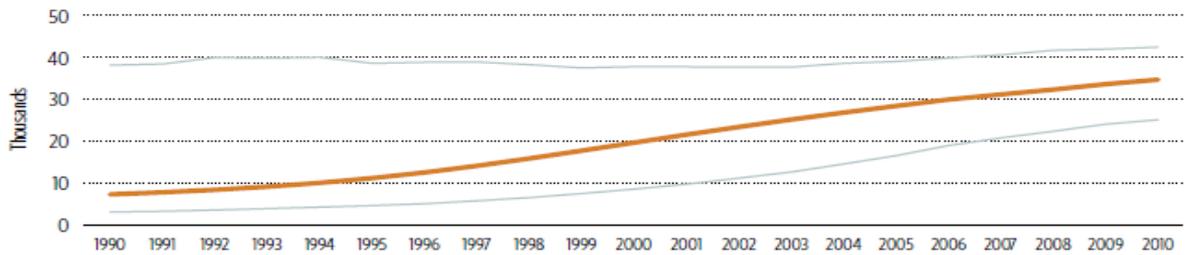


Figure 4 – Number of people living with HIV globally, 1990-2010.

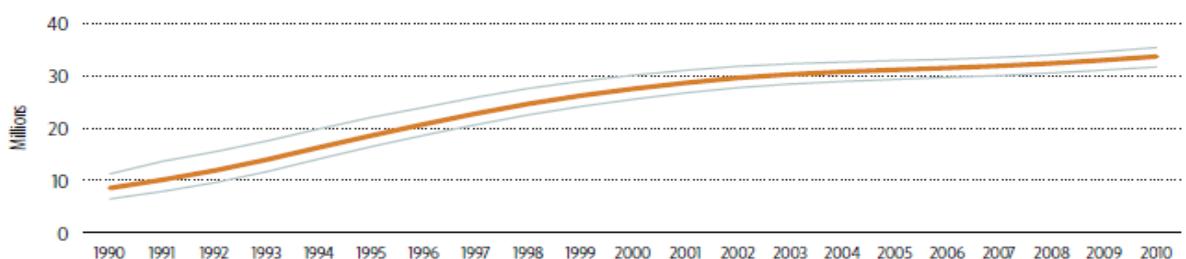


Figure 5 – Number of people newly infected with HIV globally, 1990-2010.

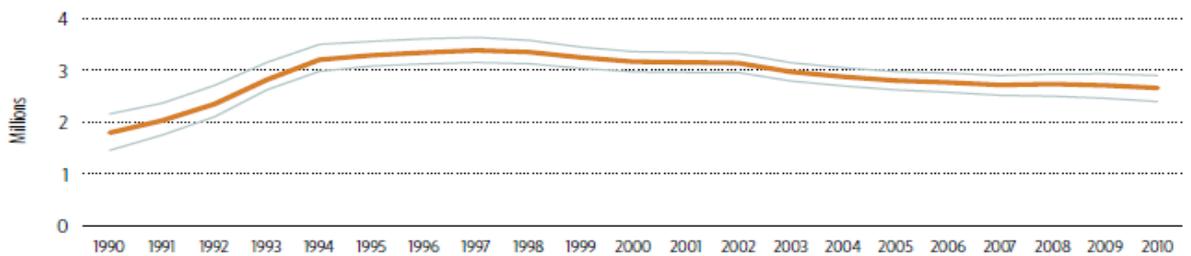
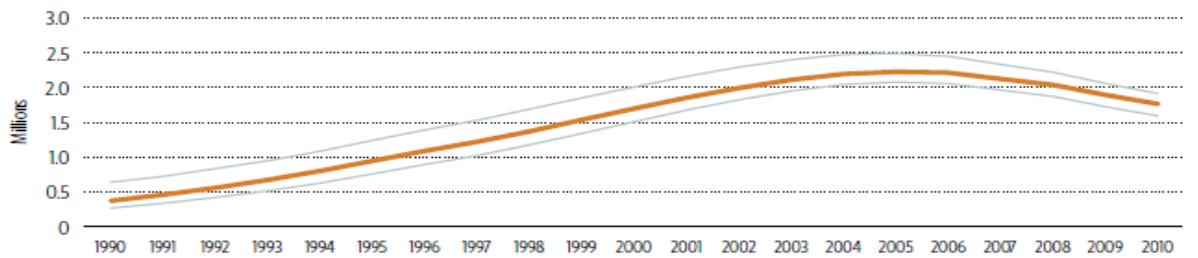


Figure 6 – Number of people dying from AIDS-related causes globally, 1990-2010.



Sources: WHO, UNAIDS, & UNICEF (2011).

Among the MENA countries, there were more than 450,000 people living with HIV, 59,000 people who became newly infected with HIV, and 35,000 people dying from HIV-related causes during 2010. The estimated number of people newly infected with HIV was the highest yet since the monitoring started in 1990, increasing by 36% when compared to the data in 2001 (WHO, UNAIDS & UNICEF, 2011). The average prevalence rate among MENA countries is estimated to be around 0.1% to 0.2% among adults of ages 15 to 49, which is significantly lower than those HIV-ravaged regions such as sub-Saharan Africa (Roudi-Fahimi, 2007). However, it also must be noted that the surveillance conducted by WHO (2011) indicates that HIV prevalence rates are much higher than the global average in some Muslim countries including Chad (3.4%), and Nigeria (3.6%).

These surveillance data, at the same time, do not always reflect the real HIV incidents in the MENA region. There is an undeniable paucity of data for some MENA countries, as well as the questionable accuracy in the available information provided by the organizations such as World Health Organization (WHO) and the Joint United Nations Programme on HIV and AIDS (UNAIDS) the leading UN sectors in fighting HIV/AIDS epidemics worldwide. Scholars note that even the numbers gathered by such well-recognized organizations can be severely understated due to the heavy reliance on the inconsistent monitoring system utilized by governmental institutions such as the Ministry of Health in each country, which often do not wish to admit the presence of HIV within their country in order to protect the religious

and social conservatism (Gheiratmand, et al, 2004; Kelly & Ebersadt, 2005; Obermeyer, 2006). Jenkins and Robalino (2003) also note that such inadequate monitoring methods, a shared characteristic in the MENA region, are not only unsuccessful in providing the accurate data, but also will fail to detect sudden outbreaks within the marginalized social groups and meaningful changes that indicate the wake of a larger epidemic.

Low prevalence also does not necessarily translate into a low risk of further epidemics in the future, as major HIV epidemics often transition from low prevalence to an explosion of infection after a long period of slow growth (Dondero, Pappaioanou & Curran, 1988; Hansen, 2003). In fact, the U.S. Agency for International Development (USAID) (2010) warns that the MENA countries should not wait until HIV develops into a larger epidemic, as many countries in sub-Saharan Africa that have suffered from HIV epidemic have also experienced a low prevalence phase followed by an explosive increases in HIV incidents, leading to a devastating catastrophe that has taken many lives in the past decades. A study conducted by the World Bank (2003) also shows that despite the current low prevalence among the MENA countries, there are enough risk factors evident within the region that suggest these countries do not stand apart from this morbid low-prevalence/high-risk epidemic scenario, and that immediate preventive efforts are crucial in order to maintain the HIV incidents at a low level.

HIV Risk Factors in MMCs

The Muslim-dominated countries have long been thought to be free of the HIV epidemic because of the religious disciplines that discourage people from committing high-risk behaviors such as alcohol consumption, illicit drug use, and pre- and extra-marital sex (Kendala, 1993). On the other hand, it also must be noted that there are socio-cultural transitions towards modernization and acceptance of behaviors that breach traditional norms taking place in many of the MMCs (Mohammad, et al., 2007). The following sections will

cover the various political, societal, and cultural factors that place the MENA region in a vulnerable position insofar as to maintaining their rates of HIV/AIDS.

Behavioral Risk Factors

Illicit drug use (IDU) is prohibited by Islamic laws, however, the number of the illicit drug users in the MMCs in the MENA region includes up to approximately a million across half of the MENA region countries (Table 1) (Abu-Raddad, et al., 2010). Although HIV prevalence among IDUs in this region, 0.2% of the population, is relatively low compared to other regions in the world, Aceijas et al. (2004) and United Nations Office on Drug and Crime (UNODC) (2007) warn that the influx of inexpensive illegal substances from neighboring Afghanistan, the epicenter of opium cultivation which provided approximately 92% of the world's supply of heroin in 2006, has led to an increase in heroin injection, and, concurrently, an increased HIV prevalence particularly in Iran and Pakistan. In fact, a few studies show the evidence of considerably large HIV epidemics among IDUs in some MMCs in this region (Table 1).

Table 1 –Number and prevalence of IDUs, HIV prevalence among IDUs in selected MENA countries.

Country	IDU Estimates	IDU prevalence (%)	HIV prevalence (%)
Afghanistan	34,080	0.24	3.4
Bahrain	674	0.16	0.3
Egypt, Arab Republic of	88,618	0.21	2.55
Iran, Islamic Republic of	185,000	0.46	15
Jordan	4,850	0.16	4.2
Lebanon	3,300	0.14	7.8
Libya	7,206	0.23	22
Morocco	18,500	0.1	6.5
Oman	4,250	0.3	11.8
Pakistan	462,000	0.5	10.8
Saudi Arabia	23,600	0.2	0.14
Sudan	37,828	0.2	0
Syrian Arab Republic	6,000	0.07	0.3
Tunisia	13,163	0.21	0.3
Turkey	99,887	0.23	2.65

Sources: Aceijas et al. (2006), Mathers et al. (2008)

IDUs are at a great risk of contracting HIV when unsterile injecting equipment is used.

Studies conducted by Parvis et al. (2006), and Razzaghi et al. (2006) report high prevalence of sharing injecting equipment in Pakistan and Iran, although syringe hygiene practice varies on an individual basis depending on the user's socioeconomic status. It also must be noted that the disease can spread from IDUs to non-at-risk populations through sexual activities if a proper preventive method, such as condom, is not used. Surprisingly, a study conducted by Soliman and colleagues (2010) revealed that in case of Cairo, Egypt, only 11.8% of the male IDUs used a condom in the last year when they had sex with a regular female partner, and of those with non-regular female partners, only 12.8% ever used a condom, implying that many women are at risk of contracting HIV in spite of the fact that they might not be IDUs themselves.

Men who have sex with men (MSM), including male sex workers, continue to be disproportionately affected by HIV epidemic globally (WHO, UNAIDS & UNICEF, 2010). A study shows that there is evidence of HIV transmission among MSM in most MMCs in the MENA region (Jenkins, Robalino, 2003). MSM populations in the MENA are one of the most hidden at-risk groups as homosexuality in these countries takes more complex and flexible forms that are beyond the clear-cut identifications between different sexualities in contemporary Western culture, which suggests that same-sex sexual partnership can form between the individuals who do not consider themselves as gay, homosexual, or bisexual. (Caceres, Konda, Segura & Lyerla, 2008). Nevertheless, a few researches reveal that HIV epidemic within MSMs appears to be on the rise in some MENA countries with the highest estimated HIV prevalence of 11.4% in Pakistan in 2010 (Mumtaz, et al., 2010). This is mainly due to the substantially more risky behaviors reported among MSMs including sexual relationships with multiple partners and commercial sex workers, as well as sexual activities

without condom use. (Abu-Raddad, et al., 2010). Nakib and Hermez reported in 2006 that polygamy was in fact frequent among MSM in Lebanon, that the average number of partners in one year was excruciating 9.47. Concurrently, Abu-Raddad et al. (2010) also notes that MSM are at the same time subjected to harassment and even violence as homosexual activities are disallowed in most Muslim-majority countries, and thus far complicating the HIV prevalence surveillance process on MSM populations, leaving these people further marginalized and harder to reach.

Societal Factors

Gender inequality contributes to considerable number of HIV infections among general, non-at-risk populations in some cases. Niens and Lowery (2009) point out that women living in MENA region in particular are at a greater risk as they are often not equal to men on a cultural, legal and economical basis, and therefore do not have a right to decide matters concerning their cultural violence and sexual practices. Further, Shawky et al. (200) also note that cultural norms in the MENA countries expect women to maintain their premarital chastity and lifelong fidelity while forming non-marital sexual relationships with multiple partners are tolerated for men, putting women in a more vulnerable position. In fact, approximately 85% of the women became infected through their husbands, who were not aware of their HIV positive status (McGirk, 2008). A report by UN Women also emphasizes that a substantial social reformation is crucial in order to improve the accessibility to health care for women, as many living in the MMCs often are obligated to ask for permission from another household member before seeking medical assistance, or are logistically remote from the nearest medical institution, preventing women from receiving treatment for HIV/AIDS and adequate information to protect themselves from contracting the disease.

Such gender inequalities are also forcing some women to turn to commercial sex. Although

female sex worker (FSW) prevalence is still at a lower level in comparison to other regions

in the world, they are considered to be at a great risk of contracting HIV through unprotected sexual activities (Abu-Raddad, 2010). HIV epidemic is not established among FSWs at this point, however, it must be noted that the vulnerable economical and social situations that many FSWs in MMCs face are nevertheless contributing to the spread of HIV.

Lack of education is also pervasive among FSWs. For instance, Sepehrrad (2003) notes that in Iran, women often do not have an access to adequate education, and that they face significant discrimination in employment and freedom of travel, thus forcing some of them to engage in sex trades as the last resort. In addition, a study conducted by Teherani and Malek-Afzalip (2008) reveals that FSWs are significantly less knowledgeable about HIV transmission patterns and preventive methods in comparison to other at-risk populations, and that 42% of FSWs interviewed in the study had not been aware of the spread of HIV through sexual transmission.

Lack of knowledge about HIV/AIDS among generalized populations is also prominent in the MMCs. A research conducted by Tavoosi et al. (2004) shows that 20% to 30% of the participants in their study believed that they can contract HIV through mosquito bites, public swimming pools, and public toilets. Similarly, in United Arab Emirates (UAE), only 31% of a group of students knew that there is no vaccine, and only 34% knew that there was no cure for HIV/AIDS (Ganczak, et al., 2007). Moreover, Badahdah (2010) reported that 55% of the Saudi Arabian college students who participated in the study erroneously believed that condoms were ineffective in preventing HIV transmission. Likewise, a series of surveys conducted by Measure DHS (2005, 2000 & 2003) reveals that the number of women who did not know about condoms as means of prevention was exceptionally high in some MMCs: 29% in Guinea, 80% in Indonesia, and 85% in Morocco. The lack of knowledge about the importance of condoms is partially due to the strict nature of Islamic norms which perceive the concept of “safe sex” and the use of condoms as promulgation for non-marital

sex, which is prohibited and often punishable in many MENA countries (Madani, Al-Amzrou, Al-Jeffri, & Al Huzaim, 2004). Indeed, in the case of Kuwait, 90% of family physicians found to be oppositional against the use of condoms even to prevent HIV infection, suggesting that condom use is rather discouraged in at least one MMC (Fido, Al-Kazemi, 2002)

Misconceptions about HIV/AIDS can lead to stigmatization and discrimination against people living with HIV/AIDS (PLWHA). For example, Hossain (2009) notes that there are stigmatized attitudes towards PLWHA among Bangladeshi health care workers due to the strong religious affiliations and high level of irrational fear about HIV/AIDS caused by lack of accurate knowledge about the virus. Likewise, a study conducted by Ayranci (2005) reveals that approximately 25% of the participants in Turkey agreed with misconceptions such as “AIDS is a punishment by God,” and “one is not infected with HIV/AIDS if engaged in sports and well-nourished”. UNAID (2010) warns that PLWHA, as well as those who are at risk abstain from disclosing their status to avoid such discrimination and ostracism against HIV, which as a consequence hinders them from seeking counseling and proper treatment. Hull and colleagues (2010) further state that women face gendered stigma when seeking for treatment and care for HIV due to the shortage of physicians who will treat female patients without the accompaniment by male relatives and with respect the confidentiality, resulting many reports of women being rejected by hospitals and clinics. PLWHA also can face rejection by their family members, partner, and the society, often simply because of the lack of proper knowledge about HIV/AIDS.

In all, Ayranci (2005) as well as Maswanya et al. (2000) add that, in general, tolerance level toward PLWHA positively correlates with the level of knowledge and education about the disease, thus the higher the education or knowledge about HIV/AIDS, the higher level of tolerance and support people show towards PLWHA, therefore it is crucial to

make efforts to increase educational opportunities for people to learn about HIV/AIDS in order to lessen discrimination towards PLWHA.

Political Factors

Lack/low level of democracy is also noted as one of the factors correlated with high HIV prevalence. Hsu (2004) concludes after extensive research that there is a correlation between low HIV prevalence and effective democratic governance at a global basis; that is, countries with crucial democratic components including high Human Development Index (HDI), Gender-Related Development Index (GDI), gender equity, human rights, transparency, responsiveness to the community, effectiveness, accountability, and equal distribution of income and resources will be less likely to experience major HIV epidemic. Similarly, a research conducted by Whiteside (1999) emphasizes the significance of a democratic government as a precondition for a low HIV prevalence rate, although the same report at the same time notes the possibility of high HIV incident potentially leading to low level of democracy instead of other way around, as the loss of human capital particularly in the younger generations that are the most productive can lead to a social instability followed by infringement of human rights, government inefficiency and economic stagnation.

While many studies show that the MMCs often appear to be associated with low level of democracy (Economist Intelligence Unit, 2011; Freedom House, 2010, 2011), the common misconception about Islamic religious followers being anti-democratic must be dismissed, as there is no evidence that strong Islamic attachments provoke low democracy (Tessler, 2002; Hofmann, 2004). In fact, Hofmann (2004) reveals in a study that the participants in eight Muslim countries showed rather favorable attitudes towards democracy regardless of their religious affiliations.

Suggested Solutions

While there are discussions about the current situation and the various factors contributing to the increase in HIV/AIDS incidents in the MMCs, the amount of the empirical research testifying what works specifically in these countries in terms of maintaining a low HIV/AIDS prevalence is almost nonexistence. However, there are some researchers that offer recommendations. In this section, suggestions from selected works will be discussed.

Some scholars suggest that expanded and continued monitoring system that is able to grasp the HIV epidemic within both the general population and the at-risk groups is the important key in keeping the epidemic under control (Jenkins, Robalino, 2003; Roudi-Fahimi, 2007; Abbu-Raddad, 2010; USAID, 2010). The reason behind is the current situation surrounding the monitoring system in MENA region, which is substantially lacking in its ability to encompass the epidemiological patterns among the stigmatized at-risk groups including IDUs, MSM and FSWs, who are the most affected by HIV. Abbu-Raddad (2010) further emphasizes that inadequate monitoring can result in overlooking sudden outbreaks of HIV, which can develop into a larger epidemic that affects the generalized populations in the country. The scholar also suggests that scientific research and an evaluation system is vital for the process of formulating evidence-informed policies to combat HIV/AIDS more efficiently.

A few studies also suggest that the governmental institutions need to increase their political will and commitment to HIV/AIDS issues, and make further efforts to prevent the spread of the disease through implementation of strategic policies such as the risk reduction programs and expansion of health care facilities for better accessibility to testing, treatment and support services (Jenkins, Robalino, 2003; Cheemeh, Montoya, Essien & Ogunbade, 2006; USAID, 2007; Roudi-Fahimi, 2007; Abbu-Raddad, 2010; USAID, 2010). Harm

reduction, a program adapted by some MMCs such as Iran and Libya as well as many other nations outside the Arab world, attempts to eliminate the risk of the marginalized subgroups contracting HIV using supportive programs such as needle exchange instead of confronting the issue with punishment to prevent risky behaviors. (Abbu-Raddad, 2010). Work by Jenkins and Robalino (2003) also suggest that the governments in the MMCs should make efforts to cut down unemployment rates and cost of education, and increase knowledge about HIV/AIDS through multi-sectoral planning to affect sexual and reproductive behaviors in order to reduce the vulnerability among citizens, particularly youth and those who are at risk. Cheemeh and colleagues (2006) also note that comprehensive and culturally appropriate education on HIV/AIDS is pivotal in order to effectively change people's sexual behaviors.

Another important factor for low HIV prevalence is contributions from civil society. Abbu-Raddad (2010) emphasizes in his study that there is a definite lack non-governmental organizations (NGOs), community organizations, PLWHA groups, as well as interventions from international organizations in the many of MENA countries. WHO (2007) also reports that faith-based organizations play a great role in expanding community workshops, strengthening community support groups, and providing health care for PLWHA as well as the marginalized subgroups that are often hard to reach.

Lastly, many scholars also refer to the empowerment of women as an important aspect in reducing gender discriminations and transmission risk among women (Kelley, Eberstadt, 2005; Shawky, et al., 2009). Hull and colleagues (2010) also illustrate that many women and young girls not only face conservative societies where talking about sexuality and HIV/AIDS is a taboo, but also poverty, lack of education, and exploitive sex, all of which put them in a greater danger of contracting HIV than men. Additionally, Ehrhardt et al. (2009) conclude that economic, educational, social and political empowerment insofar as to improve and strengthen the women's overall rights in the society is also crucial.

Case Study

The suggestions mentioned in the previous literatures seem rather tangible; however, there is no empirical or statistical evidence to confirm that these solutions in fact work in the MMCs in terms of reducing or maintaining HIV prevalence. In order to discover whether or not there are any correlations between these suggested solutions and the trends in HIV prevalence in the MMCs, this section will cover a study case on Mali, a Muslim country located in west Africa which is one of very few MMCs that are experiencing a decrease in the HIV rates. By closely observing the changes in the HIV prevalence and the precursor factors in the last twenty years, it will attempt to analyze the feasibility of the suggested solutions from an empirical standpoint. If any of the factors are found in fact tangible, then statistical analyses will follow in the later section in order to see if the correlation applies to other MMCs in the world as well.

Overview on Mali

Mali, a country located in west Africa, has a population of approximately 14,533,000 of which 90% is Muslim, 9% indigenous belief, and 1% Christian (CIA, 2012). The first case of HIV was reported in 1985, and since then, the incident rates increased as high as 1.9% by 1996. However, the country successfully managed to reduce the incident rates down to 1% in 2009, which is somewhat lower than the world average of 1.908% (See Figure 7) (WHO, 2005). Mali, indeed, is also one of the very few MMCs that have been seeing hopeful outcomes throughout the last two decades, and the HIV transmissions are generally concentrated on the at-risk populations. However, WHO (2005) warns that the prevalence among FSWs are precariously high (21% in 2000), and the HIV prevalence rate among pregnant women in Bamako, the capital city of Mali, was over 5% between 2001 and 2003 (WHO, 2005), indicating a much larger and disproportional epidemic among vulnerable populations, particularly in women.

Although Mali is a Muslim-majority country, premarital sex is commonly practiced particularly among the youth, and the median age at first sex in Bamako is somewhat low: 15-years old for men and 14-years old for women (Measure DHS, 2001). Many of the youth perceive sexual activity as natural phenomenon that is pleasurable and appropriate for invigorating relationships between men and women, which is a rather liberal attitude in comparison to the traditional norms which expect premarital chastity (Boileau, et al., 2008). In general, the primary reasons for initiating sexual activity are curiosity and peer pressures for unmarried males, and love and financial reasons for females, although one study conducted by Gueye and colleagues (2001) reveals that 46% of sexually experienced unmarried males, and 17% sexually experienced unmarried females revealed that they wished they had delayed their first sexual encounter.

As for the perception on the use of contraceptives, Moileau et al. (2008) report that condoms are generally recognized as means of preventing HIV among the youth, however, the scholars also point out that the older generations, particularly women, are not as tolerable and they often perceive condoms as the reason behind the recent sexual liberalization among the youth. When it comes to practice, condom use among the youth in Mali is considerably low: 30% and 14% among 15 to 24-year old males and females respectively (USAID, 2005). For the at-risk population including military personnel, truck drivers, and vendors, the prevalence of condom use drops even lower –only 12% of female vendors used a condom during last sex with a non-regular partner (USAID, 2005).

According to a report by USAID (2010), the government of Mali has been making efforts since 1988 at both national and sub-national level using antiretroviral therapy (ART), and various strategic plans in order to reduce, and maintain a low prevalence of HIV/AIDS. The National Strategic Plan, the first national anti-HIV/AIDS efforts, was implemented in 2001 through 2005 in part to combat HIV/AIDS in Mali, as well as to deliver universal

access to ART for PLWHA for free of cost. In the meantime, the government made further efforts by restructuring the National AIDS Program, creating the National High Council for AIDS (HCNLS) in 2002, as well as adding an Executive Secretariat to the HCNLS in order to extend efforts to reduce the prevalence of HIV/AIDS in the country. The year 2005 marked the beginning of a five-year partnership with the World Bank in which Mali received the total of \$25.5 million as financial support to tackle HIV/AIDS. In 2006, the second National Strategic Plan as well as a series of new policies to protect PLWHA were implemented, which, this time, were more socio-culturally sensitive. Another international partnership with the USAID was established to deliver health care and testing service to mine workers, communities around the mines, and at-risk populations in 2008. Finally, most recently, the third National Strategic Plan was implemented in 2011 in order to continue combating issues regarding HIV/AIDS in Mali. Furthermore, Mali has seen impressive anti-HIV/AIDS efforts made by a number of influential religious leaders including Cherif Haidara, an imam who has been a passionate advocate for reducing the risk of people contracting the virus by delivering adequate education and public services. He was also one of the first religious leaders to publicly demonstrate the need to promote condom use and improved family plan among people as part of combating HIV/AIDS (USAID, n.d.).

Analyzed Factors

The following are the factors that were chosen to be analyzed in this study with a basis on what has been discussed in the previous literatures in terms of controlling HIV/AIDS epidemic in the MMCs. Seven different factors will be analyzed to observe how they might be correlated with the trends in HIV incidents specifically in Mali.

Democracy Index

As it was suggested that high level of democracy is correlated with a low HIV prevalence, the transitions in the level of democracy will be included in the study. A democracy index was extracted from the Polity IV Project: Political Regime Characteristics and Transitions 1800-2010 provided by the Political Instability Task Force. The democracy index aggregates of six components which measure the quality and level of democracy, exclusive recruitment, constraints on executive authority, and political competition, which are systemically coded into a 21-point scale spectrum ranging from -10 (least democracy/hereditary monarchy) through 10 (most democracy/consolidated democracy). In theory, if the previous literatures are correct, an increase in the democracy score should correlate with a decrease in the HIV prevalence.

Government Effectiveness

According to some scholars, higher commitment and political will to tackle HIV/AIDS epidemic through effective policy implementation and strong public services are critical in controlling an epidemic. In order to test this theory, the government effectiveness index was rendered from the World Bank's Worldwide Governance Indicators to observe how it might be correlated with the trends in the HIV prevalence. Government effectiveness index was intended to capture the quality of the public/civil services and the degree of its independence from the political pressures, the quality of policy formulation as well as the implementation, and the credibility of the government's commitment to such policies with a rating system ranges between 2.5 (most effective), and -2.5 (least effective). As an effective government will have a large political commitment and will to create highly accessible and quality civil services for the citizens, which is a crucial precondition for HIV/AIDS epidemic control, an increase in the government effectiveness should correlate with a decrease in the HIV incidents.

General Government Expenditure on Health

As part of measuring the government's level of commitment to control HIV epidemic, the ratio of the general government expenditure on health (GGHE) to the total general government expenditure was extracted from the WHO's Global Health Expenditure Database. The GGHE depicts how many percentages of their total government expenditure a government spends on the matters regarding public health, hence revealing how committed they are about delivering adequate health services to the citizens. Due to the lack of comprehensive surveillance, however, the data for 1990 through 1994 are not included in this study.

Women's Rights

In order to calculate the overall level of women's rights in Mali, women's political, economic, and social rights scores were rendered from Cingranelli-Richards (CIRI) Human Rights Data Project. This is one of the numerous ways to measure the level of women's empowerment which often is suggested as a crucial part of reforming the harmful social structures which potentially put many women at higher risk of contracting HIV. Women's political rights index reflects the degree to which women possess the right to vote, run for political office, hold elected and appointed government positions, join political parties, and to petition government officials. The data is coded into 0 (no political rights guaranteed by law), 1 (political equality is guaranteed by law with significant limitations in practice), 2 (political equality is guaranteed by law, and women hold more than 5% but less than 30% of seats in the national legislature), or 3 (political equality is guaranteed by law, and women hold more than 30% of seats in the national legislature) to depict the degree of political rights that women hold in a country. Women's economic rights measure the quality of job-related environment including the equality of pay, hiring process and work load, freedom of choice

of profession including military and police force as well as those that are considered dangerous, job security, the right to work at night, and the right to be free from sexual harassment in the workplace. The collected data is coded into 0 (no economic rights for women under law), 1 (some economic rights guaranteed under law with no or weak law enforcement), 2 (some economic rights guaranteed under law with effective law enforcement and low level of discrimination tolerated), or 3 (all or nearly all of women's economic rights guaranteed by law with strong law enforcement and no discrimination is tolerated) to measure the level of women's economic rights. Finally, women's social rights index includes the measurements regarding the level of freedom enjoyed by women in terms of inheritance, marriage, divorce, travel, education, property, citizenship, residence, social activities, and freedom from female genital mutilation and forced sterilization. The data on how much control women possess over these matters is coded into 0 (no social rights for women under law), 1 (some social rights with no or weak law enforcement and a moderate level of discrimination is tolerated), 2 (some social rights with effective law enforcement with a low level of discrimination tolerated), or 3 (all or nearly all women's social rights are guaranteed under law).

Civil Liberties

The citizens' civil liberty scores were extracted from the Freedom House's publication "Freedom in the World 1990 and 2009". It is a 7-scale spectrum with codes ranging between 1 (most civil liberty) through 7 (least civil liberty) to reflect the current societal situation regarding freedom of expression and belief, associational and organizational rights, rule of law, personal autonomy and individual rights. This spectrum of rights are employed in this study in order to observe the level of autonomy enjoyed by citizens, which in many aspects is an important precondition for the establishment of strong civil communities and organizations that is a crucial element in fighting HIV/AIDS.

Human Development Index

The Human Development Index (HDI) is a measurement provided by United Nations Development Programme (UNDP)'s International Human Development, which reflects an overall degree of development of a country by combining indicators of life expectancy, educational attainment, and income level. It is in a way an all-inclusive measurement that can indicate the level of people's overall well-being in a given society, which certainly is a key in preventing and controlling HIV epidemic.

Expected years of schooling

The number of expected years of schooling of children under 7 years old in Mali was extracted from the UNDP's International Human Development Indicators (2011). Although this is one of the measured components in the HDI, this variable was extracted in order to take a closer look at the level of education and analyze the education-HIV relationship. Again, if the level of education is correlated with the level of HIV prevalence, then an increase in the number of years of schooling that children can expect to attain should be correlated with some degree of decrease in the HIV prevalence.

Knowledge about HIV/AIDS

The level of knowledge about HIV/AIDS was measured using two different surveys conducted by the Measure DHS's HIV/AIDS Survey Indicators Database. The surveys are based on two questionnaires: whether or not the respondent has heard of HIV, and if they knew that condoms can be used as measures of preventing HIV transmissions. Four different groups of Malians including females aged between 15 and 49, males aged between 15 and 49, females aged between 15 and 24, and males aged between 15 and 24 answered to these questionnaires and the results were recorded to measure the level of knowledge about HIV/AIDS among the participants. In order to analyze the effects of these factors, the

changes in people's knowledge about HIV/AIDS over years are individually compared with the transitions in the HIV prevalence rate. However, the analyses are restricted to 1995, 2001, and 2006 as the surveys were not conducted during other years.

Condom Use

Lastly, as part of measuring the patterns sexual behavior of the people of Mali, the data was rendered from the Measure DHS to see how many percentages of the same group of males and females used a condom during the last sexual encounter. In order to test the correlation between a low-risk sexual practice and a low HIV prevalence rate, the data from 1995, 2001, and 2006 again are compared with the transitions in the prevalence rate of HIV. As it is suggested by some scholars, if people's level of knowledge on HIV/AIDS and their sexual behavior affect the prevalence, then higher percentage of people using condoms should show correlations with the trends in the HIV incidents.

Analyses

From a political perspective, Mali has gone through an extensive period of reform, particularly throughout the 1980s, 1990s, and 2000s, seeking a way to move away from a single-party state led by the Democratic Union of the Malian People (UDPM) established in 1976 with a basis on the concept of democratic centralism. Although the political situation stabilized briefly during the 1980, a student-led anti-government riot eventually broke out in 1991 as a result of the urgent demands for multi-party democracy. This marked the beginning of the political reformation towards true democracy, and in 1992, the UDPM was replaced by the interim government, the Transitional Committee for the Salvation of the People (CTSP) which worked to create a suitable environment for the establishment of the incumbent party, Alliance for Democratic Mali (ADEMA). Despite the court-ordered annulment of the legislative elections held in the same year in 1997, which caused some level of political

turbulence in the following years, in 2002 Mali saw a transition from one democratically elected President to another for the first time. The country also holds a secular government.

Such political turns are reflected in the figure 8 and 9, which depict the changes in the democracy level and the government effectiveness in Mali, respectively. For the democracy level, it acutely communicates with the overthrow of the UDPM in 1992, and the political turbulence through 1997 and 2001 which is indicated with a small decline.

The government effectiveness index, too, reflects the country's vigorous step toward full democracy and effective governing, although data for some years are missing in this particular analysis. It also should be noted that although the graph 9 shows promising outcomes throughout the 1990s and early 2000s, the government effectiveness of Mali has been on a decline since 2003, and it is still considerably low at - 0.77 on a -2.5 to 2.5 scale even in 2009. This is perhaps due to the governmental institutions and ministries' lack of comprehensiveness in the democratic commitment. For instance, one study points out that there are frictions between the executive power and the parliament, and that the parliament's ability to supervise the executive branch is non-existence the real life, which together prevents the country from realizing a most democratic government (Bertelsmann Stiftung, 2010). The same study by Bertelsmann Stifung (2010) also notes that the police authorities often disrespect the constitutional duty to conduct fair judicial trials in some cases, which can create false accusations. In any case, however, it should be noted that Mali has seen an extraordinary improvement in the government particularly during the 1990s where the democracy score jumped from -7 up to 7 on a 21-interval scale, showing one of the most successful democratic transformations in sub-Saharan Africa as one of very few MMCs with a democratic government. We can also observe from the graphs that both factors show improving patterns, which correspond with the changes in the prevalence of HIV in broad terms, although not quite synchronously. Precisely, it is observable that the improvement in

the level of democracy and the government effectiveness take place first, and, perhaps, the prevalence in HIV follows to respond to such political changes with time lag.

On the other hand, the ratio of the GGHE to the general government expenditure in Mali shows a rather erratic transition (See Figure 10). The data seems as though it is correlated to the changes in the level of democracy, as the government spent the least when they were experiencing the lowest democracy level phase in 1999. However, the changes occur in other years are not quite explainable by other factors studied in this section, nor does it appear to be related to the changes in the HIV prevalence as both the HIV prevalence and the GGHE show a decreasing pattern starting in 1996. This indicates the possibility that HIV prevalence can decrease regardless of the government tightening their budget allotted for healthcare-related matters in the country.

For women's economic, political, and societal rights in Mali, these factors all have increased in the past two decades; however, the level of such rights remain at a low level as of 2009: 1 for the economic rights, 2 for the political rights and 1 for the societal rights on a 0 to 3 scale (See Figure 11, 12, & 13). As it is reflected in the indices, women have very limited overall rights in the society. For instance, many young girls may be married as young as 12 years old without their consent despite the fact that the legal marriage age for women in 15 years due to the convention of fathers and husbands to perceive their daughters and wives as merely their property (Greeberg & Okani, 2001). Moreover, women often do not have the right to make decisions regarding the number, spacing and timing of having children due to the lack of social status within a family, accessibility to contraception, and sufficient information regarding reproduction (Bureau of Democracy, Human Rights, and Labor, 2010). Also, violence and assault on women such as rape and sexual harassment often do not get reported as many victims are afraid of the consequences including divorce and ostracism from the society, and the police authorities are reluctant to investigate such cases.

Additionally, women can be deprived of societal rights including an access to education and employment as the society has the tendency to give favor to men over women in these areas. As a result, many women are illiterate (48% in 2010), and many often are unable to use legal services due to this disadvantage, which consequently puts women in even more of a vulnerable position. This also leads to deprivation of women's rights to receive inheritance, and to own property (Social Institutions & Gender Index, 2009; Bureau of Democracy, Human Rights, and Labor, 2010). Lastly, female genital mutilation (FGM) is also prominent in Mali. In fact, researches reveal that roughly 92% of all women between the ages of 15 and 49 have been subjected to FGM, and it is performed on girls and women of any age, ethnicity, and religious and cultural affiliations (UNICEF, 2001). United States Department of State (2001) also notes that such practice is culturally deep-rooted that about 75% of the women are in favor of continuing this practice, and that even for those parents who are opposed to FGM, it is not easy to refuse to have this tradition performed on their daughters because of the social pressures and fear of ostracism that the daughters might face in the future.

Additionally, such gender inequality in the society is also reflected in the study conducted by UNDP (2011) as well. According to their Gender Inequality Index (GII), which measure the level of women's political status, education attainment, fertility rate, and accessibility to the reproductive health services, the level of women's rights in Mali has not improved since 1995 to up until 2008: 0.73 in 1995, and 0.71 in 2008 on a 0 (most women's rights) to 1 (least women's rights) scale. Overall, as the data provided by two different organization suggest, the level of women's rights in Mali has not shown a significant improvement, which suggests that a prevalence in HIV/AIDS can decrease regardless of the changes in the level of woman's rights. It may also suggest that it has a very weak effect in the way that is not observable in a simple cause-effect analysis employed in this section.

Civil liberty, which depicts the level of personal autonomy and individual rights for freedom of expression and belief, shows rather unstable pattern, although it has improved dramatically over the past years (See Figure 14). In general, the government of Mali respects the people's civil liberty, including the freedom of religion, assembly and association (Freedom House, 2009), as well as the freedom of speech and press. Also, Malian people are free to assemble an organization of any nature with permission from the mayor which is easily obtainable. They enjoy the freedom of movement within and outside the country, and the rights to access education and the Internet freely, and are free to assemble independent unions. Also, the citizens of Mali are granted with the rights to participate in politics through voting and running for office to change the government in a peaceful means (Bureau of Democracy, Human Rights and Labor, 2004). However, one research points out that there have been a few cases where the government ignored these rights by arresting journalists and dispersing civil protests in the past (Bureau of Democracy, Human Rights and Labor, 2010). The same study also reveals that there was no publicly visible lesbian, gay and transgender organization currently in Mali due to the restriction imposed by the government because of the "immoral" nature of such associations. It also should be noted that there is a societal discrimination against PLWHA, although the government has been making efforts to raise awareness of HIV/AIDS insofar as to reduce such irrational discriminations. One survey reveals that, however, more than 75% of the citizens are generally satisfied with the level of freedom in their lives, and 80% answered that they felt safe in Mali (Legatum Institute, 2011). All in all, the civil liberty graph shows a rather whimsical pattern, but it shows an improving trajectory which confirms that the suggestion that the level of civil liberties and the prevalence in HIV might be correlated.

Likewise, the HDI in Mali has been on a steady rise, although the improvement is not as sizable as other factors discussed so far (See Figure 15). HDI depicts the gross national

income (GNI) per capita, mean year of schooling, expected year of schooling, and life expectancy at birth. Although these factors have been improving over years, the HDI in Mali is still considerably low even when compared with the average HDI of other sub-Saharan African countries: 0.352 in Mali and 0.456 in sub-Saharan Africa on a 0 to 1 scale in 2009, positioning Mali at 175th place out of 187 countries and territories all around the world. Most notably, a comparative study reveals that the HDI in Mali is even lower than some countries with higher or increasing HIV prevalence. For instance, Gambia, a west-African country with a Muslim-majority population, has a higher HDI of 0.413, and a higher HIV prevalence of 1.7% which has been steadily increasing the past two decades (+1.4% in 2009 since 1990). This, of course, does not deny the possibility that an improvement in the level of life standards contributes to reduce the HIV incidents as the HDI in Mali surely shows a hopeful trajectory; however, the comparison study certainly suggests that a high HDI does not simply translate into a low HIV prevalence rate.

The expected years of schooling in Mali shows a great improvement in the past two decades (See Figure 16). Between 1990 and 2009, the expected number of years of education that Malian children can receive increased from 2.1 years up to 8.3 years. Such impressive improvement in the accessibility to education is largely due to the major governmental commitment to move away from the traditional education system which had been both elitist and gender biased for many years since the independence of the country in 1962. In order to increase the accessibility to education for children, Malian government implemented a series of new education laws in 1994 and 1999, as well as a ten-year education development program in 1998 to achieve quality primary and higher education as for all children in Mali (Lange, 2003; Thunnissen, 2009). In order to further guarantee universal access to education for all children, Mali has been receiving considerable international support from a number of organizations including UNAID, UNICEF, Organization for Economic Co-Operation and

Development (OECD), the World Bank, RTI International, and Oxfam International. As the result, the overall elementary school enrollment rate increased from 27% in 1990 up to 78% by 2009. Despite such governmental efforts, however, the gender disparity of the enrolment as well as the shortage of teachers continues to be a concern (Lange, 2003). Nonetheless, it should be noted that the evidence certainly supports the theory that an increase in education attainment correlates with a lower HIV prevalence rate.

Similarly, the percentage of Malian people who had heard of HIV shows a rather inconstant pattern. While more people answered that they had heard of HIV in 2001 than in 1995, showing more than 10% increase among females, the level of knowledge decreased in 2006 particularly among males that their level of knowledge was lower than what it was in 1995 (See Figure 17). However, knowledge about condom use as preventive means among both males and females increased through 1995 to 2006 (See Figure 18); however, the cause behind the differences in the way the knowledge level changed is not observable in the data provided by the Measure DHS. On the other hand, it is clear that the knowledge about HIV and the preventive methods is disproportionately less common among females in comparison to males. Moreover, other research conducted by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) (2006) reveals that the prevalence of knowledge about HIV prevention is lower among women in rural regions: 53.2% in Koulikoro, and 43.4% in Mopti. In any case, the improvement in the knowledge about prevention can be noted as a potentially important component in reducing HIV prevalence.

Prevalence of the use of condom has not shown considerable improvement between 1995 and 2006 among neither males nor females (See Figure 19). Again, much less percentage of females of both age cohorts answered that they used a condom at the last sex in comparison to the groups of males. USAID (2010) also notes that low condom use with regular and concurrent partners is a continuing concern, and that women are in fact

disproportionately affected by the epidemic. Although the condom use prevalence among men who are aged between 15 years and 24 years is exceptionally higher than other gender and age cohorts, the magnitude of the effect of such change on the prevalence of HIV/AIDS prevalence is hard to estimate as the data does not show a definite improvement in sexual behavior among Malian people.

Figure 7 – Change in HIV prevalence in Mali, 1990-2009.

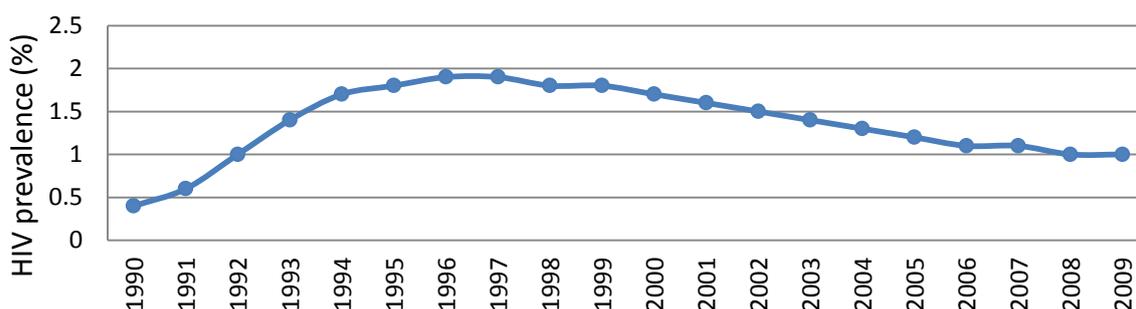


Figure 8 – Change in level of democracy in Mali, 1990-2009.

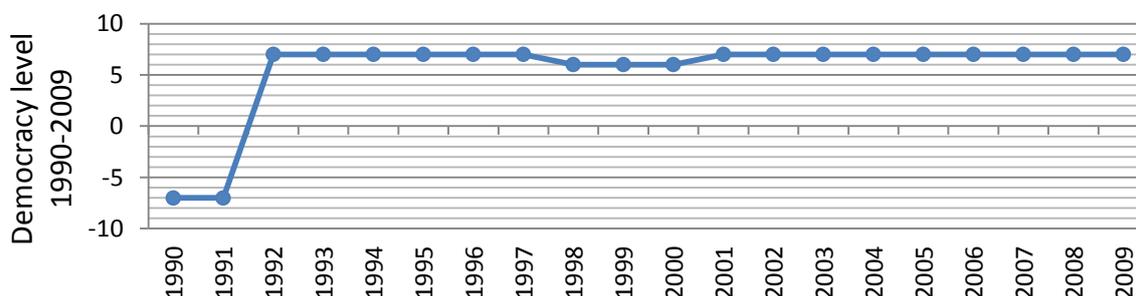


Figure 9 – Change in government effectiveness in Mali, 1990-2009.

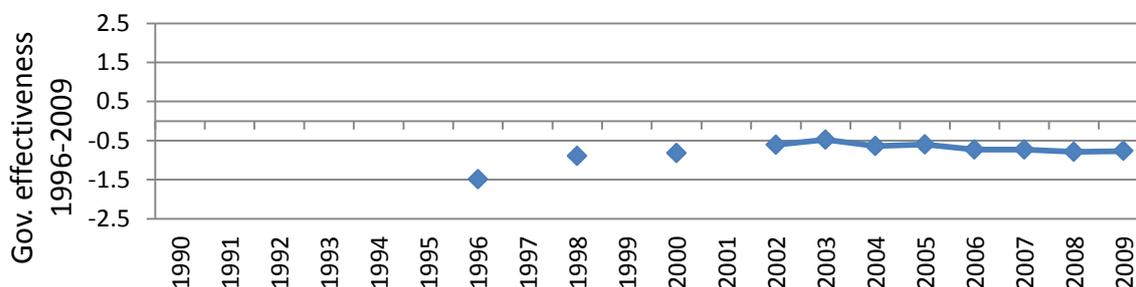


Figure 10 –Change in general government expenditure on health as percentage of general government expenditure, 1995-2009.

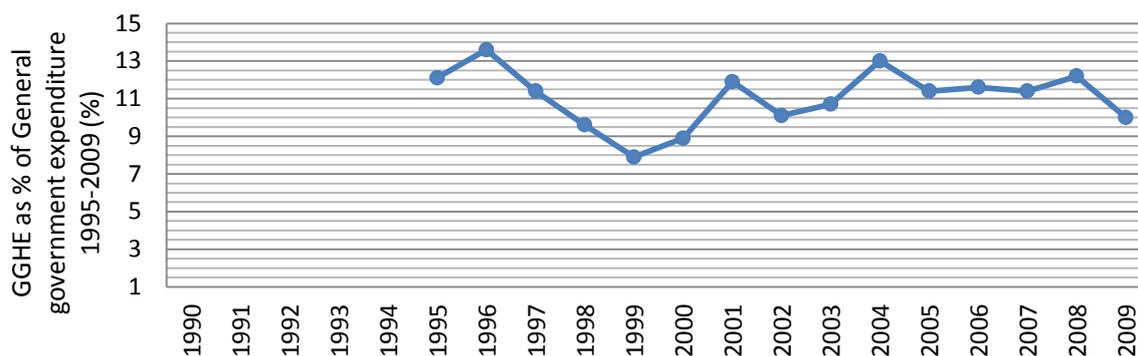


Figure 11 –Change in women’s political rights in Mali, 1990-2009.

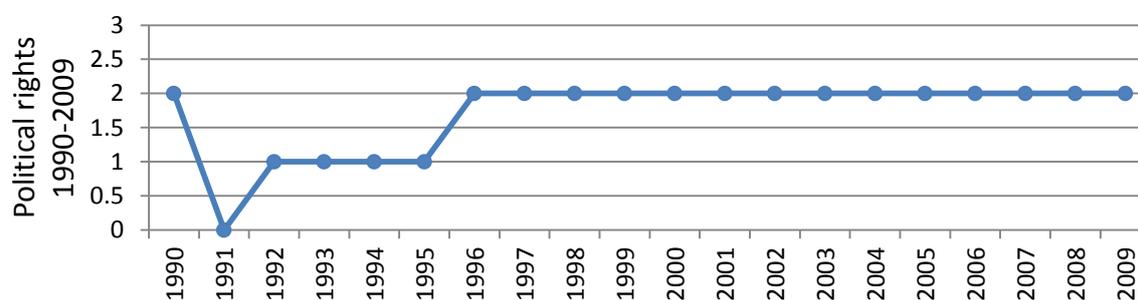


Figure 12 –Change in women’s economical rights in Mali, 1990-2009.

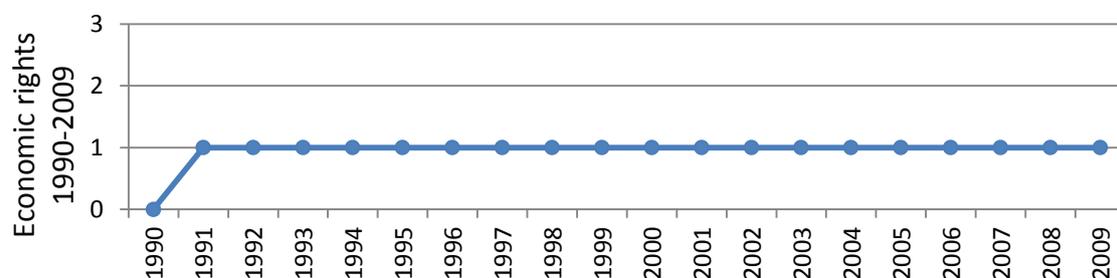


Figure 13 –Change in women’s societal rights in Mali, 1990-2009.

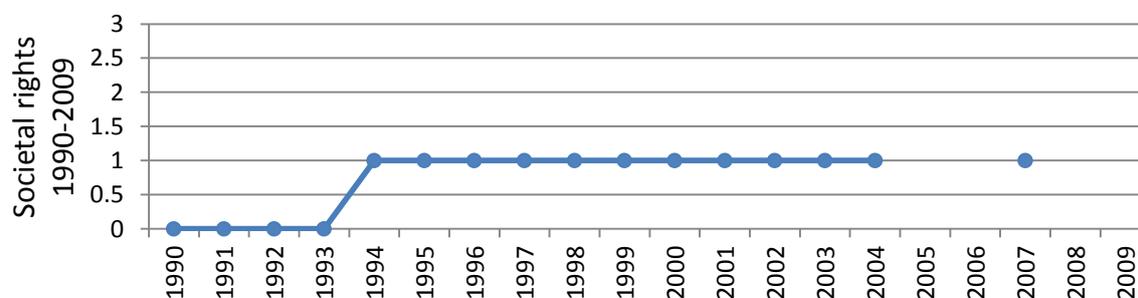


Figure 14 –Change in civil liberties in Mali, 1990-2009.

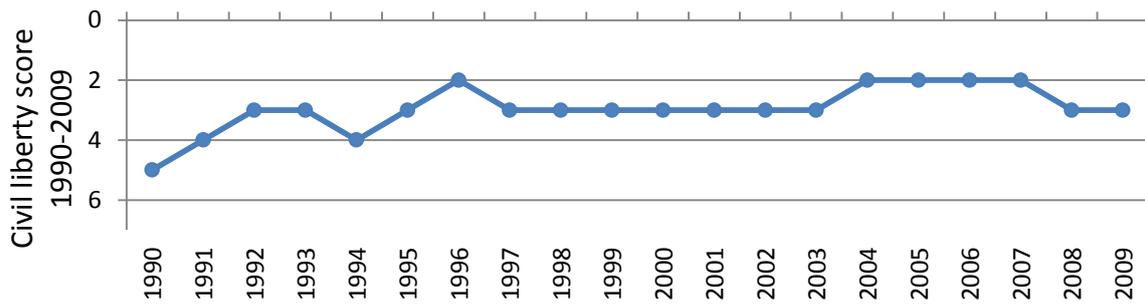


Figure 15 –Change in Human Development Index in Mali, 1990-2009.

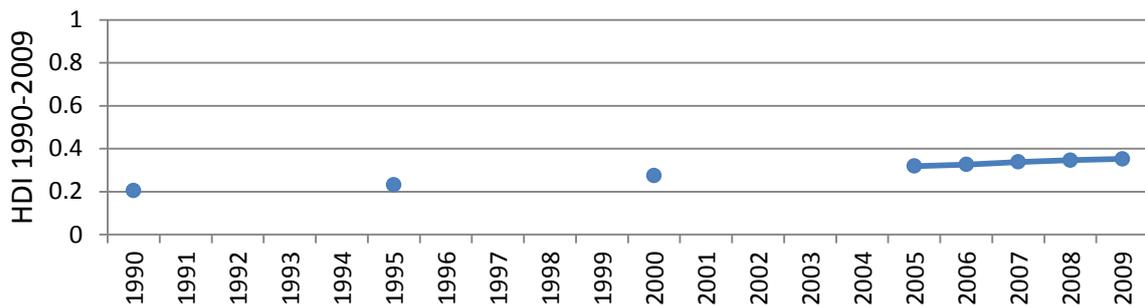


Figure 16 –Change in expected number of years of schooling for children under 6 years old in Mali, 1990-2009.

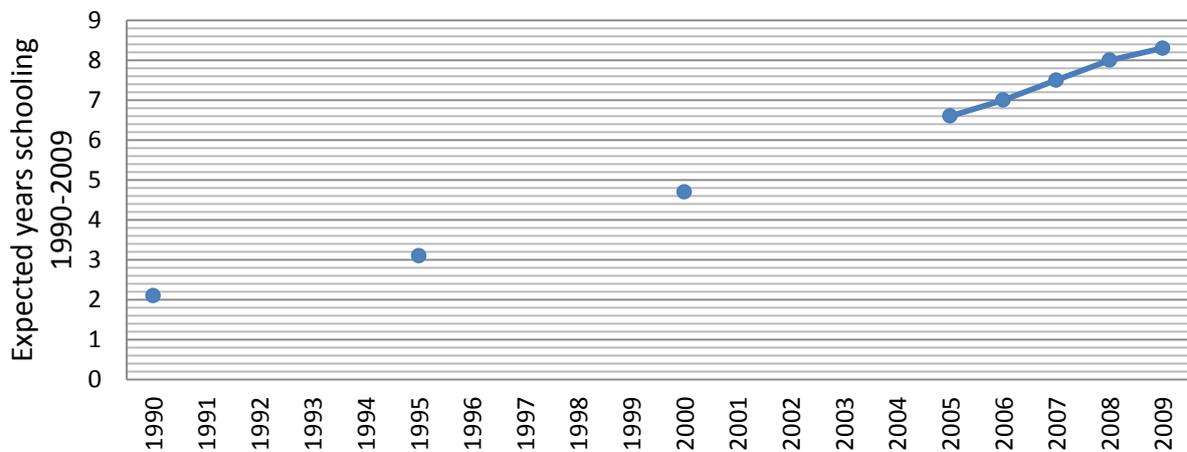


Figure 17 –Change in percentage of people who have heard of HIV in Mali, 1995, 2001 & 2006.

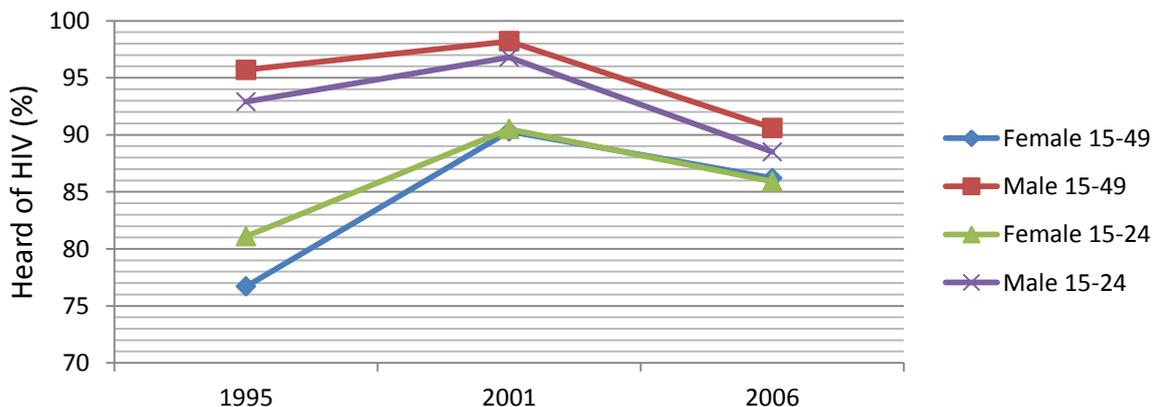


Figure 18 –Change in knowledge about condom as preventive means in Mali, 1995, 2001, & 2006.

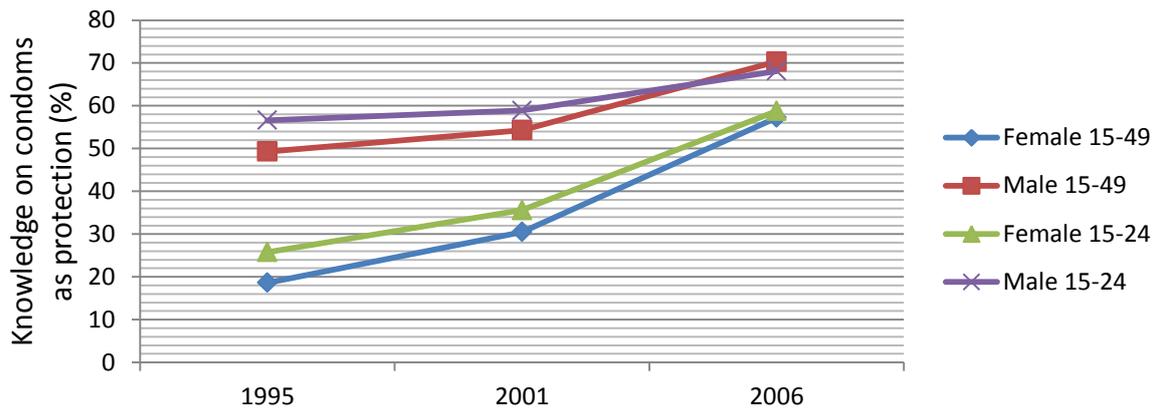
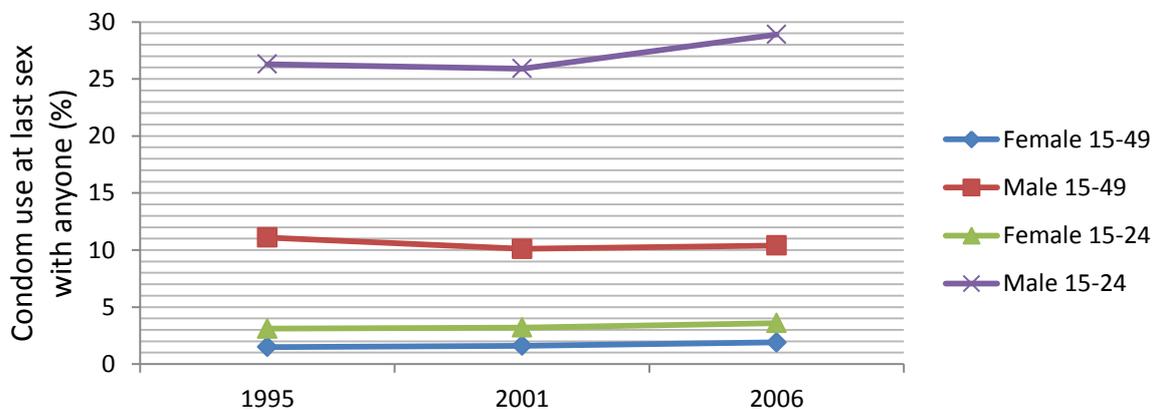


Figure 19 –Change in percentage of people who used a condom at last sex with anyone in Mali, 1995, 2001, & 2006.



Statistical Study

Mali is not the only Muslim country that has seen a large change in HIV prevalence. While some MMCs that are experiencing a decrease in HIV prevalence like Mali, there is, on the other hand, a few that are experiencing an emerging of the epidemic as well (See Table 2).

Considering what we found in the case study on Mali, some precursor factors including the level of democracy, government effectiveness, women's right, expected years of schooling, and civil liberties will be discussed to reveal the epidemic patterns and its causality at a macro-level. Due to the lack of comprehensive data, however, the HDI, the level of knowledge about HIV/AIDS, and the condom use is not included in this analysis. On the other hand, a new variable, the number of HIV/AIDS-related NGOs present in each

country, will be included as part of measuring how the level of civil efforts might be correlated to the changes in the HIV prevalence in the MMCs.

Since this study is more focused on how the transitions in the precursor factors affect the outcomes of the HIV prevalence rather than how these variables correlated to each other exclusively in the current situation, in this section the data specifically from 1998 and 2008, or otherwise noted, are employed in order to produce new variables that depict the changes in the precursor factors during these ten years. Changes in each factor, then, are individually tested against the changes HIV prevalence the MMCs using scatter graph and linear regression on SPSS 16.0, in order to see if these suggested solutions in fact are statistically correlated to the changes in HIV prevalence. In other words, this is a test to see if these factors have significant effects in terms of reducing HIV incidents in the rest of the MMCs, and not only in Mali. For more details about how the independent variables are calculated, see Appendix.

Table 2– Changes in the incident rate of HIV infection, 2001-2009 (selected countries).

County	HIV prevalence 1998 (%)	HIV prevalence 2008 (%)	Change 1998-2008 (±%)
Algeria	0.1	0.1	±0
Azerbaijan	0.1	0.1	±0
Bangladesh	0.1	0.1	±0
Burkina Faso	2.7	1.2	-1.6
Chad	2.7	3.4	0.7
Comoros	0.1	0.1	±0
Djibouti	2.8	2.6	-0.2
Egypt, Arabic Republic of	0.1	0.1	±0
Gambia	0.4	1.7	1.3
Guinea	1.8	1.4	-0.4
Indonesia	0.1	0.2	0.1
Iran, Islamic Republic of	0.1	0.2	0.1
Kyrgistan	0.1	0.2	0.1
Lebanon	0.1	0.1	±0
Malaysia	0.4	0.5	0.1
Maldives	0.1	0.1	±0
Mali	1.8	1	-0.8
Kazakhstan	0.1	0.1	±0
Mauritania	0.5	0.7	0.2
Moroco	0.1	0.1	±0
Niger	0.9	0.8	-0.1
Nigeria	4	3.6	-0.4
Oman	0.1	0.1	±0
Pakistan	0.1	0.1	±0
Qatar	0.1	0.1	±0
Senegal	0.5	0.8	0.3
Sierra Leone	0.6	1.6	1
Sudan	0.3	1	0.7
Tajikistan	0.1	0.2	0.1
Tunisia	0.1	0.1	±0
Turkey	0.1	0.1	±0
Uzbekistan	0.1	0.1	±0

Source: UNAIDS, (2010).

Dependent Variable

The definition of a Muslim-majority country in this particular study is simply the Muslim population of more than 50% within a country, which includes forty-six countries around the world according to the World Fact Book provided by the U.S. Central Intelligence Agency (CIA). However, due to the scarcity of the data available on HIV incidents in a portion of the MMCs, countries including Afghanistan, Albania, Bahrain, Brunei, Iraq, Jordan, Kuwait, Libya, Saudi Arabia, Somalia, Syria, Turkmenistan, United Arab Emirates, and Yemen are unfortunately not included in this analysis.

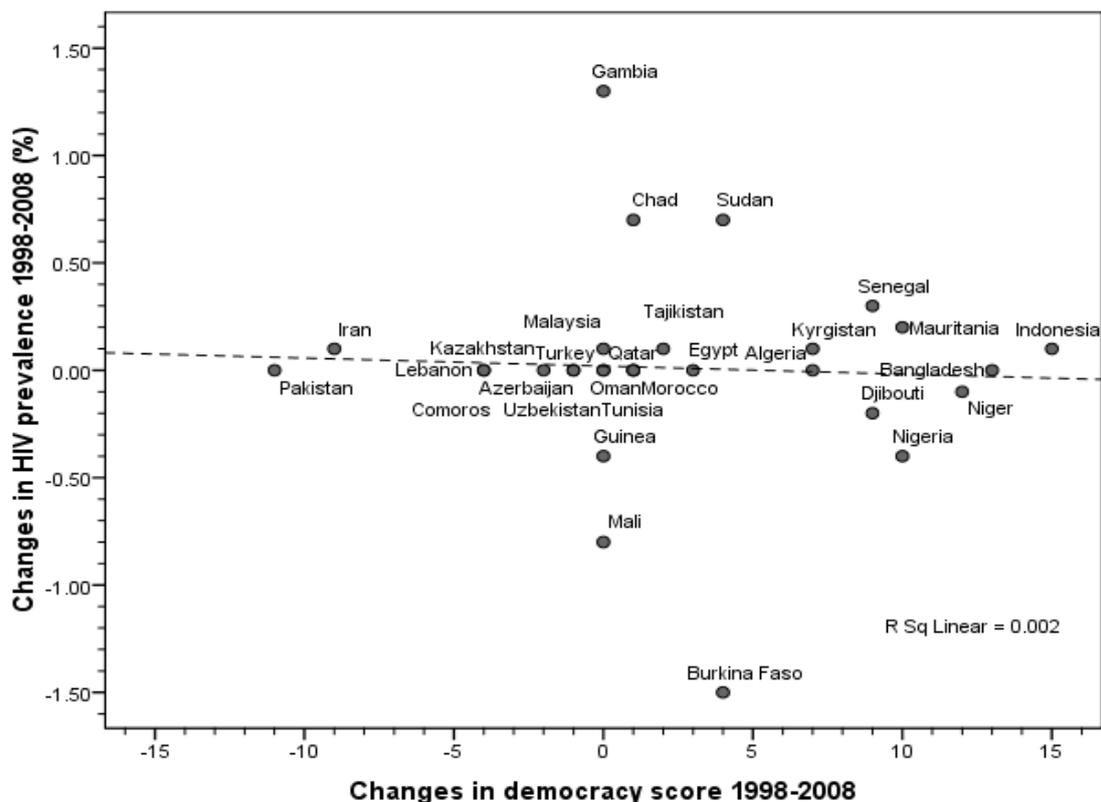
The HIV prevalence for each tested country is extracted from the Global Health Observatory data repository provided by WHO, which depicts the estimated prevalence of

HIV among the adults aged between 15 and 49. The data from 1998 and 2008 are employed to create new variable, HIV change, which is capable of indicating by how many percentage in the HIV prevalence has increased/decreased between 1998 and 2008. The HIV change is calculated simply by subtracting the 1998 HIV prevalence (%) from the 2008 HIV prevalence (%). If there is no change in HIV prevalence, then the variable is indicated with 0.

Analyses and Findings

Figure 20 shows the HIV prevalence-democracy score relationship. It reveals that there is no correlation between these two variables as the t-ratio (- .264), P-value (.793), and Adjusted R Square (- .033) do not provide evidence of statistical significance in this particular study. In precise, it is clear that many of the countries experiencing stable HIV prevalence transitions are scattered rather indiscriminately along the x-axis, suggesting that there is no empirical evidence that these two variables have meaningful effects to each other. For example, Indonesia, a MMC located in Southeast Asia, is indicated with a comparatively large step towards full democracy whereas its HIV prevalence has increased slightly in the meantime instead of decreasing. On the other hand, Pakistan did not see any expansion in the epidemic despite the fact that their democracy score went down by more than 10 points, further highlighting the lack of significant correlation.

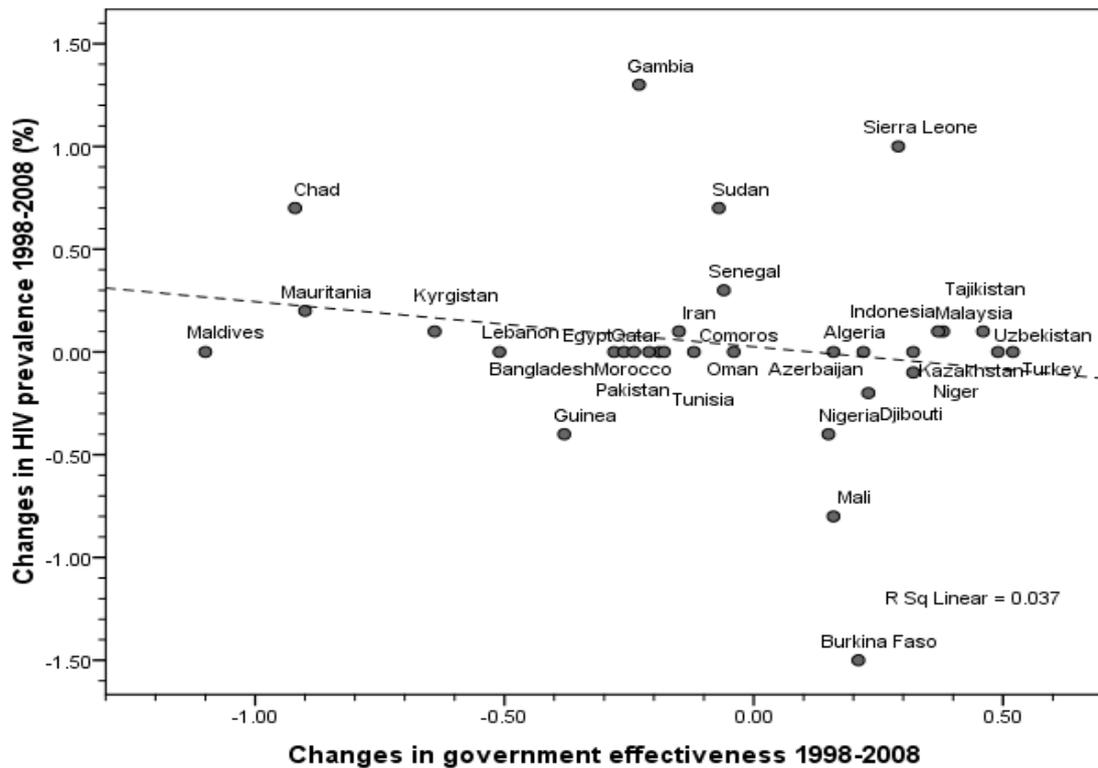
Figure 20 – Change in HIV prevalence and change in level of democracy in MMCs between 1998 and 2008.



t-ratio= -.264, P> 0.5, Adjusted R Square= -.033

Figure 21 represents the scatter graph of a relationship between the changes in HIV prevalence, and the changes in the government effectiveness in the same time frame. As the t-ratio (-1.077), P-value (.290), and Adjusted R Square (-.005) suggest, it appears rather convincing that there is no statistically significant evidence that an increase in the government effectiveness results in a decrease in the HIV prevalence, or vice versa. Indeed, the graph reveals rather unpredictable patterns. For instance, Burkina Faso, the country with the largest increase in the HIV prevalence rate (+ 1.6%), is indicated with the government effectiveness of .21-point increase. Conversely, Turkey did not see a decrease in the HIV prevalence in spite of the largest improvement in the government effectiveness among all the countries in this study (+ .52 point), again emphasizing the absence of a noteworthy correlation.

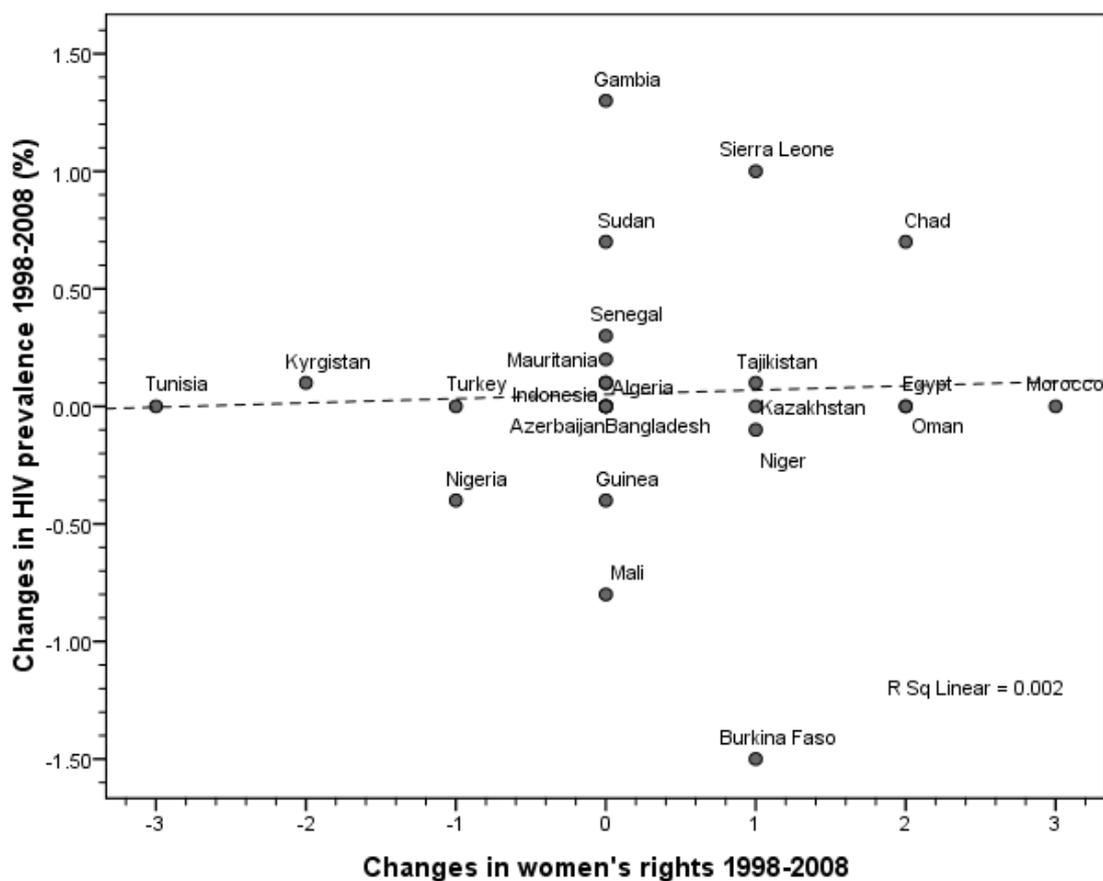
Figure 21 – Change in HIV prevalence and change in government effectiveness in MMCs between 1998 and 2008.



t-ratio = -1.077, $P > 0.5$, Adjusted R Square = - .005

In Figure 22, transitions in the overall women's rights are tested against the transitions in the HIV prevalence. The scatter graph reveals that, again, there is no statistically significant correlation between the changes in the HIV prevalence and the changes in the level of overall women's rights in the sampled MMCs. The adjusted R square suggests that only 3.8% of the changes in HIV prevalence can be explained by the shifts in the levels of women's rights, and it is rather evident from the graph that there is no statistically significant relationship between these variables. As it is also shown in the scatter graph, as many as seven countries with no changes in the women's rights are scattered along the y-axis, implying that these countries had gone through diverse HIV prevalence transition patterns regardless of the improvement or reduction in the women's rights.

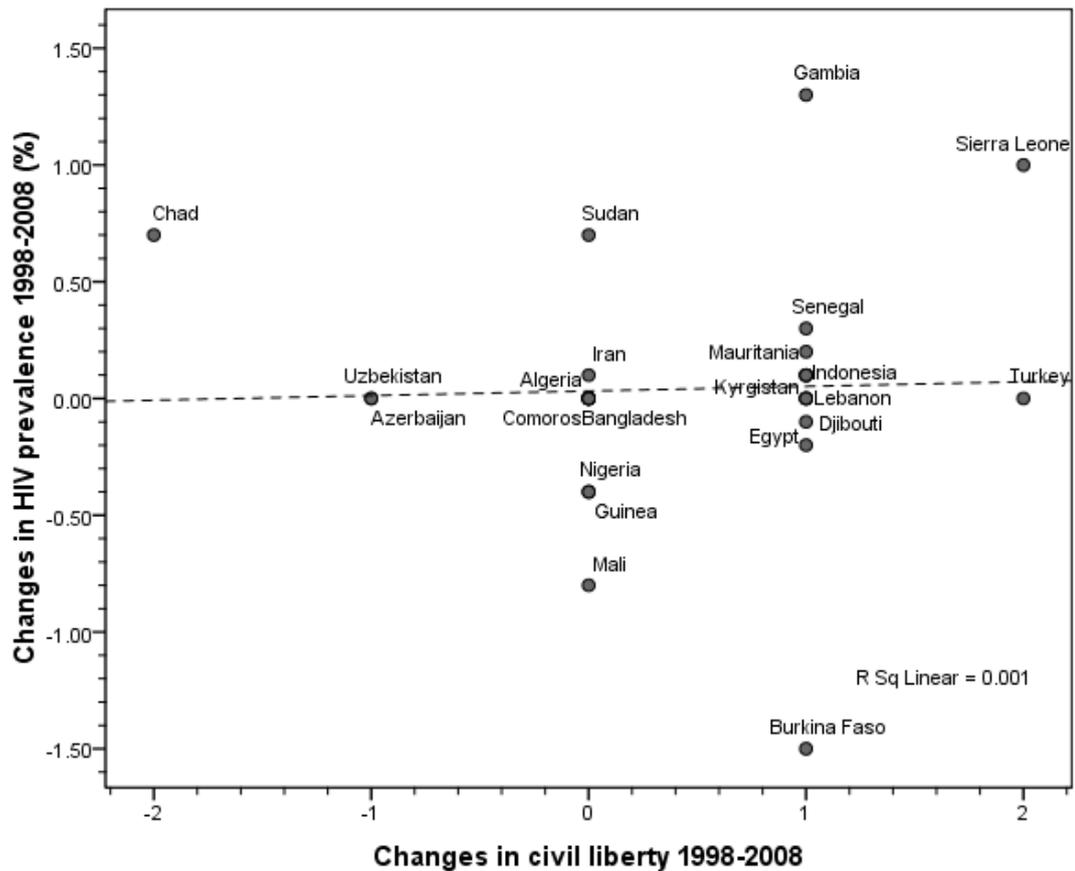
Figure 22 – Change in HIV prevalence and change in overall women’s rights in MMCs between 1998 and 2008.



t-ratio = .215, $P > 0.5$, Adjusted R Square = - .038

Figure 23 represents the HIV prevalence-civil liberty relationship. Again, based on the analysis, it reveals that there is no statistically significant correlation between these variables. All in all, as the adjusted R square indicate, only 3.2% of the HIV prevalence transition is affected by the transitions in the degree of the citizens’ civil rights, which is too small to conclude that these two variables are statistically correlated to each other. Most notably, we can observe that the countries with no changes in the civil liberties –Mali, Guinea, Nigeria, Bangladesh, Comoros, Algeria, Iran, and Sudan, are scattered along the y-axis, meaning that these countries had varied HIV prevalence changes ranging between -0.8% up to +0.8%, further confirming the absence of statistical correlation.

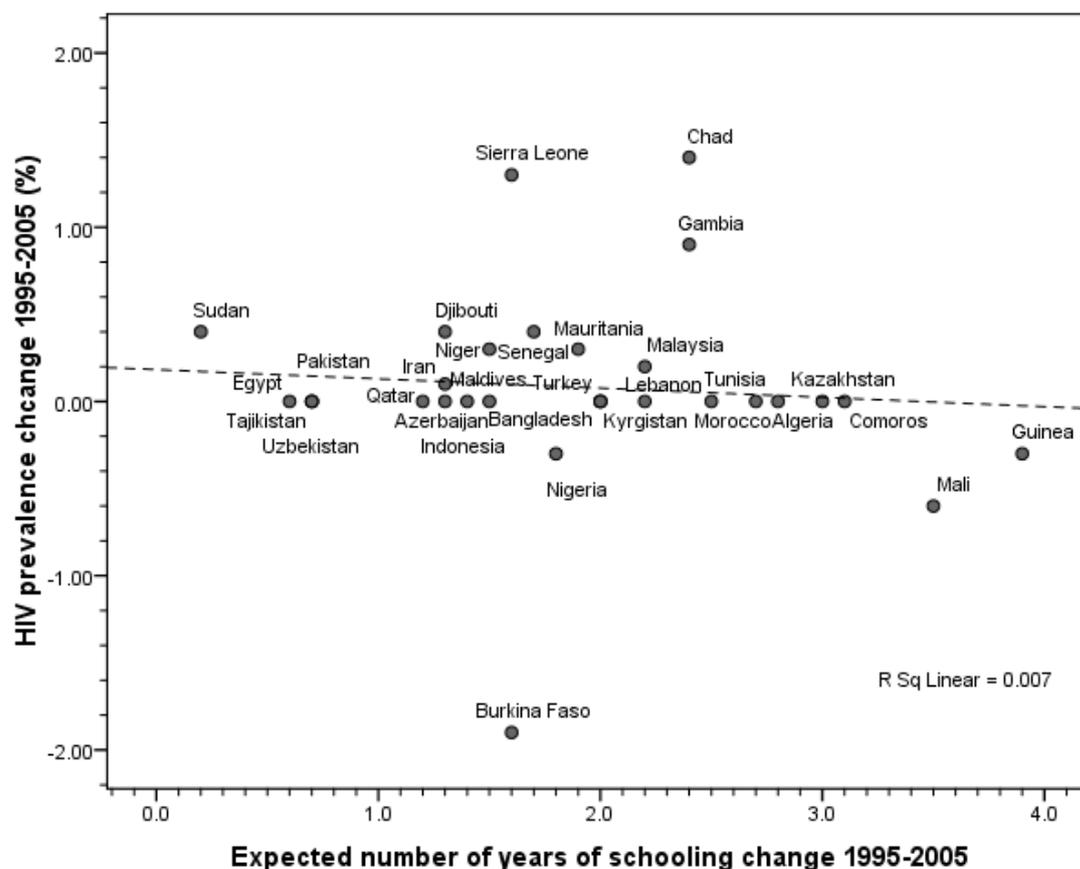
Figure 23 – Change in HIV prevalence and change in civil liberties in MMCs between 1998 and 2008.



t-ratio = .190, $P > 0.5$, Adjusted R Square = .032

Figure 24 is the scatter graph that represents the relationship between the changes in the HIV prevalence and the changes in the expected number of years of schooling for children under seven years old. Again, as we can observe, there is no statistically significant correlation between these two variables. Although the analysis shows a very weak negative relationship (t-ratio = -.190), the adjusted R square indicates that only 2.7% of the transition patterns in the HIV prevalence can be explained by the changes in the expected years of education in the tested MMCs. Additionally, it is evident from the scatter graph that all tested countries essentially experienced an increase in the number of years of education between 1995 and 2005, but they have varied HIV epidemic backgrounds, which, again, denies the relationship between these two variables.

Figure 24—Change in HIV prevalence and change in expected number of years of schooling for children under seven years old in MMCs between 1995 and 2005.

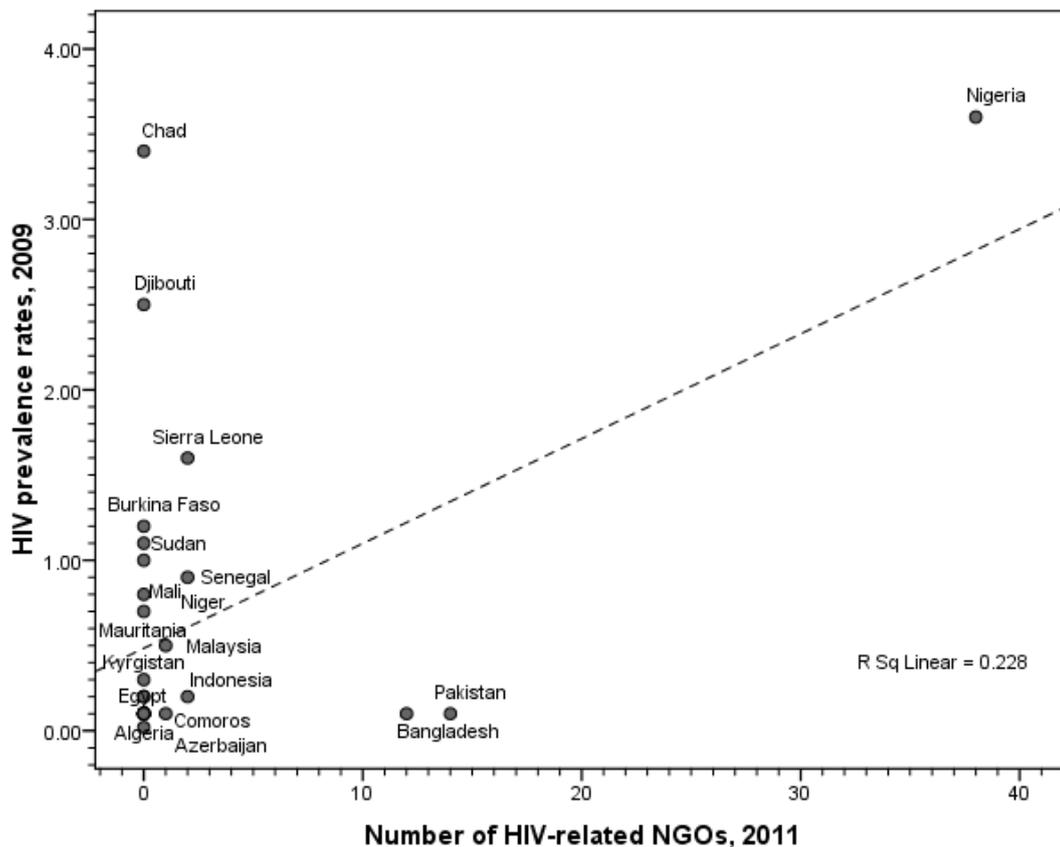


t-ratio = -.456, $P > 0.5$, Adjusted R square = -.027

Lastly, Figure 25 represents the relationship between the HIV prevalence during 2009 and the numbers of HIV/AIDS-related NGOs in the MMCs. As it is shown, the majority of the sampled MMCs do not have any NGOs that are working to help fight HIV/AIDS at least on the WANGO directory. Most notable, however, is that it shows a very weak correlation between the variables, although the p-value of .006 technically denies the possibility. Yet, the adjusted R square suggests that approximately 20.2% of the level of HIV prevalence can be explained by the number of the HIV/AIDS-related NGOs. On contrary, however, Nigeria is indicated with the largest number of HIV/AIDS-related NGOs (38 in total), yet their HIV prevalence exceeds 3%, the highest in this unit of analysis. At the same time, it also must be carefully noted that the abundance of NGOs can be explained by the high level of HIV prevalence instead of other way around as there is no way to observe the cause-effect

relationship in this analysis mechanism. That is, a high HIV prevalence can be acting as the drive towards the formation of more NGOs, and thus there are no relevant NGOs in the countries with a low prevalence as there is no perceived need.

Figure 25 – HIV prevalence and number of HIV/AIDS-related NGOs working in MMCs, 2011.



t-ratio = -.477, $P > 0.5$, Adjusted R Square = .202

Conclusions

As it is shown in the graphs in the previous section, the analyses reveal that there are no statistical correlations between the transitions in the HIV prevalence and any of the analyzed precursor factors despite the fact that they seemed to have some level of effects on the HIV incidents in Mali as discussed in the case study section. The linear regression analyses show that the prediction ability of these factors remain considerably low of 0.5% to 3% at most, too low to derive any affirmative conclusion.

However, it should be noted that this result could be due to the scarcity of the data on the HIV prevalence, which downsized the unit of analysis to 31 countries, or even smaller for the women's rights analysis, which greatly restricted the ability of this study in making a definitive conclusion. There is also a possibility that the provided data on the HIV prevalence employed in this study are understated due to the lack of efficient monitoring system or a country's preference not to admit the existence of HIV/AIDS. Additionally, countries such as Afghanistan, Iraq, and Saudi Arabia, a few of the MMCs which are considered to be at risk of increased expansion of epidemics due to the lack of adequate anti-HIV/AIDS efforts, are also not included in this study, further affecting the study's ability to draw a comprehensive conclusion. Lastly, the lack of data on some precursor factors including the quality of HIV monitoring system, which was suggested as important precondition for minimizing HIV incident rate, also became major obstacles in testifying the feasibility of the theories mentioned in the previous literatures, as these factors were not included in the statistical analysis section. Overall, more in-depth researches are needed in order to discover what really works in the MMCs in terms of reducing HIV/AIDS incidents, as this study is inconclusive and it does not cover all MMCs, or other factors that possibly influence the outcomes of the incidents.

On the other hand, however, there are a few notable phenomena which became evident through the linear regression analyses. For instance, the analyses on the effects of the overall women's rights and civil liberties on HIV incidents, although without statistical significance, showed very weak positive relationships as opposed to the hypotheses predicted that an increase in such rights would result in a decrease in the HIV prevalence rate. Additionally, when we take a closer look at the scatter graphs, it becomes even clearer that there are a few countries that saw an increase in their HIV incident rates despite the improvement in the precursor factors. Sierra Leone, for example, is a country which has seen

some noteworthy improvements in the democracy level, government effectiveness, women's rights, civil liberties as well as the expected number of years of schooling for children.

However, their HIV prevalence increased by more than 1% between 1998 and 2008 instead.

Burkina Faso, too, showed a rather unique characteristic. For example, while the country saw a decrease in the HIV prevalence of close to 2% between 1998 and 2008, which is the largest among the tested MMCs, the country did not see as much of an improvement in the precursor factors as other countries with increased or stable HIV prevalence, implying that the HIV prevalence can go down without much improvements in the political or societal factors.

Although this study was not a perfect evidence to draw a final conclusion, these unique cases are enough proof at least to state that the changes in the HIV prevalence can be somewhat independent from how the suggested precursors change over years in some countries. This also may suggest that being a Muslim-majority country does not always mean that all Muslim followers behave the same way, as each country has its own unique societal, political, and historical background which creates a foundation of how a society is constructed. In other words, "Muslim-majority country" is perhaps not simply a catch-all term that lets us see all Muslim people as one generalized population. However, again, more detailed studies are necessary in order to discover how the MMCs or even individuals within one country differ in terms of their behaviors and reactions to the anti-HIV/AIDS solutions.

In any case, as it was discussed in the literature review section, it should be noted that the evidence confirms that HIV/AIDS epidemic in the MMCs are on a rise. While the incident rates are relatively low in many of the MMCs, and the epidemic is contained within at-risk populations such as injecting drug users and sex workers for the most part, some MMCs are about to see a larger spread of the disease beyond such marginalized population, which can eventually become a much larger catastrophe. As it was revealed by other scholars, HIV/AIDS epidemic often grows to be an explosive pandemic after a long low-prevalence

phase, meaning that the MMCs, too, have a great chance of facing the same scenario if adequate anti-HIV/AIDS efforts are not made sooner than later. Namely, the governments in the MMCs first need to admit the existence of the disease as well as the at-risk populations who commit religiously and socially forbidden behaviors including pre- and extra-marital sex and drug use if not yet. They also need to realize that inaction does not make the epidemic diminish on its own unless the citizens –infected or not – are equipped with proper knowledge about HIV/AIDS and access to health care as well as condoms and other preventive means.

Additionally, the governments and health-related institutions in the MMCs need to start laying plans for establishing sufficient monitoring system so that more comprehensive researches can be done in order to find patterns of the epidemic as well as suitable solutions to avoid further spread of the disease. As one of the problems that make the HIV/AIDS epidemic in the MMCs even more complicated issue than it should be is the lack of data available, increased ability in understanding what is really happening in terms of HIV transmission not only among general populations but also within those who are isolated from the society should be considered as a priority agenda in combating HIV/AIDS.

On the other hand, there are some MMCs that are beginning to make difference in their own suitable ways. For instance, major international organizations such as UNICEF and UNAIDS are now working with religious leaders around the world to explore culturally and religiously sensitive ways of responding to HIV/AIDS in their countries, as important religious leaders often play a major role in shaping social values (UNICEF, the World Conference of Religions for Peace, & UNAIDS, 2003). In fact, Iranian physicians recently succeeded in convincing ayatollahs –high rank religious clerics, to allow treatment and support for people living with sexually transmitted diseases, and to consider the possibility of implementing needle exchange program and larger condom distributions (McGirk, 2008).

This is only one of very few cases, however, we can state that the MMCs are as capable of making difference on their own as other countries in the world are, as long as uncompromised efforts to control and keep the epidemic will follow.

Appendix

The following explains in details how the changes independent variables were calculated in order to be tested against the changes in HIV prevalence.

Level of democracy change

The change in level of democracy was calculated by subtracting the 1998 democracy score from 2008 democracy score to generate a new number that indicate the difference between these two years.

Government effectiveness change

The change in government effectiveness was calculated by subtracting the 1998 government effectiveness score from the 2008 government effectiveness.

Women's rights change

For women's rights, the data from 1998 and 2009 is extracted to be analyzed, as there is no comprehensive data that covers the situation regarding the women's rights in 2008. Hence, the HIV prevalence data from 1998 and 2009 will be used in this particular set of analysis. In order to produce a new variable that can depict the transitions in the level of women's overall rights between 1998 and 2009, the indices were calculated as follows;

$$(2008 \text{ political rights} + \text{economic rights} + \text{social rights}) - (1998 \text{ political rights} + \text{economic rights} + \text{social rights}) = \text{Changes in women's rights index 1998-2008.}$$

Therefore, the overall women's rights scores which range between 0 (least women's rights) and 9 (most women's rights) from 1998 and 2009 were compared to produce a new variable, women's rights change index. For this analysis, five additional countries including Chad, Djibouti, Lebanon, Maldives, and Qatar will not be included due to the lack of data.

Expected number of years of schooling for children under seven years old change

The number of expected years of schooling of children under seven years old from 1995 and 2005 were extracted in order to create a new variable, education change, by calculating the change during those ten years. As to meet the different time frame employed for this data on education, the HIV prevalence between 1995 and 2005 were extracted to create a variable particularly for this set of analysis.

Civil liberties

The 1998 civil rights score was subtracted from the 2008 civil rights score in order to create a new variable, civil liberty change index, to depict the transitions in the ten years.

HIV/AIDS-related non-governmental organizations change

The data concerning the number of HIV/AIDS –related NGOs working in the MMCs is extracted from the World Association of Non-Governmental Organizations' Worldwide NGO Directory to be compared with the prevalence of HIV. For this variable, the most up-to-date information was employed as there is no data from the previous years is available. In order to match this variable mechanism, the HIV prevalence during 2009, the most updated data by WHO, is utilized for this particular analysis.

References

- Abu-Raddad, L.J., Akala, F.A., Semini, I., Riedner, G., Wilson, D., Tawil, O. (2010). *Characterizing the HIV/AIDS epidemic in the Middle East and North Africa: Time for strategic action*. Washington DC: The World Bank.
- Aceijas, C., Stimson, G.V., Hickman, M., Rhodes, T. *Global overview of injecting drug use and HIV infection among injecting drug users*. London, UK: Lippincott Williams & Wilkins.
- Ayranci, U. (2005). AIDS knowledge and attitudes in a Turkish population: An epidemiological study. *BMC Public Health*, 5(95).
- Badahdah, A.M. (2010). Stigmatization of persons with HIV/AIDS in Saudi Arabia. *Journal of Transcultural Nursing*, 21(4), 386-392.
- Bertelsmann Stiftung. (2010). BTI 2010 — *Mali country report*. Gütersloh: Bertelsmann Stiftung.
- Boileau, C., Vissandjee, B., Nguyen, V.K., Rashed, S., Sylla, M., Zunzunegui, V. (2008). Gender dynamics and sexual norms among youth in Mali in the context of HIV/AIDS prevention. *African Journal of Reproductive Health* 12(3), 173-184.
- Bureau of Democracy, Human Rights and Labor. (2004). *Mali: Country reports on human rights practices*. U.S. Department of State. Retrieved from <http://www.state.gov/j/drl/rls/hrrpt/2003/27738.htm>
- Caceres, C.F., Konda, K., Segura, E.R., Lyerla, R. (2008). Epidemiology of male same-sex behaviour and associated sexual health indicators in low- and middle-income countries: 2003-2007 estimates. *Sexually Transmitted Infections*, 84 Supple 1, 49-56.
- The Central Intelligence Agency (CIA). (2012). *The World Factbook*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/index.html>
- Cingranelli-Richards (CIRI) Human Rights Data Project. (2008). *The CIRI Human Rights Dataset*. Retrieved from <http://www.humanrightsdata.org>
- Dondero, T.J., Pappaioanou, M., Curren, J.W. (1988). Monitoring the levels and trends of HIV infection: The public service's HIV surveillance program. *Public Health Reports*, 103(3), 213-220.
- Ehrhardt, A.A., Sawires, S., McGovern, T., Peacock, D., Weston, M. (2009). Gender, empowerment, and health: What is it? How does work? *Acquired Immunodeficiency Syndrome*, 51(3), 96-105.
- Fido, A., Al Kazemi, R. (2002). Survey of HIV/AIDS knowledge and attitudes of Kuwaiti family physicians. *Family Practice*, 19(6), 682-684.
- Freedom House. (2009). *Freedom in the world 2009: The annual survey of political rights and civil liberties*. New York, US: Freedom House.
- (2010). *Women's rights in the Middle East and North Africa 2010*. Freedom House. Retrieved from <http://www.freedomhouse.org/report/women039s-rights-middle-east-and-north-africa/womens-rights-middle-east-and-north-africa-2010>
- (2011). *Countries at the crossroads 2011*. Freedom House. Retrieved from <http://www.freedomhouse.org/report/countries-crossroads/countries-crossroads-2011>
- Ganczak, M., Barss, P., Almazrouei, S., Muraddad, A., Al-Maskari, F. (2007). Break the silence: HIV/AIDS knowledge, attitudes, and educational needs among Arab university students in United Arab Emirates. *Journal of Adolescent Health*, 40(6), 572.e1-8.
- Gheiratmand, R., Navipour, R., Mohebbi, M.R., Mallik, A.K. (2004). Uncertainty on the number of HIV/AIDS patients: Our experience in Iran. *Sexually Transmitted Infections*, 81, 279-280.

- Greenberg, M.E., Okani, R.C. (2001). *Strengthening women's participation in decision-making at the local level in Mali*. Washington DC: A Women in Development Technical Assistance Project.
- Gueye, M., Castle, S., Konate, M.K. (2001). Timing of first intercourse among Malian adolescents: Implication for contraceptive use. *International Family Planning Perspectives*, 27(2).
- Hofmann, S.R. (2004). Islam and democracy: Micro-level indications of compatibility. *Comparative Political Studies*, 37(6), 652-676.
- Hull, B., Kay, A., Datta, S., Wahab, R., Said, E. (2010). *HIV Principles and Stigma Reduction Training Curriculum: Addressing HIV and Stigma in the Healthcare Setting in the Middle East and North Africa Region. Investing in PLHIV Leadership in the Middle East and North Africa—Volume 4*. Washington, DC: Futures Group, Health Policy Initiative, Task Order 1.
- Jenkins, C., D. A. Robalino. (2003). *HIV/AIDS in the Middle East and North Africa: The cost of inaction*. Washington DC, U.S: World Bank.
- Kelly, L.M., Ebersadt, N. (2005). The Muslim Face of AIDS. *Foreign Policy*, 149, 42-49.
- Kendala, P. (1993). Arab nations; attitudes to AIDS. *Lancet*, 341(88), 4-5.
- Hansen, K. (2003). A plague's bottom line. *Foreign policy*, 137, 26-27.
- Hasnain, M. (2005). Cultural approach to HIV/AIDS harm reduction in Muslim countries. *Harm Reduction Journal*, 2(23).
- Hsu, L.N. (2004). *Building dynamic democratic governance and HIV-resilient societies*. UNAIDS, UNDP.
- Legatum Institute. (2011). Legatum Institute Index: Mali. Retrieved from <http://www.prosperity.com/country.aspx?id=ML>
- Madani, T.A., Al-Mazrou, Y.Y., Al-Jeffri, M.H., Al Huzaim, N.S. (2004). Epidemiology of human immunodeficiency virus in Audi Arabia; 18-year surveillance results and prevention from Islamic perspective. *BMC Infectious Diseases*, 4(25).
- Maswanya, E., Moji, K., Aoyagi, K., Yahata, K., Izumi, T., Takemoto, T. (2000). Knowledge and attitudes toward AIDS among felamle college students in Nagasaki. *Journal of Health Education*, 15, 5-11.
- Mathers, B.M., Degenhardt, L., Phillips, B., Wiessing, L., Hickman, M., Strathdee, S., Wodak, A., Panda, S., Tyndall, M., Toufik, A., Mattick, R.P. (2007). Global epidemiology of injecting drug use and HIV among people who inject drugs: A systematic review. *The Lancet*, 372, 1733-1745.
- McGirk, J. (2008). Religious leaders key in the Middle East's HIV/AIDS fight. *The Lancet*, 372(9635), 279-280.
- Measure DHS. HIV/AIDS Survey Indicators Database. Retrieved from <http://hivdata.measuredhs.com/surveys/start.cfm>
- Merson, M.M., O'Malley, J., Serwadda, D., Apisuk, C. (2007). The history and challenge of HIV prevention. *The Lancet*, 9(9637), 475-488.
- Mohammad, K., Farahani, F. K., Mohammadi, M. R., Alikhani, S., Zare, M., Tehrani, F. R., Ramezankhani, A., Hasanzadeh, A., Ghanbari, H. (2007). Sexual risk-taking behaviors among boys aged 15-18 years in Teheran. *Journal of Adolescence Health*, 41, 407-414.
- Mumtaz, G., Hilmi, N., McFarland, W., Kaplan, R.L., Akala, F.A., Semini, I., Riedner, G., Tawil, O., Wilson, D., Abu-Raddad, L.J. (2010). Are epidemics among men who have sex with men emerging in the Middle East and North Africa?: A systematic review and data synthesis.
- Nakib, M.M.N.E., Hermez, J.G.H. (2006). HIV/AIDS prevention among vulnerable groups in

- Beirut, Lebanon. [Abstract]. The XIV International AIDS Conference. Retrieved from <http://www.iasociety.org/Abstracts/A9408.aspx>
- Niens, L., Lowery, D. (2009). Gendered epidemiology: Sexual equality and the prevalence of HIV/AIDS in Sub-Saharan Africa. *Social Science Quarterly*, 90(5), 1134-1144.
- Obermeyer, C.M. (2006). HIV in the Middle East. *British Medical Journal*, 333, 851-854.
- Parvis, S., Fatmi, Z., Altaf, A., McCormick, J.B., Ficher-Hoch, S., Rahbar, M., Luby, S. (2005). Background demographics and risk behaviors of injecting drug users in Karachi, Pakistan. *International Journal of Infectious Disease*, 10(5), 364-371.
- Razzaghi, E.M., Movaghar, A.R., Green, T.C., Khoshnood, K. (2006). Profiles of risk: A qualitative study of injecting drug users in Teheran, Iran. *Harm Reduction Journal*, 3(12),
- Political Instability Task Force (2010). *Polity IV Project: Political regime characteristics and transitions 1800-2010*. Retrieved from <http://www.systemicpeace.org/polity/polity4.htm>
- Roudi-Fahimi, F. (2007). *Time to intervene: Preventing the spread of HIV/AIDS in the Middle East and North Africa*. Washington DC: Population Reference Bureau.
- Sepehrrad, R., (2003). The role of women in Iran's new popular revolution. *The Brown Journal of World Affairs*, 4(2), 217-228.
- Shawky, S., Soliman, C., Kassak, K. M., Oraby, D., El-Khoury, D., Kabore, I. (2009). HIV surveillance and epidemic profile in the Middle East and North Africa. *Journal of Acquired Immune deficiency Syndrome*, 51. Supplement 3, 83-95.
- Soliman, C., Rahman, I., Shawky, S., Bahaa, T., Elkamihaw, S., Sattar, A.A.E, Oraby, D., Khaled, D., Feyisetan, B., Salah, E., Taher, Z.E., Sayed, N.E. (2010). HIV prevalence and risk behaviors of male injection drug users in Cairo, Egypt. *AIDS*, 24, 33-38.
- Social Institutions & Gender Index. (2009). *Gender equality and social institutions in Mali*. Retrieved from <http://genderindex.org/country/mali>
- Tavoosi, A., Zaferani, A., Enzevaei, A., Tajik, P., Ahmadinezhad, Z. (2004). Knowledge and attitudes towards HIV/AIDS among Iranian students. *BMC Public Health*, 4(17).
- Tessler, M. (2002). Islam and democracy in the Middle East: The impact of religious orientation attitudes toward democracy in four Arab countries. *Comparative Politics*, 34(3), 337-354.
- Teherani, F.R., Malek-Afzalip, H. (2008). Knowledge, attitudes and practice concerning HIV/AIDS among Iranian at-risk sub-populations. *Eastern Mediterranean Health Journal* 14.
- Thunnissen, K. (2009). *Sector budget support in practice. Ccase study: Mali*. London: UK, Overseas Development Institute.
- UNAIDS. (2010). *Global Report*. Geneva, Switzerland: UNAIDS.
- UNICEF. (2001). *Mali: FGM/C country profile*. Retrieved from http://www.childinfo.org/files/Mali_FGC_profile_English.pdf
- UNICEF, World Conference of Religions for Peace, UNAIDS. (2003). *What religious leaders can do about HIV/AIDS: Action for children and young people*. New York: UNICEF.
- UNODC. (2007). *World Drug Report 2007*. Vienna, Austria: UNODC.
- USAID. (2010). *Paths to leadership for people living with HIV in the Middle East and North Africa*. Washington DC: USAID.
- (2010). HIV/AIDS health profile: Mali. Retrieved from
- (n.d.). Advocacy training inspires support for HIV/AIDS prevention: Imams promote HIV/AIDS prevention. http://www.usaid.gov/our_work/global_health/aids/Countries/africa/mali_profile.pdf
- U.S. Department of States. (2001). *Mali: Report on female genital mutilation (FGM) or*

- female genital cutting (FGC)*. Retrieved from <http://www.unhcr.org/refworld/docid/46d5787a55.html>
- U.S. President's Emergency Plan for AIDS Relief (PEPFAR). (2006). *HIV spatial data repository: Mali 2006*. Retrieved from <http://www.hivspatialdata.net/document.aspx?docid=479&country=Mali>
- Whiteside, A. (1999). *The Threat of HIV/AIDS to Democracy and Governance. Unpublished manuscript, USAID briefing paper*. Washington, DC: USAID.
- WHO. (1985). *WHO activities for the prevention and control of acquired immunodeficiency syndrome (AIDS): report by the Director-General*. Geneva, Switzerland: WHO.
- (2007). Faith-based organizations play a major role in HIV/AIDS care and treatment in sub-Saharan Africa. Washington DC: WHO.
- (2008). *Global Health Observatory Data Repository: HIV/AIDS*. Retrieved from <http://apps.who.int/ghodata/>
- (2011). Data on the size of the epidemic, prevalence of HIV among adults aged 19-49. Retrieved from <http://apps.who.int/ghodata/#>
- WHO, UNAIDS, UNICEF. (2010). *Towards universal access: Scaling up priority HIV/AIDS interventions in the health sector*. Geneva: Switzerland: WHO.
- (2011). *Global HIV/AIDS responses: Epidemic update and health sector progress towards Universal Access. Progress report 2011*. Geneva, Switzerland: WHO Press.
- World Association of Non-Governmental Organizations. (2012). *Worldwide NGO Directories*. Retrieved from <http://www.wango.org/resources.aspx?section=ngodir>
- The World Bank. (2005). *Preventing HIV/AIDS in the Middle East and North Africa: A window of opportunity to act*. Washington DC: The International Bank for Reconstruction and Development/ The World Bank.
- (2005). *Summary country profile for HIV/AIDS treatment scale-up: Burkina Faso*. Retrieved from http://www.who.int/hiv/HIVCP_BFA.pdf
- (2008). *Worldwide Governance Indicators*. Retrieved from <http://info.worldbank.org/governance/wgi/index.asp>