

Health Communication for HIV/AIDS and Tuberculosis in South Africa

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I. INTRODUCTION

Public health issues have become the point of linkage for almost every area of study, from the economic impacts and politics to the historical context and biological basis. And as health issues continue to erupt, new and innovative methods of tackling them, beyond the medical processes that are able to cure. In many cases, these innovations aim to prevent disease before it happens, or to lessen the burden of that disease on the society as a whole. These methods take seemingly unrelated strategies and apply them to the particular health context, using theories and strategies that have proven to be effective in other areas and applying them to a specific human issue. Communication is one such field that has adapted itself to tackle today's health problems from a different angle, and one that has the potential to lessen the overall burden of disease if implemented effectively.

Behavior change communication aims to alter the actual behaviors of a society to create positive behaviors in their stead. From smoking to breast cancer, innumerable health issues have been addressed through communication programs pushing audiences to get tested, to quit, to follow through on treatment. Most recently, these methods have found a niche in the world of today's most popular health issue: HIV/AIDS. Attempting to limit the spread of the disease, public health and communication experts alike have worked to apply every possible strategy to this disease and effectively change the human behaviors that are contributing to its rapid spread. Behavior change communication has done just that. Using entertainment as a tool for education, targeting messages to specific populations, and ensuring that viewers can relate to each character, behavior change communication has been used for decades in the global goal of eradicating HIV/AIDS.

What this paper does is explore that issue in a new light, specifically an international one. South Africa has the most HIV-positive people of any country and as such has become a hotbed for research and programming. It is also home to several major behavior change communication programs, all of which have varying messages and have seen varying success. What makes this country more unique, however, is the concurrent tuberculosis epidemic. South Africa has one of the highest TB rates in the world; that is exacerbated by the high prevalence of HIV, as the two diseases interact and often coinfect. And yet, none of the organizations that work in behavior change communication in South Africa have implemented a campaign for tuberculosis. This is a major gap that should not only be explored in greater depth but should be seen as an opportunity to tackle another major inhibitor to South Africa's development.

This is the context into which this paper is composed. It aims to address some of the most relevant issues in behavior change communication today, namely those of developing world health. Examining what programs are being used in South Africa and how they are being measured will allow for a better understanding of the gaps in that system. Furthermore, it allows for determination of the areas into which tuberculosis programming could be inserted for the greatest impact. In order to adequately address this subject, this paper begins with an overview of the two diseases—HIV/AIDS and tuberculosis—to ensure a thorough understanding of the implications of each. It then develops a background on South Africa as a nation before diving into the disease rates therein. From this point, this paper will move into a description of the specific communication theories that will be mentioned and used in the remainder of the paper, to ensure that the reader understands the key concepts within each. After developing this background, the project will move into a description and analysis of current methods of behavior change communication, specifically for HIV/AIDS as there is a lack of similar programs for

tuberculosis. This section will engage the aforementioned theories with the aim of understanding how each is involved in the particular program. Finally, after addressing some limitations of the study, the paper will conclude with recommendations for practice and recommendations for further research.

Behavior change communication has the potential to change the health situation in South Africa and, as this paper will demonstrate, it has already done so to some extent. However, there is much room for improvement, especially as this field continues to develop. Future efforts will need to involve not only the theoretical background available today but also the research findings of future studies on the causal relationships between these programs and the resulting disease rates.

II. DISEASE BACKGROUND

Two of the most prevalent and devastating health issues in the world, specifically the developing world, often go hand in hand. HIV/AIDS is arguably the epidemic of the day, this generation's smallpox or polio. Its effects are made more devastating by the opportunistic infections that make the most of a weakened immune system. In the developing world, this is very often tuberculosis. But tuberculosis also infects without the precursor of AIDS, and is especially active in the crowded cities of the third world. Understanding these two diseases will enable targeted behavior change campaigns that are effective and have a lasting impact; epidemiology is rarely a specialty of the average citizen, so a campaign that emphasizes the most important characteristics of the disease will yield far better results than a generic message.

HIV/AIDS

Human immunodeficiency virus (HIV) is an infectious disease that, unlike most viruses, actually attacks the immune system and destroys infection-fighting cells. As a result, the body is unable to fend off other infections. HIV is transmitted through bodily fluids such as blood, semen, vaginal fluid, and breast milk, although it cannot survive outside the body for long. Simple physical contact, such as sharing a glass or hugging, cannot transmit the virus. The only way to prevent the spread of HIV is to abstain from sex and cease any illicit intravenous drug use, although in some countries lacking the capabilities for safe blood transfusions, this may also be a source of high risk.

Epidemiology

HIV is part of the family *retroviridae*, which includes those viruses that have RNA as their genetic material. Specifically, HIV belongs to the sub-family called lentiviruses, so named because of their long incubation period and relatively slow course of action. There are two sub-

types: the more virulent and common HIV-1 and the rare and slow-acting HIV-2. That said, because of the nature of the virus, it is able to multiply rapidly and mutate, leading to many subtypes or clades. Type B is the most common clade in the U.S., while type C is the main clade in Southern Africa. Types A and D are the main clades for Eastern Africa and the Western part of the continent has a mix of clades. Similarly, other regions of the world may be identified by their clades; this is not limited to the U.S. and Africa. The fact that HIV mutates so quickly has placed tremendous pressure on the medical sector to act accordingly. Treatment for each individual must be tailored to the specific mutation or treatment will be ineffective and resistance will quickly develop (Whiteside, 2008).

The virus's nature as a retrovirus is what makes it so difficult to detect and combat. Retroviruses like HIV contain RNA as their genetic material, rather than DNA. When they infect a host, the RNA undergoes a process using reverse transcriptase to convert to DNA, and then back to RNA for multiplication. This process is a reversal of the usual cellular reproduction process—generally DNA is transcribed into RNA—and allows the RNA to become embedded in the host's genetic material. Detection is difficult and treatment even more so, as the virus is henceforth permanently embedded in the genome of the infected cell (Britannica, 2010).

When a person becomes infected with HIV, the virus attacks the immune system, specifically the CD4 cells, or T-helper cells, which are responsible for the overall immune response of the body. Once the virus invades the CD4 cells, it is a permanent part of the immune system and the body will not fight it anymore. However, as this does not create immunity but rather creates a viral immune system, there has not yet been any passing on of immunity to future generations. From this point, the virus goes into a latent period until its reproduction is activated;

as of yet, experts are still attempting to determine what triggers this process (Whiteside, 2008; “Different stages of HIV infection”, 2009).

Once the virus is activated it enters the first of four stages of HIV infection, as defined by the World Health Organization (WHO). The first stage is generally asymptomatic but may also be characterized by enlarged lymph nodes. However, unless the person is tested, the infection will not be identified during this phase. The second clinical stage is marked by unexplained weight loss, generally of less than ten percent of the body weight, as well as a collection of infections such as frequent upper respiratory infections, herpes zoster, oral ulcerations, seborrhoeic dermatitis, and fungal infections of the nail beds. Stage three is characterized by severe, noticeable weight loss, more than ten percent of the person’s body weight, and the onset of more severe opportunistic infections. Pulmonary tuberculosis, meningitis, acute necrotizing ulcerative gingivitis, and pelvic inflammatory disease are just some of these, often accompanied by anemia and diarrhea. Finally, the disease reaches stage four: acquired immune deficiency syndrome, or AIDS (WHO, “Case Definitions,” 2007).

AIDS marks the final stage of the disease and may take years to reach, or may not be reached at all. Diagnostically, this stage may be identified by a CD4 count of 200 or fewer CD4 cells per mm^3 of blood—the normal CD4 count is over 1,000 CD4 cells per mm^3 of blood (Whiteside, 2008, p. 27). Much like the third stage, it is characterized by opportunistic infections, particularly those that are rare in people with uncompromised immune systems. It is because of these infections that AIDS initially came into the spotlight several decades ago. Extrapulmonary tuberculosis, candidiasis, lymphoma, atypical leishmaniasis, and cytomegalovirus are common in this stage. The two most infamous diseases characteristic of this phase, however, are pneumocystis pneumonia and Kaposi’s sarcoma. Concurrent with these diseases is what is

known as HIV wasting syndrome, identified by its symptomatic drastic weight loss, fever, and general body emaciation. Ultimately, AIDS leads to death (WHO, “Case Definitions,” 2007).

HIV is transmitted through bodily fluids—blood, semen, vaginal fluid, and breast milk—and found in minimal amounts in tears, saliva, and sweat. Blood carries the greatest risk of infection, but sexual intercourse is the most common means of infection, causing 75-85% of infections (Whiteside, 2008, p. 28). It may also be passed from mother to child (MTCT) through the placenta during the birth process, as well as through breast milk. Bottle-feeding with formula, when clean water and formula mix are available, will prevent transmission through breast milk. However, when these are unavailable, studies have shown that breast-feeding exclusively for the first six months lowers the risk of transmission as compared to a combination of breast-feeding and formula use. An inexpensive preventive drug, nevirapine, may be administered to an HIV-positive mother to prevent transmission to her child during birth, and to the child after birth; this cuts the chance of transmission from about 25 percent to 12 percent. Antiretroviral treatments may also be administered when possible—they are highly effective but much more costly (Whiteside, 2008, pp. 28-9).

From the point of infection, it takes an average of eight years to reach illness. This can be longer for otherwise healthy persons, or shorter for those engaged in unhealthy behavior. Key in the survival of this disease is the prevention of opportunistic infections. At some point, however, antiretroviral treatments (ART) are necessary for survival. ART reduce viral load but only so long as they are taken, and they must be administered on a precise schedule; therefore, they must be taken for life. To further complicate the condition, ART are expensive in both the developed and developing world. For those in the developing world, this is often a cost that cannot be absorbed by the average person and require external funding, such as the grants supplied by

many American and international NGOs, to support the expense. ART and nevirapine are not cures but can drastically lower the impacts of the disease if they are taken correctly and, for ART consistently. The cost of these drugs is high because of the need to tailor the cocktail to the individual's particular serotype. Mutation of the virus leads to unique strains of the disease and forces much study and careful development of appropriate drug treatment.

Those most at risk include commercial sex workers, truck drivers, and intravenous drug users (IDUs). As such, prevention has focused on these groups. Commercial sex workers (CSWs) are specifically at risk given their marginalized position within developing world society; further, the status of women has ensured that protection is rarely used and certainly not used consistently. Truck drivers and migrant workers are often the points of transmission into and between rural settlements in particular, often due to interaction with the aforementioned CSWs. Finally, IDUs are at high risk and are frequently the target of needle exchange programs.

History

The first cases of what would eventually be termed AIDS are believed to have occurred in the 1930s, with the disease spreading quickly and widely during the 1970s (Whiteside, 2008, 1). It was not until 1981 that the disease found its way into the medical consciousness—discussed as an unknown immune-compromising entity that had mysteriously affected five Californians, leading them to succumb to pneumocystis pneumonia and other opportunistic infections—and from that point forward has seemingly never faded (“Pneumocystis pneumonia,” 1981).

The same diseases—Kaposi's sarcoma, pneumocystis pneumonia, candidiasis, and cytomegalovirus, specifically—began appearing in Africa and South America during this time, increasingly identified thanks to the positive diagnoses in the U.S. and Europe. The U.S.

developed the name, acquired immune deficiency syndrome, and clinical definition in 1982. By 1983, the virus had been identified, first by the Institut Pasteur in France, which named it Lymphadenopathy-Associated Virus (LAV). The next year, the National Cancer Institute (NCI) in the U.S. identified the virus and named it HTLV-III. To avoid the inevitable controversy over the declaration by the U.S. Secretary of Health and Human Services that the NCI had made this discovery, both parties reached compromise and declared that they had both identified the virus. The name—human immunodeficiency virus—was approved in 1987 (Whiteside, 2008, p. 2).

Initially, the stereotype was that AIDS was a disease of the “four H’s.” It was believed that it affected hemophiliacs, homosexuals, heroin users, and Haitians, as determined by the discriminating high rates among these groups. As more information came to light, and countries focused their science research on the rising epidemic, perceptions began to shift. Early preventive strategies included improvements on the safety of blood supplies to prevent infection through transfusions, efforts to promote safe injections, and promotion of condoms; it did not take long for the recognition that behavior change was necessary.

ART were developed in the mid-nineties, marking a dramatic change in the course of the epidemic. However, they did not halt the spread of HIV. As of 2006, there were 40 million people living with HIV in the world; 20 million people had died. Epidemics in different regions of the world vary in character. Sub-Saharan Africa, for one, has an epidemic focused on heterosexual transmission, with women comprising the majority of people living with HIV/AIDS. Conversely, in Eastern Europe, the epidemic is mainly centered among intravenous drug users (IDUs). As such, the prevention techniques differ and rates vary dramatically across these regions.

HIV/AIDS Today

Today, HIV/AIDS continues to be a crisis in the developing world and maintains its grasp on the developed world as well, albeit at far lower levels. According to the UNAIDS/WHO 2008 Report on the Global AIDS Epidemic (2008), 33 million people were HIV-positive in 2007, up by 3.5 million from 2001. These cases are focused in sub-Saharan Africa, which carries one third of the global HIV burden and has an adult prevalence of 5.0 percent (UNAIDS/WHO, 2008, pp. 214-5). Research is the focus at present, with global efforts for the development of a vaccine leading in publicity. Additional focus has been on microbicide development, which would be of particular importance to commercial sex workers in the developing world, and other potential ART combinations.

PULMONARY TUBERCULOSIS

Tuberculosis (TB) has been one of the most feared diseases for centuries, yet has failed to fade like so many of the ancient plagues. Today very little TB appears in the developed world and when it does, it often erupts in a media frenzy. The developing world, however, cannot escape the grasp of the disease, particularly in areas of extreme poverty such as those found in much of sub-Saharan Africa. The bacteria moves freely from person to person through the air, especially in overcrowded settlements, and is exacerbated by the poverty and malnutrition in the third world.

Epidemiology

Tuberculosis is caused by *Mycobacterium tuberculosis*, a bacterium that spread through the air as particles when an infected person coughs, sneezes, or even speaks. Only pulmonary tuberculosis is contagious, although the bacteria may infect any part of the body. Pulmonary TB is by far the most common of these infections. Today, tuberculosis is a leading cause of disease

and death, especially in the developing world. If left untreated, a person with active TB will infect between 10 and 15 people every year, making this an epidemic of top concern (WHO, “Tuberculosis,” 2007).

When a person becomes infected with the bacterium, one of two possibilities will develop: latent TB or active TB (TB disease). Latent TB is far more common than most people realize; the infected person shows no symptoms and does not feel sick, nor are they infectious. A TB test will reveal positive results even if the person shows no symptoms, and the disease may become activated if the immune system becomes compromised, whether due to disease, extreme stress, or malnutrition. The majority of people who are infected with TB do not develop the disease. However, if their immune system is compromised in some way, active TB will develop. The disease is characterized by a bad cough lasting more than three weeks, chest pain, coughing blood, weight loss, fatigue and weakness, loss of appetite, fever, chills, and night sweats. A TB test or abnormal chest x-ray will confirm a symptomatic diagnosis. Unlike latent TB, active TB is contagious and the infected person can spread the disease to others. Ultimately, the disease may be fatal, particularly if left untreated (CDC, “Basic TB Facts: Signs & Symptoms,” 2009).

There is a vaccine for TB, although its efficacy is questionable. The bacille Calmette-Guerin (BCG) vaccine was developed about 80 years ago but offers minimal protection against the disease. It is the most widely administered vaccine in the world, given to more than 80 percent of infants in those countries where it is part of the childhood immunization program. While it has been proven to protect against meningitis and disseminated TB in children, it does not prevent primary infection, nor does it prevent reactivation of latent pulmonary TB. This is the biggest culprit in community transmission; the vaccine, then, has a limited impact. Many

ongoing studies are focused on the development of a more effective vaccine for TB, particularly for the developing world (WHO, “BCG vaccine,” 2010).

Treatment for TB infection is split into several classes of drugs. Patients begin with a regimen of first-line drugs, modified based on underlying conditions if they exist. Second-line drugs have been developed for those cases in which first-line drugs are ineffective, but at present these are the most advanced options available. Strict adherence is necessary in order for the treatments to be effective; inconsistent use, poor quality, or improper administration will lead to resistance. Treatment lasts several months, during which they must be taken according to precise dosage instructions (CDC, “Treatment,” 2009).

In recent years, drug-resistant TB strains have developed due to inconsistent drug administration and quality. Multiple drug resistant TB (MDR-TB) and even extensively drug resistant TB (XDR-TB) have appeared globally, although the numbers are highly focused in the developing world where drug regimens are difficult to follow for those infected. Multiple drug resistant TB is the name used for strains of the disease that are unresponsive to at least two first-line drugs, specifically isoniazid and rifampin, the two most effective drugs. For those affected by MDR-TB, the cost of care skyrockets and many patients are unable to afford treatment. This creates a far more dangerous community risk, as MDR-TB can spread just like classic TB. Even more concerning is the presence of XDR-TB, which is rare but essentially untreatable, and has been appearing in greater numbers in some TB hotspots around the world, namely South Africa. XDR-TB is characterized by resistance to isoniazid and rifampin, the two most common and arguably best anti-TB medications and first-line drugs. Additionally, XDR-TB is resistant to fluoroquinolones and at least one of the three injectable second-line drugs. This means that the disease is resistant to first- and second-line drugs and the patient must rely on much less

effective, last resort treatments. In most cases, XDR-TB victims are isolated from the community in a desperate attempt to prevent the spread of an untreatable strain. (CDC, “Basic TB Facts: Drug-Resistant TB,” 2009)

The WHO has taken steps to develop better drug adherence, most effectively with the DOTS program, launched in 1995. DOTS—directly observed treatment shortcourse—consists of five key elements. These elements are:

1. Political commitment with increased and sustained financing—this is necessary in order to forge lasting partnerships in the fight against TB and supply the necessary equipment and supplies for disease control
2. Proper diagnosis through the use of bacteriology—this is the most effective method of diagnosis and, in order to control the disease, detection is absolutely imperative
3. Standardized treatment and patient support—this includes strict adherence to WHO guidelines for treatment, as well as supervision and support of patients and improved access to treatment
4. Effective drug supply system—this is key because treatment is highly regimented and an interrupted drug supply or lack of adequate treatment options will breed resistance and exacerbate the epidemic
5. Monitoring, reporting, and evaluation—this is the only way to effectively track the disease and ensure assistance goes where it is needed, and additionally enables appropriate training and staffing where it is needed most

A vital part of this, and the underlying theme of the program, is the adherence to complete treatment regimens. Supervision of treatment to ensure its completion is one piece; a consistent

supply of medication and political support for a national TB program are also absolutely necessary (WHO, “The five elements of DOTS,” 2010).

History

Cases of TB have been recorded for centuries. Evidence of the disease has been found in Egyptian mummies and the annals of ancient Greece and Rome. Often called consumption or a number of other names, the disease was prevalent in cities among the poor specifically but with little hesitation towards the wealthy. It was essentially a death sentence until the medical advances of the twentieth century, with victims first experiencing a cough and fatigue and ultimately dying, emaciated and coughing up blood. Many famed figures of history eventually succumbed to the disease—Keats, Chopin, Chekov, Bronte, Kafka, and Orwell, to name a few—and it was greatly feared around the world (NIAID, “I must die,” 2006). Further disheartening, physicians had little understanding of the disease and were unable to treat or even predict the course of the illness, which may take days, weeks, or years to actually kill the victim. For the wealthy, it was assumed that environmental factors were the issue and the best treatment was fresh air. Sanatoriums opened in rural country settings as an escape for those who could afford this treatment, which was in fact no treatment at all. Essentially this exposure to fresh air and provision of vast amounts of fresh food was the best doctors could do at the time.

Famed medical scientist Robert Koch was the first sign of light in the fight against TB, with his discovery of the bacteria in 1882. By 1908, Calmette and Guérin made the next great step in the field, developing a vaccine against the disease. Since its first administration in 1921, the vaccine has been delivered to more than one billion people. There is still little understanding of its efficacy—as was discussed, the vaccine protects against meningeal TB in children but is entirely ineffective on pulmonary TB among adults. By mid-century, effective drugs like

streptomycin had arrived and replaced the sanatorium strategy as the main TB treatment (NIAID, “Age of optimism,” 2006).

TB Today

Today, TB has all but faded in the developed world but holds a firm grip on the developing world. In 2005, the WHO estimated that 1.6 million deaths were from TB. The highest number of deaths and highest mortality per capita are in Africa, where the epidemic grew dramatically during the preceding two decades. TB infection is very common, with one new infection occurring every second. One third of the world’s population is infected with TB, although only 5 to 10 percent of those infected will develop active TB during their life. This does not apply to those infected with HIV, as the likelihood of developing TB disease is much higher for this group (WHO, “Tuberculosis,” 2007).

CONCURRENCY

While HIV/AIDS and TB can and often do exist individually, a particular concern today is that of coinfection. Called a “dual epidemic,” concurrency of these diseases is becoming a major issue in the public health field. TB is one of the most common opportunistic infections, exacerbated by the weakened immune system of those who are HIV-positive. Current data states that TB kills as many as half of all people with HIV/AIDS. Further, HIV-positive people are more likely to acquire TB, to develop active TB, and to relapse after treatment. Thus, TB patients are targeted for HIV testing and counseling on prevention, and people living with HIV/AIDS are almost immediately tested and often treated for TB. Also concerning is the issue of drug-resistant TB and HIV/AIDS. Of the 44 XDR-TB patients tested in a 2006 outbreak in South Africa—53 patients were positive for XDR-TB and 44 were tested for HIV—100 percent were HIV-positive (Whiteside, 2008, pp. 34-5).

Social stigma of the diseases and the perception that coinfection is absolute also creates a problem for those attempting to prevent and treat. In many developing world societies, there is an assumption that everyone who has TB is infected because they are HIV-positive. As such, they are ostracized and suffer psychologically from the circumstances. This stigma is a disincentive for testing and treatment because the patient knows society's impression of the disease and the consequences of his or her actions. It is a dangerous cycle; a person with TB refuses testing and treatment to avoid society's backlash, and is therefore highly likely of infecting others, who then also refuse testing and treatment, and the stigma perpetuates the epidemic it stereotypes (Nyblade et al., 2003).

CONCLUSION

Both HIV/AIDS and TB have the potential to keep the developing world in a metaphorical chokehold. Each disease furthers the other, whether through inadequate focus from national and international bodies, improper care, or concurrency and the associated stigma. Controlling one will assist in limiting the other but what is really necessary is effective control of both; this is the only means of limiting their impact. Tuberculosis has been a plague on humankind for centuries, even millennia. HIV/AIDS is a new disease but one with devastating impacts and a seemingly uncontrollable path. Both have the potential to decimate the developing world more than they have to date, individually and as a dual epidemic.

Only through thorough understanding of these diseases can effective behavior change strategies be developed to prevent their further spread and enable social action. With rates of HIV still on the rise and TB heavily aligned with its spread, the current focus is on research and development of effective programs that not only supply information to the public to combat stigma and educate on the risks and prevention methods associated with each disease but also

serve to alter underlying perceptions and encourage reactive behavior. These two highly contagious diseases are and should be a focus of today's public health field. As such, they make an ideal focal point for analysis and improvement of behavior change methodology.

III. SOUTH AFRICAN CONTEXT

South Africa is perhaps the most widely known of the more than fifty African nations, recognized as much for its traumatic history and vivid display of the remnants of European colonialism as for its continued development struggle in spite of relative economic success. Famed names fill the history books but few know their origins lie in the very tip of the African continent. Since the earliest days, the southernmost part of Africa was a blend of many different cultures; that has only increased since the arrival of Europeans.

With such a vibrant and varied culture, rich in history and tradition, there are unavoidable difficulties. Language and geographic barriers hinder the national agenda. Severe health issues plague the poor and ensure that the nation will not rise to the level of the first world without first accounting for the wellbeing of the population. Corruption is rife and the young government continues to struggle under the expectations of South Africans and the international community alike. Development progress ebbs and flows, earning both praise and criticism, although far more often leaning towards negative attention. With the rise of HIV/AIDS in the country, and the continued threat of other major diseases like TB, South Africa seems to be at a standstill, often teetering on the brink of collapse.

This paper acknowledges these issues and their impact on the strategies employed in health communication, the development of which will be discussed later. However, in order to adequately tackle the health issues within South Africa, one must first and foremost understand the country itself—the land, the people, the history—and appreciate the impact of those factors on the national consciousness. Only then can we attempt to broach the subject of public health in South Africa.

HISTORY

The nation of South Africa cannot be understood without first accounting for the factors that shaped the nation as it is today. From the earliest humans to walk the planet, to today's football stars ready to begin a historic international event, South Africa has served as a cradle for diversity and adversity alike. The tip of a continent plagued by misfortune, it has been a site of great conflict and a breeding ground for the issues that most plague the conscience—racism, colonialism, violent protest and violent oppression, failures of democracy, rampant disease—as well those that bring about hope for the human condition. One must acknowledge and account for the rich, conflicted history of the country before there can be any understanding of the current issues and methods of recovery.

The area now called South Africa was hardly uninhabited when the first Europeans arrived. The earliest known people of the region were the Khoekhoe and San (collective: Khoisan), also known as the Bushmen and Hottentots. These two groups inhabited the southern tip of Africa for thousands of years before Europeans arrived, but suffered greatly upon that arrival. Bantu-speaking people also inhabited parts of what is now South Africa. The Dutch arrived in 1652 and set up a fort for the Dutch East India Company. This marked the arrival of white settlers in South Africa, although power would shift from the Dutch to the British, and the start of slavery in the Cape. This also marked the beginnings of the racial groupings still used in South Africa today; descendants of Khoisan people, slaves from Africa and Asia, and white settlers formed a new mixed-race group referred to as “coloured.” From the settlers—Dutch, French, German, and English—now disassociated with Europe came a new group, the Afrikaners. The Cape Colony was under British rule by 1806 (Short History, nd).

The nineteenth century was one of conflict between settlers and native groups. Perhaps most definitive of this period in South African history is the discovery of diamonds and gold, the subsequent exploitation of which would wreak havoc on the country over time (Short History, nd). In the early years of the 1900s, following armed conflict between the British and the Boers, racial tensions began to magnify. The four colonies merged into the Union of South Africa in 1910, at which point more than 75 percent of inhabitants were non-whites. With the creation of the conservative Nationalist Party and conservative Afrikaner leadership, racial restrictions multiplied and non-whites saw their land, homes, and rights taken away. The Nationalist Party won general elections in 1948 and apartheid came into being. From this point forward, racial inequality became South African policy (Short History, nd).

The late 1980s marked a dramatic shift in South African government. F.W. de Klerk took up the helm and lifted many of the restrictions that had been placed on opposition parties. Leaders were released from prison. Legislation embedding apartheid was gradually removed. However, violence continued throughout the country, especially in the townships that had come to be the center of non-white South Africa. These shantytowns were symbols of oppression and continue to be so today. Issues aside, however, South Africa held its first democratic elections in 1994, resulting in the election of Nelson Mandela as president. Mandela held the position until 1999 when he was succeeded by Thabo Mbeki. Mbeki was reelected in 2004 but his second term and the ANC as a whole was embroiled in controversy, specifically surrounding the constant conflict between Mbeki and ANC head Jacob Zuma. In 2008, Mbeki resigned from the position and, in 2009, Zuma was elected president.

Today's South Africa is reminiscent of the colonial breakdown of old. Considered a medium-sized country, it is roughly twice the size of Texas and supports a population just shy of

50 million (CIA World Factbook, 2010). The country is divided into nine provinces—Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, North West Province, and Western Cape—of varying size, population, and character. Major cities include Cape Town, Johannesburg, Pretoria, Durban, Polokwane, Port Elizabeth, East London, and Bloemfontein; these are spread across the country, with rural territory making up the majority of the country.

Clearly the country has seen every point on the spectrum of political and social conditions, and these experiences have shaped South Africa into the country it is today. From this platform, one can see the makings of a conflicted society and the roots of today's issues within that society. Unfortunately the rifts that formed as a result of apartheid policy and centuries of racial inequality continue to plague the Rainbow Nation today.

DEMOGRAPHICS

South Africa's history has demonstrated its diversity and has placed it in a unique class of nations with both first and third world status. Civil strife and racial oppression, coupled with a vastly varied ethnic makeup and minority rule is a recipe for social struggle at many levels. Indeed, the echoes of a troubled history are seen in the modern nation. More importantly, however, these factors have a dramatic influence on the wellbeing of the population, including its health.

According to the most recent estimates, South Africa has a population of 49.32 million. Roughly one-third of the population is less than fifteen years old, with just 7.5 percent aged 60 or older. Women make up 52 percent of the population and their life expectancy at birth is 57.2 years; for males, life expectancy at birth is 53.5 years. (Mid-Year Report, 2009, p. 3)

Racial and Ethnic Breakdown

Of that 49.32 million, 79.3 percent are categorized as African, a clear majority. Whites make up the next largest segment of the population, at 9.1 percent, followed by colored citizens at 9.0 percent. Indians and Asians form the remaining 2.6 percent. These racial groups are one of the remnants of colonialism and minority rule that still control South African society. They are as much a basic standard of organization as they are a discriminatory method. However, in much the same way the United States divides census groups into blacks and African Americans, Latinos and Hispanics, and other categories, so too does South Africa rely on the age-old racial classes. Certainly they are not precise—even today, defining someone as colored can be confusing at best—but they do provide a breakdown that is consistent over the country's history (Mid-Year Report, 2009, p. 4).

As was discussed earlier, South Africa is the home of many different cultures and groups of people. These ethnic groups have developed the nation into a melting pot of traditions, but one that has managed to hang on to the identity of each contributor. This is most easily seen in the national languages of the country. Many countries have one or two official languages, perhaps three. South Africa has 11 official languages, with English only the fifth most widely spoken as a first language, tied with Setswana. In 2001, nearly a quarter of South Africans (23.8 percent) were native speakers of isiZulu, the most popular of the group; this continues today. It is followed by isiXhosa at 17.6 percent, Afrikaans at 13.3 percent, and Sepedi at 9.4 percent, before finally reaching English and Setswana with 8.2 percent of the population each. English is widely spoken, albeit not as a first language, because it is the language of business (SouthAfrica.info, Languages, 2007).

As is to be expected with so many official languages, there are regions where one is spoken more widely than another. According to the 2001 census, isiZulu is predominately spoken in KwaZulu-Natal and Gauteng, where the majority of the Zulu population resides. Afrikaans is primarily used on the west side of the country and isiXhosa is the main language of the southern regions. The northern provinces are where the greatest variety in language is found. English is spoken by a fair percent of residents in three of the provinces—Gauteng, KwaZulu-Natal, and Western Cape (SouthAfrica.info, Languages, 2007).

Geographic Breakdown

Beyond the language breakdown by province, there are significant variations in the populations of each. The vast majority of the population resides in Gauteng—the location of Johannesburg and Pretoria, the largest city and capital city respectively—and KwaZulu-Natal, the original homeland of the Zulu people. Each province supports roughly 21 percent of the population, with the Eastern Cape holding 13.5 percent of the population. The Northern Cape is the smallest province, with just 2.3 percent of the population; the region is mainly farmland for citrus farmers (Mid-Year Report, 2009, p. 4).

Migration is one of the issues at the forefront of South Africa's policy. Migration has the potential to spread disease—this is of particular concern with HIV/AIDS—and create overcrowding. Often this migration is into the cities. The country has been experiencing urbanization at a rate of about 2.7 percent. As of 2007, 60 percent of the population was already located in cities (UNICEF, 2007).

Development Indicators

Perhaps of the greatest importance are indicators such as literacy rate, education level, employment, and income. These demonstrate the level of development achieved and greatly

impact the strategies employed in reaching the given population. Post-apartheid South Africa has seen many changes in education but it still ranks as a country in need of improvements and development.

Income varies dramatically in South Africa, with a GNI per capita of 5760 USD. Those who were in the lower half of the population shared a miniscule portion of household income—the lowest 40 percent of the population shared just 10 percent of household income from 1995 to 2005—while the upper levels were disproportionately wealthy. This is no different than most middle-income countries, where the wealthy have the majority of the income. However, South Africa is not like other middle-income nations in that the lower levels of the population are living in extreme poverty. Thus the scale has been shifted. In 2005, 26 percent of South Africans lived below the international poverty line. This has not improved in the five years since. To further complicate the issue, employment in South Africa is extremely high (UNICEF, 2007).

Education and literacy are of the utmost importance, especially with regard to communication campaigns. South Africa has an adult literacy rate of 88 percent and a youth (15 to 24 years) literacy rate of 95 percent. Primary school enrollment hovers at 88 percent, with attendance falling slightly lower at about 80 percent. Secondary school enrollment and attendance are lower, with roughly 60 percent enrollment and 40 percent attendance. This may be because young people at this age often forego education in place of work (UNICEF, 2007).

DISEASE RATES

With an understanding of the people and history of South Africa, one can then begin to explore the specific health issues within the country through the culturally informed lens. Like the rest of sub-Saharan Africa, infectious diseases plague South Africa and have done so for centuries. They have served as instruments of imperialism, wiping out entire communities and

tribes, and conversely provided a disincentive for colonization by Europeans previously unexposed to such strange, terrifying illnesses. Tuberculosis has long been an issue throughout the continent and specifically in South Africa, but these public health issues were catapulted into the spotlight with the arrival of HIV/AIDS.

HIV/AIDS

The history of HIV in South Africa very closely follows the story line for much of sub-Saharan Africa. Ultimately it was found that the disease was widespread in the region and South Africa entered into one of its more turbulent periods with regard to health. Thabo Mbeki, president of South Africa from 1999-2008, struck fear into the hearts of AIDS activists and international leaders alike when he sided with AIDS deniers, arguing that the disease was a creation of the West to devastate the African population and continue colonialism through illness and death. His sentiments were echoed by former minister of health, the late Manto Tshabalala-Msimang, who advocated for natural remedies like beetroot and lemon and argued that AIDS did not exist at all. It was not just Mbeki's administration that became entangled in the AIDS debate. Current President Jacob Zuma had his own conflict, when he testified in his own rape trial that, while he had unprotected sex with a woman he knew to be HIV-positive, he showered after the act and therefore protected himself from being infected with the virus. Over the last decade, the South African presidency and cabinet have created a tremendous conflict with the rest of the HIV-aware world. The country leads the rest of sub-Saharan Africa, and having leadership that refutes such information is potentially lethal for the entire region (Butler, 2007).

Data about the HIV/AIDS epidemic in South Africa, and many developing countries, is spotty at best. The methods employed to acquire statistics fail to account for certain groups and instead rely on estimations. It is possible that the epidemics are overestimated; however, it is far

more likely that they have been dangerously underestimated. In the Mid-Year Report (released by the South African government in July 2009), Statistician-General PJ Lehohla stated that the government's "knowledge of the HIV epidemic in South Africa is based primarily on the prevalence data collected annually from pregnant women attending public antenatal clinics since 1990" and acknowledged that this creates bias as only certain groups attend these clinics (2009, p. 5). There are certainly differences between the number of pregnant women infected with HIV and the prevalence within the general population.

As far as the reported HIV prevalence for the country, rates vary based on how recent they were obtained as well as the method used to determine them. The aforementioned government report listed an adult prevalence of 17 percent; an alternative source stated that the adult prevalence was 18.1 percent in 2007 (Mid-Year Report, 2009, p. 6; UNICEF, 2007). A UNAIDS report also highlighted 18.1 percent as the country's rate, the fourth highest rate in the world (UNAIDS, 2008, p. 215). By sheer numbers, South Africa has the most HIV-positive people in the world, with an estimated 5.2 million in 2008 (Avert, 2010).

Migrant workers and commercial sex workers are the target of many initiatives in South Africa, as in the rest of the region. While many fear homosexuality is to blame for the epidemic—in many sub-Saharan African countries, homosexuality is illegal—South Africa has demonstrated that heterosexual sex and other means of transmission are of far greater concern. In South Africa, heterosexual intercourse is the primary means of transmission, followed by mother-to-child transmission (Avert, 2010).

Tuberculosis

While HIV is the sexy disease of this generation, garnering the most attention from all angles, tuberculosis has demonstrated its staying power in South Africa. Considered a TB

hotspot, South Africa has been combating the disease for ages but has failed to make serious headway against the condition that is almost exclusively a disease of poverty. With townships scattered throughout the country and people living in squalor, particularly in those locations, tuberculosis spreads rampantly. Further, with high HIV/AIDS rates come increased tuberculosis rates. It should be no surprise that tuberculosis is still a threat in South Africa but it is interesting that the country has made so little progress in combating it.

South Africa ranks among the top ten countries for tuberculosis prevalence and has an annual incidence of more than 600 cases, many of which are among HIV-positive South Africans (WHO, South Africa, 2007). The DOTS strategy has been implemented with some success but it is quite possible that the damage has already been done and this development comes too late. Lack of government focus on the disease has led to this abundance of cases. And with failed drug regimens, whether because of poor quality or poor administration by doctor or patient, MDR-TB has erupted within the society and XDR-TB has become a very real threat with numbers rising faster than anticipated. The KwaZulu-Natal study, mentioned earlier, that revealed the severity of XDR-TB and its high mortality was conducted in South Africa. Clearly this issue is at its height in the country.

CONCLUSION

To say that the history of South Africa played a role in its present position would be a dramatic understatement. Imperialism, racial and ethnic tensions, and the conflict between Western influence and traditional practice have all contributed to the current affairs of South Africa. It is into this frame that the discussion of public health communication should be placed for analysis. Social factors have as much of an impact on public health outcomes as the biological aspects already explored in this study, and accounting for them is absolutely necessary

in the adequate analysis of past communication campaigns for these diseases. Furthermore, they must be considered for successful development of future health communication campaigns, especially with such socially influenced diseases as TB and HIV/AIDS.

IV. COMMUNICATION THEORY

Medical advances have enabled us to tackle countless health crises and prevent devastating diseases from reaching their full potential. While there is no denying the value of microbiology in the fight against health issues, there are alternative methods that have the potential to effect long-term change. Among the most promising is behavior change communication, which uses communication strategies to influence the actions of a selected audience, particularly those behaviors that impact health and wellness. Behavior change communication has the potential to create long-lasting change for a population and, when used in the public health context, can enable tremendous benefits for that group.

In order to tackle the HIV/AIDS and tuberculosis health crises in South Africa through health communication strategies, adequate attention must be paid to the key parts of developing such strategies. Several communication concepts and theories, as well as the theories of health communication specifically, form the basis for analysis of past campaigns and provide a framework for future efforts. Health communication alone will not resolve these public health crises. However, used in conjunction with the medical methodology already in place and the new advances happening regularly, behavior change communication can bring about the sociocultural changes necessary to ensure the efficacy of medicine.

COMMUNICATION METHODOLOGY

Social Marketing

First and foremost, one must understand the idea of social marketing. Social marketing is the use of advertising, communication strategies, marketing, and public relations to effect changes in behavior. The distinction from traditional marketing is that it is not a commercial process; there is no product being marketed. Rather it is the idea of bringing about social change

through communication strategies and the tactics implemented for commercial marketing. What characterizes social marketing the most thoroughly is the heavy focus on research and evaluation; the effective practice of social marketing demands thorough study of audience, message, and behavior to determine the appropriate methods. The research leads to behavior change program development and constant monitoring, evaluation, and adjustment of the program to ensure it is effective (NCI, 2004). From this point, the building blocks of health communication can be examined.

Audience

Perhaps the most fundamental concept in communication theory is audience identification and targeting. In order to ensure reception of a message, research on the audience is absolutely necessary. This means not only identifying an audience—in this particular case, the audience may be teenage girls in cities or pregnant mothers in rural areas, for example—but also determining the characteristics of that particular audience. These characteristics are what enable the development of communication campaigns that actually reach and impact their target audiences.

Two audiences are identified in the development of a communication program. The target audience is the particular population group that the campaign is focused on reaching. The above example of urban teenage girls is an example of a target audience. Upon identifying this particular audience, research would be focused on determining the characteristics of this group in order to engineer a campaign that appeals to these characteristics. By doing so, the likelihood of the target audience actually acting on the message of the campaign is drastically increased.

The other audience is aptly referred to as the secondary audience; this is the group that will influence the message adoption of the target audience through interpersonal communication

(NCI, 2004). If urban teenage girls are the target audience, then urban teenage boys—the boyfriends of the girls targeted—may be the secondary audience because they may help reach the intended target audience. Through the secondary audience, the target audience may be more deeply influenced and the message will be better received. Generally the secondary audience is comprised of peers or family members.

Audience targeting, again, enables focused development of messages that appeal to specific groups of people. While the overall population impacted is smaller, the effect is greater because of the actual depth of understanding the target population earns. Furthermore, there is an additional audience that is affected through attempts to reach the target audience. This group will likely act on the message they are conveying to the target audience even though they are not the intended audience.

Message development

In order to actually reach the intended audience, it is absolutely necessary to develop a message that appeals to that target audience. According to the National Cancer Institute “pink book” (2004), message concepts utilize different types of appeal to reach the audience members. A factual message will have a different impact than an emotional message, and a call to action will also have a unique effect. The ideal message, then, will include all of these types to ensure that the information is provided adequately, the audience is emotionally or morally invoked to pay attention, and the audience feels compelled to enact behavior change that is desired. This, of course, is the ideal outcome. The message development stage should account for all characteristics that define the target audience in order to be most effective.

Framing

Framing has the potential to not only place a topic into a particular context, but also to remove it from a stereotypical and erroneous context. Essentially framing is the presentation of an idea through a particular lens, enabling the presenter to determine the angle from which the audience will explore it. Framing the South African HIV/AIDS crisis as a cultural problem will be far less effective in changing behavior than framing it as an opportunity for South Africans to help themselves and act for their own health preservation. Past administrations have placed the subject in a racial frame, whether defining it as a disease of the poor black population or a plague brought on by the white imperialists hoping to wipe out the indigenous groups. Clearly these frames will provide very unique interpretations of the information—even if the actual facts presented in each are identical and it is just the supporting data and episodic evidence that changes—and will alter the resulting actions of the population (Maibach & Parrott, 1995).

HEALTH COMMUNICATION THEORIES AND CONCEPTS

Edutainment

A newer aspect of communication is entertainment-education, often referred to as E-E or edutainment. Singhal and Rogers (2003) define edutainment as a strategy encompassing both the educational and entertaining natures of all media programming:

Entertainment-education is the process of purposely designing and implementing a media message to both entertain and educate, in order to increase audience members' knowledge about an issue, create favorable attitudes, shift social norms, and change the overt behavior of individuals and communities...to contribute to the process of social change, which can occur at the individual, community, or societal level. (289)

Essentially, edutainment is designed to use fiction as a means of effecting real-life change. The value of these programs lies in their ability to bring issues of health that are considered taboo into the common discourse. They furthermore bring these issues into the public discourse and help to effect behavior change.

Edutainment programs are presented like soap operas, with fictional characters and storylines; as such, they are discussed in the community in the same way we discuss the latest episode of our favorite show in the U.S. However, these programs also have storylines that revolve around controversial topics not generally discussed in public, specifically HIV/AIDS. By placing this storyline into the program, with a narrative rather than lecturing approach, the viewer does not feel like he or she is being preached to and is more receptive to the information being presented. Furthermore, this makes the topic more approachable and it will be brought into regular discourse as a discussion of entertainment; people discuss these issues in the context of the show, but through that discussion convey their own opinions and thoughts. Thus the issue finds its way into the public consciousness and people are gradually less hesitant to talk about it. Finally, the shows are, at their root, entertainment and are thus pleasing to the viewer. People are likely to continue watching, and thus more information is conveyed over the course of the program (Singhal & Rogers, 2003).

Diffusion of Innovations

This theory is used in innumerable communication campaigns, from social marketing to commercial advertising. It essentially defines the way new ideas and practices spread within a society or between societies (NCI, 2004, p. 226). What sets this theory apart from the general understanding of information diffusion is that diffusion of innovations theory makes a point of

identifying the stages of adoption and the people within a particular society or societies who will lead the way.

Diffusion of innovations theory is broken down into five stages. The first is awareness or knowledge, the stage in which exposure to the idea first occurs. The next step is interest, or persuasion, in which the person develops some level of interest in the idea. Evaluation or decision is the third stage, followed by trial, or implementation. In these two stages the person debates the value of the idea and then temporarily implements it to test it out. The fifth and final stage is adoption, or confirmation, in which the person either accepts or rejects the idea (Hallahan, 2005).

The theory further identifies factors that contribute to the outcome of the process: prior conditions, decision maker characteristics, and innovation characteristics (Hallahan, 2005). Prior conditions are the past experiences and ideas that characterize a person and inherently affect their decisions. The remaining two factors focus on the characteristics of the population, which determine if the innovation will be adopted, and the actual perceived positivity or negativity of the innovation.

Finally, diffusion of innovation theory explains that there are unique groups within the population that will determine the path of adoption. Bertrand (2004) explains that diffusion of innovations theory involves the breaking down of a population into specific adoption groups. The first group is innovators; these people make up a small group who are eager to try new ideas. The next group is early adopters or opinion leaders, who are not quite as adventurous as the innovators but generally lead the shifts within society. Early majority is the term for the next group, who usually do not hold leadership positions but are interactive and follow the early adopters. This group is followed by the late majority, people who are skeptical about new ideas

and take longer to adopt them. They ultimately adopt innovations because of peer pressure or economic uncertainty. Finally, the laggards comprise the last segment of the population; they are traditional and rooted heavily in the past. They are unlikely to adopt innovations and if they do, will only do so after the rest of the population has already implemented them.

This theory is particularly applicable for health communication as it demonstrates the progression of new ideas within a society. Particularly in the developing world, medical advances are slow to catch on and people are hesitant to stray from their traditional cultural values and practices. The idea of opinion leaders is effective and has the potential to sway at least the younger portion of the population—arguably the elders within a population are among the laggards and are often resistant to change in tradition—and create long-lasting effects.

Health Belief Model

This is one of the key theories relating to behavior change communication. Rosenstock (1974) explains that this theory essentially breaks down health behavior adoption into its most basic steps. For the sake of this project, there are two key parts to this theory. First, people will consider changing their behaviors based on their perceived risk of a particular health issue happening to them. If they do not see themselves as susceptible to the disease or condition, they will not look to the next step in preventing it. Second, people will act based on the perceived efficacy of a particular intervention. If they do not see a specific recommendation as having an impact on their health, they won't implement it. In the context of HIV/AIDS, this is especially true. If a person does not see him or herself at risk of being infected with HIV, he or she will not use preventive measures. Further, if he or she does not see the recommended intervention—say, condoms, for example—as an effective preventive method, he or she will not use that method.

As such, this model demonstrates the need to convey both the risk and the efficacy of prevention or treatment in order to actually impact the audience.

Social Cognitive Theory

Social cognitive theory is a second theory that is heavily employed in behavior change communication. According to Pajares et al. (2009), this theory explains, at its most basic and applicable level, that people learn from what they observe. In other words, human behavior is impacted not only by personal but also environmental factors. People are actively engaged in their own personal development and create rules for their own behaviors based on what they observe others doing. This is the theory that applies to edutainment and largely explains its effectiveness. Audience members see characters engaging in positive or negative behaviors and also see the consequences and rewards for those behaviors. As such, they subconsciously make the link between negative behavior and punishment, or positive behavior and reward, and develop social behavior rules in their own mind.

CONCLUSION

While health communication for HIV/AIDS and tuberculosis has been in place for decades, the impact of such is far from its potential. This paper will examine the efforts that have been made and the relative success or failure of several examples in the frame of these theories and concepts. It will make the argument that there are pieces of programs that, if enacted in slightly different ways or with different contextual backings, would be dramatically more effective in changing the risky behaviors of the South African population, particularly those most often affected by HIV/AIDS and tuberculosis.

It is through these concepts and theories that past health communication programs have been designed and implemented; whether or not they did so effectively is the question at hand.

Over the next section of this paper, past and present behavior change communication projects will be analyzed and evaluated through the framework established here and the health statistics that correlate to their implementation. Some of these methods are new and unprecedented. Others, like diffusion theory and edutainment, have been around for some time. Their effectiveness has been evaluated repeatedly but this examination will put them to the test and use their successes and short-fallings to blaze a new strategic plan for tackling South Africa's HIV and TB crises through health communication.

V. CURRENT METHODS AND ANALYSIS

The use of behavior change communication to influence the health of a population is hardly a new concept. It aims to alter the behaviors of a population to effectively correct those that lead to health consequences; in the case of HIV/AIDS, these include unsafe sex, multiple partners, and intravenous drug use, to name a few. Changing these behaviors to their low-risk alternatives—protected sex, monogamy, clean needles—would all but ensure a drop in prevalence and very likely a continuation of those activities in the next generation.

It is here that behavior change communication can be put to use. By creating a campaign that targets a specific audience and addresses their key characteristics and behaviors—specifically the health behaviors that put them at high risk for HIV and tuberculosis infection—it is possible, albeit challenging, to impact those distinct behaviors and breed healthier, low-risk mannerisms in that target population. In order to explore these efforts, this section begins with a discussion of selected campaigns that have been implemented in the developing world, with particular emphasis on those employed in sub-Saharan Africa. From there, the focus shifts to South Africa, examining a selection of behavior change communication programs that have been and are currently being implemented there. In an effort to better understand the impact of these programs, their implementation is correlated with increases or decreases in the number of new infections and their relative efficacy is evaluated. Finally, acknowledging that this is an imperfect study, this section concludes with a discussion the limitations of the research and analysis.

CURRENT METHODS

Developing World

A number of key health communication initiatives have been implemented over the last few decades throughout the developing world, and a select few have been highlighted here. Largely edutainment programs, these have been developed and publicized in various countries ranging from India to Zambia to Brazil. However, for the sake of continuity and applicability, only those in sub-Saharan African bear relevance to this particular project.

In 1993, Tanzania created a radio broadcast program entitled *Twende na Wakati*, which was focused on educating listeners about family planning and HIV/AIDS. At the time, there were two other programs that discussed health issues—*Zinduka* and *Afya ya Jamii*, broadcast by other radio stations—as well as the national family planning strategy. As such, the results of various surveys are not necessarily ideal, as there was simultaneous exposure to other programming. However, what researchers found in a study by Rogers, et al. (1999) was that the program increased contraceptive use and knowledge of family planning and personal sexual protection options. Furthermore, the program altered social understandings and expectations about marriage age and children. The ideal age of marriage increased over the course of the four-year study, as people gained exposure to *Twende na Wakati*, and the ideal number of children per family decreased as well. Noticeably, the progress in all areas continued and even increased over the course of the study, indicating that more and more perceptions were changed and more people adopted these healthier behaviors as the program gained influence. One should note that a similar adjustment was seen in the control area as well, but the authors explain that this is somewhat negligible; while this may indicate a weakness in the *Twende* program, it also seems to coincide

with the other two programs being viewed or listened to in the control area but at much higher rates of saturation than the experimental treatment areas (Singhal & Rogers, 2003).

As with edutainment programs in general, the most applicable theory for *Twende na Wakati* is social cognitive theory. Rogers et al. (1999) explicitly state this in their report: “Positive and transitional role models in *Twende na Wakati*...were rewarded in the story line for taking charge of their lives in this way. Negative role models...lacked such control and were punished by events.” Listeners thus were encouraged towards self-efficacy and connected positive action with positive rewards and negative actions with punishment. This very clear link between action and consequence, and the connection of positive and reward versus negative and repercussion, is key in social cognitive theory and, as the study indicates, was effective in linking listeners into the story. Essentially, then, *Twende na Wakati* was able to impact at least a portion of the population through a program that identified clear positive characters, clear negative characters, and transitional characters with whom most Tanzanians could identify, and then played out their stories with identifiable outcomes for each action. The transitional character was key and is worth noting separately, as these are the characters who waver between sides and ultimately learn that the positive side is where they want to be. Most Tanzanians identify with these characters and thus, through the self-efficacy process discussed, ultimately align their actions with those of the character in choosing the positive behaviors. *Twende na Wakati* has shifted slightly in its production and has gained support from external groups such as Population Communications International (PCI) and various consultants, enabling further development of the program content and methodology (Singhal & Rogers, 2003).

Another sub-Saharan African edutainment program is found in Kenya, entitled *Ushikwapo Shikamana*. Produced since 1998, this program has focused on social issues beyond

just HIV/AIDS. In one example provided by Singhal and Rogers (2003), two teenagers are married off and the young girl is expected and urged to undergo female circumcision, a practice opposed by the girl and her fiancé, as well as a schoolteacher. The storyline conveys the struggle between the two generations—the young couple and schoolteacher, and the parents and greater community—and how it plays into various issues that arise. The young girl is ultimately circumcised but her fiancé is forced out of the town because of the conflict over the practice, and she is betrothed to a much older man before fleeing, finding love in someone who also values monogamy, and becoming a strong supporter and provider for AIDS orphans in her new community.

This program too relies on the tenets of social cognitive theory albeit in a slightly less blatant way. The young girl demonstrates positive behaviors by attempting to protect herself from the brutality of circumcision, early marriage, and then HIV. She effectively finds true love, always a positive reward, and follows her own admirable path of protecting others from those conflicts. As this is just one example, it is very likely that others show more of a juxtaposition between positive behaviors and negative behaviors, and the ultimate outcomes for each (Singhal & Rogers, 2003).

Finally, a third program that bears value is from Zambia. Entitled *Nshilakamona*, the radio series lasted just nine months in the early 1990s but serves as a solid example of the implementation of the second major theory discussed in this project. Yoder, Hornick, and Chriwa (1996) explain that *Nshilakamona* was based on promoting the key ideas listed below:

1. AIDS is an important health problem in Zambia
2. You can get AIDS (everyone is at risk)
3. You can prevent AIDS
4. Condoms protect against infection from the virus
5. People should talk about AIDS with their spouses and their children
6. Women are no more to blame for the spread of the virus than are men

7. Caring for people with AIDS will not make you sick

In particular, the second point is the most relevant as it conveys the perception-shifting agenda of the health belief model (Rosenstock, 1974). What it states—that anyone and everyone is at risk of contracting AIDS—perfectly expresses the almost threatening nature of the health belief model. This singular statement effectively increases perceived risk, setting up for the presentation of actions to prevent the spread of the disease. The program also utilized social cognitive theory in the same basic way as the earlier examples in Tanzania and Kenya, but it is the blatant efforts at heightening perceived susceptibility that are most notable in this case.

South Africa

South Africa is perhaps the strongest, most vibrant setting with regard to edutainment and health communication. Several programs have been and continue to be produced there over the last few decades, some of which have compounded their reach through simultaneous publication of print materials and other methods of outreach. The key programs are loveLife, Soul City and its subsidiaries, and those programs developed and operated by Population Services International (PSI) and the Johns Hopkins University Center for Communication Programs (JHU CCP).

LoveLife is an organization that operates national programs for the education of youth in particular, but also the entire South African population. The program started in 1999 and has since been the national voice for HIV/AIDS prevention and education. On the corporate level, it is supported by several groups, from the South African government to various NGOs, media groups, and corporations both in South Africa and abroad. The intent of loveLife is to educate young South Africans about HIV/AIDS and other sexually transmitted diseases, aiming to prevent new infections and thus rein in the epidemics that have plagued the country. In order to do so, loveLife uses three basic methods: media campaigns, including television and radio

programming as well as magazines and billboards, personal outreach through support programs and health services, and program evaluation and monitoring to enable constant adjustment and improvement. Current programs are mainly public service announcements (PSAs) directed at loveLife's target audience, South African youths aged 12 to 17 (loveLife, 2010).

Soul City is another program focused on reaching youth in particular, albeit a slightly older cohort than loveLife. Started in 1992, Soul City Institute has worked to promote health and social change for the last 18 years, focused mainly on HIV/AIDS prevention and reducing violence through alcohol control and alcohol abuse prevention. The institute operates several programs, the most famous and widely viewed being *Soul City*. *Soul Buddyz* is designed to target children and *Kwanda* is a community engagement and development program, styled as a real-life, volunteer-driven community makeover program. Finally, *Untold and Love* is a series of 30-minute short films for television, designed in partnership with organizations from ten countries in southern Africa to educate about the dangers of multiple, concurrent partners. Soul City also engages in print and alternative media messaging, through internet and social media specifically (Soul City, 2010).

In addition to its programming, Soul City also produces PSA-style media. In particular, the OneLove campaign deserves recognition. With the motto "talk, respect, protect," its aim is to raise awareness about the dangers of multiple partners and infidelity with regard to the HIV/AIDS epidemic, and to effectively develop a negative connotation of those practices. One of the more recent pieces in this campaign is a music video-style PSA that mimics a pop music video and includes not only English but also native South African languages; the video and music also play into both traditional and modern styles, ranging from kwaito rap to a traditional choir. Embedded in the song is an explanation of the reasons to stick to one partner, and placed

to music this is unforgettable. The key line, “one love, one partner” is repeated several times in several languages throughout the song. This is just one example of the work Soul City does. The main program, *Soul City*, has focused its story lines on everything from domestic abuse spurred by alcohol abuse to transactional sex to the HIV/AIDS epidemic. The current series, which began in March, is focused largely on alcohol abuse and the repercussions of such for not only the individual but the community as a whole (Soul City, 2010).

There are several other groups that work on behavior change communication in South Africa, one of which is the international organization Population Services International (PSI). PSI is more heavily involved in population research and social marketing but several programs have been specifically based on behavior change communication strategies. One particular program is AIDSMark, which targets high-risk groups in southern Africa, specifically commercial sex workers (CSW) and truck drivers. AIDSMark recently worked to focus its outreach, primarily condom promotion, on these two groups along major trucking routes. This was expanded to the entire community in an effort to avoid stigmatizing those who participated. Additionally, PSI’s AIDSMark program developed two specific behavior change communication campaigns. The first, the Trusted Partner campaign, focused on changing perceptions of condom use to increase usage with primary partners. The second, the Delayed Debut campaign, focused instead on playing up the ideas of masculinity and femininity—a “real man” or “real woman” was the character in these ads—in connection to peer pressure and norms of transactional sex or male domination. However, the actual efficacy of these programs was limited. Post-campaign analysis revealed that, while they did educate the youth they were aimed at, that education did not translate into proactive action and the practices that were highlighted in the ads were not adopted by the target audience (PSI, 2007).

PSI also has a South African branch, through a collaboration with the Society for Family Health (SFH). The key means of behavior change communication being implemented through SFH is in the YouthAIDS program. YouthAIDS is a campaign that centers around peer-led activities and targets youth in the townships. Rather than being lectured by an adult on the dangers of HIV and unsafe sex, the youth are reached through peer educators. Programs are often conducted through classroom resources, workshops, street campaigns, talk shows, and even a mobile theater program that often recruits local musicians or actors in each stop to further connect to the local population (Society for Family Health, 2010).

Finally, one other organization that works to use communication tools for health behavior change is the Johns Hopkins University Center for Communication Programs (JHU CCP). JHU CCP currently is focused on capacity-building projects in South Africa, which include Research to Prevention (R2P) and Responding to the Need for Family Planning through Expanded Contraceptive Choices and Program Services (RESPOND). Both of these programs are focused on population research and program development for addressing unmet needs within the South African health sector. However, it should be noted that the JHU CCP also works in more than 30 other countries and is deeply involved in developing health communication programs elsewhere, and has worked on such programs in South Africa in the past (JHU CCP, 2009).

ANALYSIS

In order to actually determine the methodology, intent, and efficacy of the aforementioned behavior change communication programs implemented in South Africa, this section discusses the selected campaigns in connection to their theoretical basis and their measured impact. Because this research is reliant on assumptions about exposure versus actual engagement—someone seeing a flyer is very different from someone actually reading that

flyer—it is difficult to form solid links between campaigns and changes in incidence for HIV/AIDS. However, methods have been developed to at least obtain some grasp of the impact of these programs. The key issue for the sake of this project is that there has been limited external evaluation. The main sources of evaluations of programs are the programs themselves; in this study, Soul City and loveLife contributed to the “editorial and strategic” editing of their research reports (Soul City, 2007). That said, an independent firm conducted the actual research. However, it must be kept in mind that editorial and strategic edits may adjust the interpretation of findings and skew the actual results in that way.

Theoretical Analysis

As has been discussed, the two major theories of behavior change communication that will be used in this analysis and evaluation are the health belief model and social cognitive theory. However, other key communication concepts will also be used to discuss the inner workings of the selected programs. Audience, message development, and framing all come into play when developing a campaign, constructed within the frameworks of the aforementioned theories.

Soul City and loveLife both fall into the category of edutainment, as do some of the programs initiated by PSI (i.e. YouthAIDS). They employ entertainment as a means to create dialogue on the subjects, particularly HIV/AIDS for this study, and ideally change those behaviors that put individuals at risk. The soap opera style that is used by both programs is captivating and entertaining, and appeals specifically to their target audiences; both Soul City and loveLife focus primarily on young adults, with loveLife targeting 12-17 year olds and Soul City expanding that audience through each of its programs, largely focused on a slightly older group (Soul City, 2010; loveLife, 2010).

Edutainment is designed to create a safe, comfortable place for dialogue on issues that are otherwise seen as taboo or private. Dramatizing—and sometimes even over-dramatizing—storylines that involve these particular subjects enables them to fall slightly outside reality and lessens the discomfort of discussing them. In much the same way today's teens in the U.S. discuss their favorite television show, so do young adults in South Africa. Soul City and loveLife create this unique forum for discussion of what would otherwise be extremely uncomfortable subjects. Audience members relate their own experiences but are able to discuss them in the context of the show, eliminating the personal connection.

Edutainment by nature is based heavily in social cognitive theory, and this is evident in the two programs discussed here. Soul City and loveLife both utilize social cognitive theory in attempting to inspire behavior changes among viewers. The story lines portray key characters, specifically falling at each end of the behavior spectrum as well as in the middle. There are characters who act negatively and over time see the negative consequences of their actions. For example, Soul City series nine featured a character who engaged in several affairs and was infected with HIV as a result. He then indirectly passed the disease on to his son, who thus lost a scholarship to study in the US as a result of his positive test. The obvious negative implications, from the character's own infection to the subsequent infection of his wife and son, as well as innumerable other characters along the way, to his son's lost opportunities and the schisms within the family and community are all obvious indicators of negative behaviors. By seeing these, according to social cognitive theory, the viewer subconsciously connects the negative behaviors with negative consequences. This character's wife, on the other hand, serves as a positive character. Upon finding out she's pregnant and HIV-positive, she immediately seeks out medical advice to ensure that she does not pass the disease on to her child. She also actively

engages in discussion of the disease and her own status with her friends and community members. Ultimately, she gives birth to an HIV-negative baby; this character is positively impacted by her behaviors, which the theory indicates would lead to understanding and ideally adoption of similar positive behaviors. In the middle are characters who are struggling between both sides. They are trying to decide which behaviors they want to engage in, experiencing conflicts between their concerns for their health and futures as well as immediate necessities. These characters are the ones that most young people identify with, as they too are struggling to understand and develop their own behaviors (Soul City, 2010).

There is certainly some underlying use of the health belief model in these two programs, as there is an unspoken implication that all characters are susceptible to the virus and that they have the ability to protect themselves and others. Often this is conveyed through failures to do so, but this still follows the health belief model statements that perceived susceptibility and perceived efficacy of prevention methods determine how likely a person is to adopt those methods. In Soul City and loveLife specifically, the fact that so many characters, even those portrayed as innocent—for example, the aforementioned negative character's son, who acquires HIV from the infidelities of other characters linked to his father and effectively loses the opportunity to study in the US—become infected is the more subtle way of saying that everyone is at risk and anyone can get the disease. Further, the fact that those who do get the virus do so through unprotected sex highlights the second part of this theory. Each couple that fails to use a condom is either infected or their discordant statuses are revealed; this is an obvious testament to the efficacy of the prevention method. Furthermore, as in the Soul City example cited above, a character's genuine concern and proactive efforts to protect an unborn child through current techniques ensures that her baby tests negative. This is another clear demonstration of the

efficacy of the prevention method. The health belief model, then, comes into play in both of these programs and enables the messages of risk and prevention to be clearly conveyed in relatable ways.

Examining the other programs discussed earlier elicits much of the same information. PSI also has several target audiences just like Soul City, varying by campaign. YouthAIDS, for example, focuses on youth in middle and high school and reaches them through edutainment and peer-led education and discussion. The AIDSMark program initially focused on high-risk groups but adjusted that focus to the general population in order to lessen stigma. loveLife's OneLove campaign is focused on reaching young adults, evidenced by its use of modern entertainment styles. Other PSI programs, particularly the two campaigns discussed earlier—the Trusted Partner and Delayed Debut campaigns—emphasized message development rather than entertainment value or the two theories above. The Delayed Debut campaign's main messages of being a “real man” or a “real woman” and not giving in to peer pressures were intended to pique the subconscious tendencies of each group (PSI, 2007).

OneLove also brings up another strategy: framing the issue of multiple concurrent partners as one of respect, or the lack thereof. By presenting the issue as less of a health issue and more of an issue of morality and respect for the other person, OneLove effectively removes the uncomfortable discussion of HIV from its strategy. That issue is not explicitly absent but is implied rather than stated outright. Other loveLife campaigns use similar framing techniques. One PSA specifically shows young adults breaking down the stereotypes about them, through expressions of poetry, photography, and art—all appealing areas for South African youth. This PSA in particular takes the idea that young people are putting themselves at risk through their actions and turns it into a message of betterment. The characters in the PSA talk about having

dreams and not stopping until they achieve them, about breaking through the beliefs that teens are lazy and reckless. This frames the idea that young people are at a high risk and places it in a context of activation. Viewers then feel personally responsible and able to act to protect themselves, rather than being faced with stereotypes of their behaviors (loveLife, 2010).

Statistical Analysis

This area is particularly tenuous because one must rely on the data provided in the reports published by the programs themselves; however, the data presented in these reports are largely based on official reports and are thus reliable for the purposes of this study. This section is based on the 2009 report by loveLife in collaboration with the UK Department for International Development (DFID), entitled *A Gauge of HIV Prevention in South Africa, 2009* (Scott & Harrison, 2009). Additional information is pulled from Soul City's 2007 evaluation report on its seventh series, the most recent report available (Soul City, 2007).

loveLife reported in 2009 that HIV prevention media exposure was high, at 80.9 percent overall. This was highest among 15-24 year olds and understandably tapered off among those over 50 years of age. The groups reached at the highest rates, in this case, were 20-34 year old women and 25-49 year old men; this is far from the target audience of 12-17 year olds and may indicate an area for adjustment in the loveLife programming. In that target group, exposure and engagement was also somewhat low given that it is the target audience. In 2003, 65 percent of respondents age 15-24 had either never heard of loveLife or had never participated in a loveLife program. However, by 2005 an estimated 67.7 percent of 15-24 year olds had heard or seen at least one loveLife program. That number rose to 79.1 percent in 2008. Soul City enjoys higher numbers than loveLife on the whole. According to the 2007 Soul City report, the programs reached 87 percent of the total adult population of South Africa in 2006; the loveLife gauge

estimates that those numbers were 67 percent and 64.3 percent respectively for 2005 and 2008 (Scott & Harrison, 2009).

As to whether these programs were actually effective, there is room for truly independent study to determine this. It is evident that there are discrepancies in the data that need to be overcome before a truly objective analysis is completed. loveLife reports that among its more blatant achievements is an increase in condom use; a loveLife report from KwaZulu-Natal (2007) states that condom use doubled after the first exposure to loveLife programs. Soul City too highlights its achievements with regard to perceptions of HIV/AIDS and use of preventive measures. In particular, those who had been exposed to Soul City print ads were 16 percent more likely to use condoms at last intercourse and 21 percent more likely to do so with their regular partner than the control group. Additionally, exposure to any of the Soul City initiatives led to a 6-8 percent increase in condom use for prevention of HIV. loveLife reported, through self-reporting methods, that self-efficacy of condom use was estimated at 42-55 percent change over the course of exposure to the behavior change communication programs (Scott & Harrison, 2009). Both groups also recognized a positive impact on reducing stigma across exposure to their programs.

All of this said, one thing to note is that the overall incidence of the disease is not necessarily accounted for in these measures. The loveLife report does include reference to the statistics for disease prevalence over the last five years, which begins to address the overall efficacy of the programs. According to this data, which comes directly from official sources (it is not linked to loveLife), HIV prevalence increased between 2002 and 2008 among women age 30-39 and men age 40-44. In all other groups the numbers were either roughly equal or decreased. Of particular significance is the declining prevalence about 15-24 year olds, although

the rate does increase dramatically among 18-21 year old women and men in their early twenties. It is possible that at least some of this decrease is due to interventions like the behavior change communications programs discussed here; however, other subjects like increased educational opportunities or even decreases in HIV testing could contribute. This age group where prevalence suddenly spikes is the target group for Soul City more so than loveLife, although the overlap and the role of secondary audiences in impacting the target audiences could contribute from both sides. There seems to be a distinct lack of coverage of the 30-39 year old cohort, which is where women are seeing rising prevalence, although Soul City also aims to cover this group (Scott & Harrison, 2009).

Evaluation

While independent data is lacking in this area, perhaps because of the funding required to attain such information, there is a desperate need for it. Still, one can draw at least general conclusions from the reports discussed here. Overall, behavior change communication in South Africa targets teenagers and young adults, with some spillover into other groups. These are the cohorts that have the greatest incidence as new infections appear at extremely high rates compared to the rest of the world. The five years studied, however, seem to show a slowing of the infection rates among this younger age group whereas the middle-age group is experiencing an increase in prevalence. This can be blamed on several things, which will be discussed in the limitations to follow. However, it does identify a gap in coverage that should be considered.

Overall, the programs implemented in South Africa are effectively utilizing the theories of behavior change communication and creating engaging and educational edutainment programs, as well as other styles of programming. The discussion of related social issues—specifically alcohol abuse and domestic violence—add a complementary argument, showing

how these problems play into the HIV/AIDS epidemic. Further, these programs do demonstrate the positive behaviors that should be adopted while still placing them in a realistic context.

While there are discrepancies in the data, it remains that there have been positive correlations between exposure to these programs and changes in behavior. It will likely take a few more years before the links between those behavior changes and the HIV prevalence of the country can be seen. Still, it is certainly a step in the right direction and seemingly small percentages do demonstrate commendable change. Additionally, if the diffusion of innovations theory holds true, then the people who have changed their behaviors are very likely early adopters and it will gradually seep down through society as these innovative behaviors work through to the late adopters. Again, though, this will take time. These programs have only been used for about 15 years and technology has been changing dramatically all along. As technology becomes more widespread, at least the “basic” methods, and as the content and delivery of these campaigns is modified, these programs will have greater reach and greater impact.

LIMITATIONS

There are, unfortunately, several limitations to this study that are inherent in both the study of public health and of communication programs. In any study of public health outcomes, there is an innate limitation on actual evidentiary support for conclusions. This is the first and most obvious imperfection in this analysis. Health outcomes often take several years to materialize, and there are innumerable other initiatives impacting those same subjects. This is compounded when trying to study communication impacts in a public health context. When a behavior change communication campaign is implemented, the hope is that it will effect changes in the behaviors of the target population. However, it may have the greatest impact on an entirely different group simply because of intricacies of population research and personal engagement.

As such, numbers may shift in one group but not the target group. On a related note, there is often an issue of measuring these outcomes. The studies by Soul City and loveLife relied on self-reporting—not a reliable method for measuring actual implementation—and interviews to determine topic-exposure links. Essentially, the interviewee was presented with a series of topics and terms from the program and asked if they recognized any, and then that was correlated to their reported exposure. Again, this is hardly foolproof; there is no way to tell if a person who has seen one episode of a series learned about mother-to-child transmission from that particular episode and not from some other sources. However, these are the most reliable and accepted methods for this type of study and thus must be considered reliable in this case.

Another further issue that links communication and public health is the involvement of other health and prevention players. For example, there has been a tremendous push for HIV testing. As such, increases in prevalence—or even stabilizing numbers instead of falling numbers—may be a result of increased testing rather than failures of the programs. This may also be true for other initiatives, like school programs or community meetings that have the same intent. The interaction of multiple methods has the potential to derail measures of efficacy but very likely will not have a negative impact on the adoption of positive behaviors. Similarly, numbers may be skewed in the higher age groups because ART are allowing people to live longer; as a result, there is more time for unsafe practices to infect others at these higher ages. This may explain the increasing rates among middle-aged South Africans.

CONCLUSION

Ultimately, these programs are effectively bringing the topic of HIV/AIDS into the public eye and even the public discourse while still maintaining the comfort of the South African population. Their focus on the younger cohorts of the population seems to be contributing to the

falling prevalence rates but is not addressing rising rates in the higher age groups. This is one area for improvement, among several others that will be addressed in the next section. These programs have contributed to the changing behaviors of the society but there is much room for improvement, specifically in measurement and research.

One distinct area that must be considered is the potential to use these same methods for other diseases. Certainly HIV/AIDS is unique in that it is not an infectious disease in the way that tuberculosis or cholera is, for example. HIV/AIDS is passed on because of initiated behaviors, not random spread as in the two others. Thus behavior change is the core need for limiting its spread. However, this paper argues that there is room to apply these strategies to tuberculosis as well, especially given the high rates of coinfection between the two diseases.

VI. RECOMMENDATIONS

As has been seen, behavior change communication programs in South Africa have achieved success with regard to HIV/AIDS, effectively encouraging increased condom use and lowering stigma against the disease. However, there is room for improvement and specifically for adaptation. With the apparent success of these programs, there is an opportunity to apply these methods to tuberculosis, specifically because of the extreme stigma associated with the disease and the high rates of coinfection among HIV-positive South Africans. There is also much room for research improvements and further study, as these programs can be further targeted and their efficacy measured to a greater level of specificity.

Recommendations for Practice

With regard to HIV/AIDS, these programs are approaching a crossroad. They have demonstrated effective implementation and shown that, at least to some degree, they are able to change the behaviors of certain cohorts of the population. However, if the numbers are correct and 80.9 percent of the population has been reached by these programs, then it is likely that they have hit a final point (Scott & Harrison, 2009). Diffusion of innovations theory explains that there is a point in the diffusion process where the process comes to a halt because the population is saturated; there is always a part of the population who is not receptive to innovation so this saturation point occurs at less than 100 percent (Bertrand, 2004). Therefore, while a criticism of the method is that it cannot reach the entire population—in South Africa specifically there is a clear technology barrier—one must also consider that there is also a portion of the population that will not adopt the innovations regardless of how they are received. There will always be late adopters and laggards to hold the exposure and adoption numbers below the ideal.

That said, there is a clear gap in these programs for populations that are not able to access television or radio. In order to have the greatest impact, there needs to be a renewed emphasis on print materials and personal outreach. These methods would enable rural and urban poor to be exposed to the messages of these programs, even if they don't see the actual edutainment programs. According to PSI researcher Navendu Shekhar (personal communication, October 28, 2009), PSI is specifically focusing on these areas, referred to as "catchment" areas, in new social marketing efforts. Their focus is on condom promotion and male circumcision, both of which see limited implementation in these more traditional regions, even though they have demonstrated positive effects. Coupling that communication with messaging about voluntary testing and counseling has allowed PSI to begin to reach out to those areas where technology has not become commonplace.

Similarly, there is a need for these programs to adjust and tackle the age cohorts that are now seeing increasing prevalence. South African men and women in their middle ages are seeing increasing rates, possibly because ART are allowing HIV-positive people to live longer, opening the door for further spread. Either way, this is an age group that should be targeted by future campaigns. There is already spillover from the current programs, reaching these groups. Further research should indicate some of the appeals for this group and allow the programs to be adjusted to target them specifically.

While all of these changes could potentially improve the impact of these programs with regard to HIV/AIDS, there is a complete lack of behavior change communication being used to tackle tuberculosis in South Africa. Arguably it is not a behavior-oriented disease; however, like HIV it has tremendous stigma attached to it. Furthermore, the fact that coinfection is such a

problem is reason enough to begin to touch on both subjects, whether together as an issue of coinfection or individually in an attempt to break the stigma of TB.

The key focus of any behavior change communication for TB should be among populations living in conditions conducive to infection and transmission of the disease. Specifically, these populations are those living in the townships and other overcrowded, unsanitary conditions, and those people working in the mines. Both of these groups are already highly susceptible to the disease because of their living conditions; coupling that with the poverty that almost certainly accompanies those living situations means the odds are largely against them when it comes to TB. As such, these programs should focus on targeting populations of these particular areas.

The content focus should be on treatment and the need for completion of that treatment. The DOTS system is effective if implemented correctly. To further emphasize this, there should be some specific emphasis on resistance. Because failure to adhere to the DOTS regimen is largely what leads to drug-resistant strains, and resistance is an issue that creates much fear in those susceptible to the strains, this is an opportunity for impact. This is directly in line with the health belief model: the target audience will be shown that anyone can get TB and specifically drug-resistant TB, but that completing the drug regimen in full can ensure they don't develop a resistant strain. The perceived risk and perceived efficacy of the treatment can be demonstrated through personal, episodic stories to increase the impact of the message.

All of this said, these programs must be careful not to broach the social stigmas too soon. Immediately connecting TB to filth and poverty, and even more so to HIV, will only serve to enhance the stigma that already exists. Because TB can affect anyone regardless of living situation or wealth, it might be most beneficial to present a TB-infected person that one would

expect to be infected alongside someone they would not expect to be infected. In South Africa, this unexpected victim will likely be white and middle-class, breaking the social perceptions of the disease as a disease of the poor black population. After some time developing these characters, then it may be possible to introduce the idea of coinfection. Again, this should be carefully timed so as to ensure that the social stigma already in existence is not increased or supported. The same goes for the ideas of poverty as a cause of TB infection.

It may be beneficial to take the opportunity to use current programming as the initial point of entry for TB communication strategies. These story lines already have developed characters and more importantly have audiences who are invested in those characters. It may lessen the blow, so to speak, and limit the stigma emphasis if the current story line portrays a character who has active TB and is undergoing the treatment course. This would allow the DOTS program to be seen from start to end, encouraging completion, and would let the subject of TB filter into the present dialogue in these programs rather than trying to develop a whole new discourse and then eventually connect the two.

PSI has attempted to implement these programs for TB in southern Africa in the past, but to no avail. They were never actually implemented, specifically because there is a lack of funding for tuberculosis programs. The aim of these programs was specifically to address coinfection. Communication messaging at clinics led those experiencing TB symptoms to also be tested for HIV at the PSI clinic. However, once again, funding cut this initiative short before it had the chance to hit the ground.

Recommendations for Future Research

In order to effectively address the current shortcomings in the behavior change communication in use in South Africa and bolster its strengths, there needs to first and foremost

be further study of the efficacy of these programs. It is understandably difficult to determine causation but perhaps a controlled study would make this possible. At present, the data shows correlation between the programs and viewers' behaviors. Causation would not only allow for the programs to gain financial support to enable improvement, but would also allow for development of those areas that are proven effective and serious adjustment of those that are having little effect.

Major research should also be conducted on the public perceptions of specific character, with regard to race and language specifically. There is a constant tension over racial portrayals in South Africa so studying the interpretations of language, actors, and general interaction would be beneficial. The programs for Soul City, for example, are broadcast in nine languages but there is no research to date about the actual ethnic/racial impressions people draw from the programs and whether or not that influences what they take away from the programming. This could be an area for improvement or may prove to be negligible; either way, research would ensure that all possible improvements are made.

A final area for further research is specifically in the catchment areas addressed by Shekhar with regard to PSI's initiatives (personal communication, October 28, 2009). Rural areas are left out of these communication strategies because they lack access to the technology that programs rely on. Specifically, this means messages need to be targeted for ethnic groups. The more traditional areas would be better served and have a greater reach if the messaging was applicable specifically to them. For examples, Zulus no longer practice male circumcision but a carefully targeted message, perhaps one that calls on the old days of Zulu culture and connects those traditions to the traditional practice of male circumcision, might be able to reach them on this particular subject.

Overall, there are many opportunities for improvements to the current programs with some additional research and determinations of causation. Furthermore, there are several gaps in the current practices that, if filled, could drastically improve the reach of these programs and make them more effective than they already are. Tuberculosis in particular is one area that needs to be studied and programming that links it to other issues, particularly HIV, should be developed. It is possible that, if that link is made clear, the funding to support it will come. HIV is popular for philanthropy right now, and taking advantage of that to better related initiatives is the best option available for improving the behavior change communication methods in practice and developing new ones in South Africa.

VII. CONCLUSION

The use of behavior change communication to tackle South Africa's greatest health challenge in its history has proven to be at least marginally effective. Prevalence rates appear to be falling in the target age groups and, while there are now new problems to address, this cannot be seen as anything other than a success. Developing programs that address not only health issues but the related stigma, without exacerbating each, is a challenge but one that South Africa's behavior change communication organizations have approached wholeheartedly. There remains much room for improvement but such improvements will require extensive research to fully develop and implement them.

One area that South Africa's communication strategists have failed to address thus far is the opportunity to use these methods for other health issues, namely TB. By adjusting the techniques slightly and utilizing the programs already in effect, there exists the opportunity to address this issue in conjunction with the HIV/AIDS epidemic and effectively insert another taboo issue into the public discourse. As tuberculosis rates continue to soar in South Africa, exacerbated by the HIV/AIDS epidemic, there is a distinct need to address them and this is one method that has yet to be utilized. The programs used for HIV/AIDS and other social issues have key strategic points that can be applied to something like TB that is less behavior-reliant but still has some of the same issues with stigma and treatment failures.

Ultimately it will take much more than just behavior change communication programming to bring these co-epidemics to a halt. However, these strategies offer a different route to the same end as other fields are working towards. The collaboration of medical research, economic and political support, and social change is the only way to actually reach that end goal. Behavior change communication provides a strong step in the right direction.

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