UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

ASSESSING THE EFFECTS OF STRAIN ON HIV/AIDS RISK-BEHAVIOR AND ADHERENCE TO TREATMENT REGIMES: AN EMPIRICAL TEST OF GENERAL STRAIN THEORY

A Dissertation

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

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Norman, Oklahoma
2005

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ASSESSING THE EFFECTS OF STRAIN ON HIV/AIDS RISK-BEHAVIOR AND ADHERENCE TO TREATMENT REGIMES: AN EMPIRICAL TEST OF GENERAL STRAIN THEORY

A Dissertation APPROVED FOR THE
DEPARTMENT OF SOCIOLOGY

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ACKNOWLEDGEMENTS

This study was made possible through financial support of the U.S. Department of Health and Human Services (DHHS), Health Resources and Services Administration (HRSA), HIV/AIDS Bureau (HAB), Division of Science and Policy, Special Projects of National Significance (SPNS), Grant # 5 H97 HA 00180 03. The U.S.-Mexico Border grantee sites which contributed to the development of the data bases used in this study include: El Rio Health Center/Arizona Border HIV/AIDS Care Project (ABHAC) (Tucson, AZ), Camino de Vida Center for HIV Services (Las Cruces, NM), Centro de Salud Familiar La Fe (El Paso, TX), San Ysidro Health Center (San Ysidro, CA), Valley AIDS Council (Harlingen, TX) and the University of Oklahoma, Centro de Evaluación: US/Mexico Border Health Evaluation Center (Norman, OK). A special debt of gratitude goes to the professional staff of the Valley AIDS Council (Dr. Fernando Garcia, Elias Cantu, Carol Ybarra and others), the patients who participated in the study, the staff at the University of Oklahoma, Centro de Evaluación: (Tim Brittingham, Saleem Ahmad, Lynda Williams, Dr. David Barney, Betty Duran and Dr. Herman Curiel) . Without their assistance in the development, translation and implementation of the study and the participants' willingness to share a part of their lives with me, this study would not have been possible.

The completion of this degree and research project has been a long, uphill battle. One I could not have won without the support and encouragement of my committee members. It has been said that the process of obtaining advanced education is often marked with traumatic life events and life altering personal choices. This process for me

has been no different. At several stages throughout, I have relied heavily on Dr. Sharp's steadfast support, patience, professional guidance and faith. Dr. Sharp has helped me successfully meet every challenge and move forward. I have been a student of Dr. Craig St. John's for more years than I care to admit and he is the reason I pursued a my graduate education in the field of Sociology. Without, his support and encouragement early on, I would not have achieved what I have today. Along with Dr. Sharp, Dr. Trina Hope has provided support and encouragement throughout this process including both formal education and in dealing with personal loss. Dr. Barbara Hobson is my shining light in the dark. Through all the rites of passage that one must complete in order to obtain this degree, I looked for Dr. Hobson's smiling face in the crowd for inner strength, calm and serenity. These three women are exceptional mentors and role models; and I hope my daughters are as blessed with mentorship from professional women such as these.

Given the unique events that made up this journey, I can honestly say that without Dr. Morris Foster's willingness to take on a student/employee and area research in which he was unfamiliar, this study would have been discontinued. For his assistance in the completion of this project, as well as his continued support for my research, I am eternally grateful. A special note of thanks also goes to Dr. Kelly Damphousse for being willing to join my committee on very short notice. Dr. Damphousse had recently taken on additional administrative duties and his willingness to serve was a pleasant and welcome surprise. All in all, my educational experience through the University of Oklahoma has been outstanding in large part due to faculty members such as these.

I also need to acknowledge the support that I have received from my family and friends. Without the camaraderie and friendship provided by Dr. Sharon Red Hawk-Love and Dr. Nancy Sonleitner, these past few years would have been far less enjoyable and fulfilling. Sharon thanks for being my friend and providing me with sustenance and comfort throughout the general examination process. Nancy without your willingness to accompany me at work in the wee morning hours and serve as an editor, I would probably still be writing. The confidence both of you have in me has been invaluable.

Finally I owe a great debt of gratitude to my family. My two daughters are amazing women. They have been patient with me through my Masters and Doctorate work and provided me with the drive to continue. I am also forever thankful to my husband Jim who has never questioned my abilities and is always willing to help me do what it takes to get things done. He is a man of amazing patience and integrity that allows me to stand firm in what I believe and to accomplish my goals. My hope is that someday I am able to give back to others as much as all of you have given to me.

Table of Contents

TITLE PAGE i
SIGNATURE PAGE ii
COPYRIGHT PAGE iii
ACKNOWLEDGEMENTS ..... iv-vi
TABLE OF CONTENTS ..... vii-viii
LIST OF TABLES ..... ix-x
LIST OF ILLUSTRATIONS xi
ABSTRACT xii

CHAPTER I 1

INTRODUCTION 1
Current Understanding of HIV 4
The Global Picture 6
Trends in the U.S. 7
U.S.-Mexico Border 8
Non-adherence, Risky Behaviors and the Sociology of Deviance 9
Antiviral Therapy 10
Medication Non-Adherence 17
Behavioral Non-Adherence 19

CHAPTER II 27

DEVELOPMENTAL PATHWAYS OF AGNEW'S GST 27
General Strain Theory (GST) 28
Prevented Achievement of Positively-valued Goals (Goal Blockage) 32
Removal of Positively-valued Goals 36
Presentation of Noxious or Negative Stimuli 37
Negative Affective States 39
Mediating/Conditioning Factors 43

CHAPTER III 53

THE ROLE OF STRAIN IN EXPLAINING NON-ADHERENCE TO HIV/AIDS TREATMENT REGIMENS AND INVOLVEMENT IN RISK-BEHAVIOR 53
Explaining Non-Adherence through the Lens of GST 53
Elements of Strain 54
Negative Affect 62
Mediating/Conditioning Factors 65
Statement of the Problem 69
Research Hypotheses 69

CHAPTER IV 71

METHODOLOGY 71
Special Projects of National Significance 71
Sample 72

Patient Interview 74
Independent Variables 80
General Strain 80
Dependent Variables 96
Control Variables 100
CHAPTER V 111
DATA ANALYSIS 111
Plan of Analyses 111
Bivariate Correlations 113
Hypothesis 1 and 2 115
Hypothesis 3 and 4 120
Hypothesis 5 and 6 125
Hypothesis 7 and 8 131
CHAPTER VI 138
DISCUSSION AND CONCLUSIONS 138
CHAPTER VII 148
IMPLICATIONS AND POLICY RECOMMENDATIONS 148
BIBLIOGRAPHY 152
APPENDIX A 176
APPENDIX B 178
APPENDIX C 191

List of Tables

Table 1: Characteristics of Common Antiretroviral Prescription Medications 11
Table 2: 1993 AIDS Surveillance Case Definitions 156
Table 3: Failure to Achieve Positively Valued Goals – Perceptions of Successful Goal Achievement: Means and Standard Deviations 82
Table 4: Failure to Achieve Positively Valued Goals – Perceptions of Fairness in Achieving Desired Goals: Means and Standard Deviations 84
Table 5: Loss of Positively Valued Stimuli – Stigmatization: Means and Standard Deviations 86
Table 6: Presentation of Noxious Stimuli – Negative Life Events: Means and Standard Deviations 88
Table 7: Emotional Response to Strain – Anger: Means, Standard Deviations and Factor Loadings 90
Table 8: Emotional Response to Strain – Other Negative Emotions: Means Standard Deviations and Factor Loadings 91
Table 9: Self-Efficacy and Self-Esteem: Means, Standard Deviations and Factor Loadings 93
Table 10: Social Support: Means and Standard Deviations 96
Table 11: Common Methods of Measuring Adherence to HIV/AIDS Treatment Regimens 97
Table 12: Average Level of Adherence to Antiretroviral Medications: Means and Standard Deviations 98
Table 13: Involvement in HIV/AIDS Risk-Behavior: Means and Standard Deviations 100
Table 14: Socio-demographic Measures: Means and Standard Deviations 102
Table 15: Unidimensional Self-Control Scale: Means, Standard Deviations and Factor Loadings 106
Table 16: Opportunities to Engage in HIV/AIDS Risk-Behaviors: Means and Standard Deviations 108
Table 17: Attachment to Spouse/Partner: Means, Standard Deviations and Factor Loadings 110
Table 18: Bivariate Correlation Matrix 114
Table 19: Unstandardized OLS Regression of Anger on Composite Strain and Individual Component Measures of Strain Controlling for Marital Status, Age and Gender 115
Table 20: Unstandardized OLS Regression of Negative Emotion on Composite Strain and Individual Component Measures of Strain Controlling for Marital Status, Age and Gender 116
Table 21: Unstandardized OLS Regression of Anger on Composite Strain, Personal Coping Resources and Coping Resources/Composite Strain Interactions 117
Table 22: Unstandardized OLS Regression of Negative Emotion on Composite Strain, Personal Coping Resources and Coping Resources/

Composite Strain Interactions 119
Table 23: Unstandardized OLS Regression of Adherence on Composite Strain, Negative Affect, Coping Resources and Coping Resources/Composite Strain Interactions 121
Table 24: Unstandardized OLS Regression of Risk-Behavior on Composite Strain, Negative Affect, Coping Resources and Coping Resources/Composite Strain Interactions 124
Table 25: Unstandardized OLS Regression of Adherence on Composite Strain, Negative Affect, Coping Resources and Coping Resources/ Strain and Negative Affect Interactions 126
Table 26: Unstandardized OLS Regression of Risk-Behavior on Composite Strain, Negative Affect, Coping Resources and Coping Resources/Composite Strain and Negative Affect Interaction 129
Table 27: Unstandardized OLS Regression of Adherence on Composite Strain, Negative Affect, Coping Resources and Coping Resources/ Composite Strain and Negative Affect Interactions Controlling for the Effects of Social and Self-Control 133
Table 28: Unstandardized OLS Regression of Risk-Behavior on Composite Strain, Negative Affect, Coping Resources and Coping Resources/ Composite Strain and Negative Affect Interactions Controlling for the Effects of Social and Self-Control 135

List of Illustrations

Figure 1: Regression Analysis for Adherence: Self-Efficacy X Composite Strain Interaction 122
Figure 2: Regression Analysis for Adherence: Social Support X Anger Interaction 128
Figure 3: Regression Analysis for Risk-Behavior: Negative Emotion X Social Support Interaction 131
Figure 4: Regression Analysis for Risk-Behavior: Negative Emotion X Self-Efficacy Interaction 131
Figure 5: Regression Analysis of Risk-Behavior: Self-Efficacy X Composite Strain Interaction 137

ABSTRACT

The purpose of this study is to determine the social and social psychological factors that are significantly related to an individual's ability to adhere to HIV medical regimens and involvement in high-risk behaviors which could lead to further transmission of HIV and other opportunistic infections (OIs). The ability of Agnew's general strain theory (GST) to explain HIV/AIDS treatment non-adherence and risky behaviors was specifically tested. Adherence is crucial to maintain low viral loads and prevent the development of a drug resistant-virus. Involvement in high-risk behavior further complicates successful adherence to medical regimes and the overall treatment of HIV/AIDS. Overall the known factors associated with behavioral and medical non-adherence to HIV/AIDS treatment regimens are compatible with a GST theoretical model. Specifically tested in this study was the applicability of Agnew's (1992) General Strain Theory of Crime and Delinquency in explaining both medical and behavioral non-adherence to HIV/AIDS treatment regimens in a Hispanic population residing along the U.S.-Mexico International Border. Overall, the findings from this study did not support the use of GST in explaining non-adherence and involvement in risk behaviors which may be in part due to sample size limitations. However, important components of the theory proved useful and findings suggest that further research is needed using GST and other criminological theories including social and self-control and differential association to further our understanding of medical adherence and involvement in high-risk behaviors.

CHAPTER I

Introduction

Within a relatively short period of time, the world's perception of HIV/AIDS has changed from a disease limited to socially marginalized groups including men who have sex with men (MSM), intravenous drug users (IDUs), Hemophiliacs and Haitian immigrants to one commanding the development of a dedicated United Nations (UN) organization with the sole purpose of stopping the spread and alleviating the impact of the disease globally (Barnett and Whiteside 2002; Institute of Medicine/National Academy of Sciences 1988; McElrath 2002; Siplon 2002; UNAIDS 2002; Valdiserri 2003). Even though contraction of HIV/AIDS is ultimately preventable through the modification of human behaviors, it has mushroomed into a global pandemic, due in part to an asymptomatic window period of infection and long incubation stage of over ten years. The spread is further exacerbated by the stigma and hopelessness associated with the disease, resulting in the failure to act by governments, organizations and civil society in an effective and timely manner (Barnett and Whiteside 2002; Laurence 2003; UNAIDS 2002; Valdiserri 2003).

One group that bears close scrutiny is Hispanics. Current CDC data suggest that the transmission of HIV through heterosexual contact is a growing problem for Hispanic women. Heterosexual contact was identified in 38% of reported AIDS cases among women as the most likely mode of virus transmission in 2000 followed by Not Reported or Identified (36%), Injection Drug Use (25%) and Blood Transfusion, Blood Components or Tissue (1%) (CDC 2000). For all years combined, three-fourths of

reported HIV infections among females 13 to 24 years of age are accounted for by African Americans and Hispanics. Missing risk information in initial HIV/AIDS case reports for U.S. women coupled with the later reclassification of almost two-thirds of these cases as heterosexual transmission suggest that many of these women may not be aware of their partner's involvement in risk behaviors and hence their own vulnerability (CDC 2000, 2002c, 2003; Foreman 1999; Montgomery et al. 2003). In addition, recent research conducted with persons living with HIV/AIDS (PLWH/As) across the U.S. - Mexico Border region suggests that various cultural factors may also play an important role in the continued spread of the disease. In a qualitative study of PLWH/As residing along the U.S. - Mexico Border region, Keesee and colleagues (2005) found that many of the Hispanic women in the study appeared to be aware of their partners' involvement in some risk behaviors (i.e., aware of extramarital affairs assuming male to female (MSF) sexual contact) but did not equate their partners risk to an increased risk for themselves. In part the authors attributed this finding to religious beliefs regarding the meting out of divine rewards and punishments based on personal actions of the individual and not the behaviors of others (Keesee et al. 2005).

Presently there is no known cure for HIV/AIDS or an approved preventative vaccine. Individuals at greatest risk for infection are the major economic producers in most societies and the progenitors of future generations, leaving no doubt that the full implications of the HIV/AIDS pandemic on social, economic and political processes throughout the world will be significant and are yet to unfold (Brower and Chalk 2003; Valdiserri 2003). Although globally the spread of HIV/AIDS is correlated with structural factors such as poverty, war, political instability and upheaval, subordination of women

and globalization (Irwin, Millen and Fallows 2003), the factors more amenable and least costly to change may prove to be individual behaviors (Kelly and Kalichman 2002; Museveni 2004; Stine 2003).

In the current study, factors associated with adherence to HIV/AIDS antiretroviral medications and involvement in high-risk health behaviors will be examined among Hispanic PLWH/As residing in Texas communities along the U.S.-Mexico border using a General Strain Theory (GST) conceptual framework. Specifically, I will examine the relationship between three sources of strain (actual or threatened presentation of noxious stimuli, removal of positively-valued stimuli and/or the achievement of positively-valued stimuli) with the occurrence of negative affective states, resulting in non-adherence to HIV/AIDS medical and behavioral treatment regimens by Hispanic PLWH/As.

Similar to Sharp's (1998) study of female IDUs, this study is an analysis of involvement in secondary deviance. The majority (85.3%) of subjects receiving services at the study site contracted HIV/AIDS through participation in deviant behaviors that placed them at risk for viral contraction, including unprotected sexual intercourse with members of high-risk groups, commercial sex work, intravenous drug use (IDU), needle sharing, and alcohol and other substance abuse. Great strides have been made in slowing the progression of the HIV/AIDS epidemic in the U.S. during the 1980's and early 1990's through comprehensive prevention programs (Gauthier and Forsyth 1999; Stine 2003). However, recent evidence suggests that with the success of combination therapy, as well as the advent of post exposure prophylaxis (PEP), there has been an increase in the number of individuals both seropositive and seronegative engaging in high-risk behaviors (Gauthier and Forsyth 1999; Halkitis and Parsons 2003; Halkitis and Parsons 2002;

Halkitis, Parsons and Wilton 2003; Katz et al. 2002; Ostrow et al. 2002; Remien and Smith 2000; Velasco-Hernandez, Gershengorn and Blower 2002).

Risking poorer health outcomes, the development of drug resistant viral strains, the potential transmission of resistant viral strains, and contracting "wild" or resistant strains of HIV by individuals who are seronegative through participation in high-risk behaviors all qualify as deviant acts as defined by Hirschi and Gottfredson (1994). As specified in the Hirschi and Gottfredson definition of deviance, these behaviors represent actions taken by the individual regardless of the possible long-term consequences that may result from the behavior. Further, there has been an increasing trend toward the criminalization of nondisclosure and the transmission of HIV with related criminal statutes enacted in thirty-three U.S. states as of September, 2002 (Legal 2002; Morin 2000).

Current Understanding of HIV

HIV is a zoonotic infection, or a virus, that was able to effectively crossover from an animal species into the human population. Along with Simian Immunodeficiency Virus (SIV), Human Immunodeficiency Virus (HIV) is a member of the Retroviridae family more commonly referred to as retroviruses. Currently it is believed that human exposure to simian blood infected with SIV resulted in the transmission of the virus to the human population and the subsequent development of genetically distinct but related virus types HIV-1 and HIV-2 (Barnett and Whiteside 2002; Menting 2001; Valdiserri 2003).

Upon initial infection, individuals will experience a 'window period' in which their viral load is high, the immune system is being depleted, the disease is asymptomatic

and HIV status is undetectable. At this stage the person is highly infectious and unaware that he/she is ill. At the end of the window period (several weeks to several months), the individual will experience a brief episode of illness often believed to be the flu (Barnett and Whiteside 2002; Irwin et al. 2003) followed by a lengthy incubation period that may last up to ten years before the disease progresses to Acquired Immunodeficiency Syndrome (AIDS) (Brower and Chalk 2003). Prior to the development of effective antiviral medications, the life expectancy for individuals in developed nations was an additional 12 – 24 months after the onset of AIDS.

The majority of transmissions are the result of unprotected sexual contact with the risk of infection highest during anal intercourse. Preexisting sexually transmitted diseases (STD's) can also increase the risk of HIV infection due to the increased likelihood of broken skin or membranes. In addition, the presence of an STD ensures the host cells targeted by the virus are concentrated at the site of the STD.

The second most common route of transmission is sharing of needles and other paraphernalia by drug users. The sharing of contaminated equipment and drugs by injecting drug users (IDUs) introduces the virus directly into the bloodstream (Barnett and Whiteside 2002; Rhodes et al. 2001). Exposures resulting from unsafe injecting drug use practices has been identified as the driving force behind the spread of the HIV/AIDS epidemic in Eastern Europe, the former Soviet Union and parts of Asia, as well as, an important source of transmission among African Americans and Hispanics in the United States (U.S.) (Chitwood 2002; Kaiser Family Foundation 2001) and is a significant source of heterosexual and perinatal transmissions (Rhodes et al. 2001; Riley and O'Hare 2002).

The Global Picture

Believed by some to be a harbinger of dramatic shifts in the global balance of power resulting from economic and demographic collapse in countries hardest hit, cases of HIV/AIDS have been identified from every corner of the world (Barnett and Whiteside 2002). In 2003 alone, the Joint United Nations Program on HIV/AIDS estimates between 2.5 and 3.5 million people died of an AIDS related death and between 4.2 and 5.8 million acquired the disease (UNAIDS 2003). At the end of 2003, it is estimated that approximately 40 million people were living with HIV/AIDS globally, most of whom were between the ages of 15 and 49, which could have serious implications for the labor force. Of the estimated 40 million cases, 46.2% (18.5 million) and 7.5% (3 million) were represented by women and children (under 15 years of age) respectively (UNAIDS 2002, 2003). Fourteen million children under the age of 15 have been identified as "AIDS Orphans" or children that have lost one or both parents to an AIDS related death (UNAIDS 2002) further straining social service and family support systems and exacerbating conditions of social inequality believed to increase the risk of HIV infection (Institute of Medicine 2001; Irwin et al. 2003).

Although the estimates released by UNAIDS and the World Health Organization (WHO) in 2003 appear to be lower than in past years, improved estimation techniques used to develop estimates in 2003 and applied to previous years data resulted in a determination that "there have been steady increases in the number of people living with HIV/AIDS, as well as in the number of AIDS deaths" (Irwin et al. 2003; UNAIDS 2003). The region hardest hit by the epidemic is Sub-Saharan Africa with an estimated 26.6 million people living with HIV and 2.3 million AIDS related deaths in 2003. The

prevalence of HIV varies across the region with estimates of less than one percent in Mauritania and over forty percent in Botswana and Swaziland. In South Africa between 22 to 23 percent or approximately one in five pregnant women attending antenatal clinics are HIV-positive. Regions with expanding epidemics include Asia, the Pacific, Eastern Europe, Central Asia and Latin America. Once believed to have avoided the pandemic, an estimated 600,000 people from the Middle East and North Africa were living with AIDS in 2003 with an additional 45,000 AIDS related deaths (Irwin et al. 2003; UNAIDS 2003).

Trends in the U.S.

The number of HIV/AIDS diagnosis in the U.S. has increased 3.2 percent between 2001 and 2002 with an estimated prevalence rate of 19.1 per 100,000 population[1]. Despite declines in the number of AIDS related deaths, the number of persons living with the disease continues to increase with an estimated 384,906 persons living with AIDS in the U.S. by the end of 2002, and an adult prevalence of 160.5 per 100,000 adults (CDC 2002a). The number of PLWH's in the U.S. continues to increase with an estimated 850,000 to 950,000 as of 2003 and an estimated 180,000 to 280,000 (25%) unaware of their current status (CDC 2003). Overwhelmingly, men remain the most affected group comprising nearly 71 percent of all new HIV/AIDS diagnoses among

[1] For estimates obtained from the CDC (2002a), the term HIV/AIDS refers to 1) new diagnoses of HIV infections only, 2) new diagnoses of HIV infection with later diagnoses of AIDS, and 3) concurrent diagnoses of HIV infection and AIDS. Estimates were derived from data reported from 29 U.S. states and the U.S. Virgin Islands. These areas have had HIV infection reporting for a sufficient length of time to allow for stable data collection and monitoring of trends.

adults [2] and 73 percent of adults living with HIV/AIDS in the U.S. (CDC 2002a). African American and Hispanic groups have been disproportionately affected by the epidemic with 42% of the persons living with AIDS at the end of 2002 identified as African Americans and 20% identified as being of Hispanic ethnicity. This compares to the proportion of these groups in the general U.S. population of 12.9 percent and 12.5 percent respectively (U.S. Census Bureau 2001a, 2001b) The primary mode of HIV transmission for racial and ethnic minority males is sexual contact with other men (MSM) (CDC 2002b). However as reported earlier, there appears to be a growing trend in exposure through heterosexual contact for women in general and Hispanic and African American women more specifically (CDC 2002c; Keesee et al. 2005; Tortu et al. 2000; Valdez 2001).

U.S.-Mexico Border

The U.S.-Mexico border is a 2000 mile long area that is geographically and culturally unique (de Cosío and Boadella 1999). The region is comprised of both urban and rural areas posing different health related challenges faced by residents of the region. The more developed urban areas provide greater access to health care services which includes specialty care such as HIV/AIDS related social and medical services, but may experience greater cross-border traffic than rural areas. The small population size of rural areas on the border affects community perceptions of and its ability to respond to the initial incursion and subsequent spread of the disease. Preliminary findings from a study conducted in the San Diego-Tijuana border region showed that a number of Mexican

[2] This estimate is based on data collected from 30 areas in the U.S. with confidential-name-based HIV infection reporting.

males who reported having sex with males (MSM) also participated in sexual intercourse with women. Among men having sex with both men and women (MSM/W), 43% reported practicing unprotected anal sex during their lifetime (Ruiz 2002). Findings from earlier studies in the border region indicated that a majority of HIV/AIDS cases among Hispanic males with female partners were comprised of homosexual/bisexual exposure (Diaz et al. 1993; Fairbanks 1997).

Several interrelated socio-cultural factors have been identified as potential contributors to increased HIV/AIDS risks for Hispanics in the U.S. including, gender inequality, country of origin, intimate partner violence, poverty, religious beliefs, homophobia, racism, related cultural beliefs and the high-risk practices of Hispanic males (Díaz 1998; Eitle and Turner 2003; Keesee et al. 2005; Lewis 2004; Valdez 2001).

Non-adherence, Risky Behaviors and the Sociology of Deviance

Major advances in the development of pharmaceuticals capable of temporarily suppressing the rapid progression of the virus in human hosts have significantly extended the life expectancy and the quality of life of persons living with HIV/AIDS (PLWH/As), especially in developed countries where drug costs are not as great a barrier as they were due to the introduction of generic antiretroviral medications (Creese et al. 2002; Kumarasamy 2004; Marseille, Hofmann and Kahn 2002; Velasco-Hernandez et al. 2002). However, a high level of adherence to medical regimens is crucial to maintain low viral loads and prevent the development of drug-resistant virus strains. The continuation of high-risk behavior further complicates successful adherence to medical treatment and the overall treatment of HIV/AIDS (Harrington and Carpenter 2000; Nagelkerke et al. 2002; Weidle et al. 2002).

The medical study of what eventually became known as Acquired Immunodeficiency Syndrome (AIDS) began in the summer of 1981 with the release of reports by the Centers for Disease Control and Prevention (CDC) regarding increases in the occurrence of Kaposi's sarcoma, Pneumocystis pneumonia and other immunosuppression related opportunistic infections among gay males (CDC 1981, 1982a, 1982b; Shernoff and Smith 2000). Between 1981 and 1986, researchers discovered that sexual transmission was the major causative agent of AIDS, isolated the "AIDS virus" (Human Immunodeficiency Virus, or HIV), and determined the method by which HIV infiltrates the human body. By 1986 the first antiviral drug, zidovudine (ZDV; AZT), had been approved by the U.S. Food and Drug Administration (FDA) for use with HIV/AIDS seropositive individuals. Since 1986, there have been significant advances in the understanding of how HIV operates in the human body with corresponding developments in the number and classes of medications available for disease management (Shernoff and Smith 2000).

Antiviral Therapy

The predominant mode of medical treatment utilized between 1986 and 1997 was monotherapy, the treatment of HIV/AIDS with a single drug. However as the medical community's knowledge and understanding of the viral replication process and its ability to develop resistance to specific medications increased, it became apparent that combination therapy had the potential of being more effective. Combination therapy includes the use of drugs from two or more antiviral drug classes simultaneously in an effort to halt the mutation process before it has an opportunity to become established (Shernoff and Smith 2000). Highly active antiretroviral therapy (HAART) includes the

use of three or more Nucleoside analogs (NRTI's), Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI's) and Protease Inhibitors (PI's) simultaneously. For a comprehensive description of currently available antiretroviral medications and their known side effects, see Table 1.

Since 1997, combination therapy has been considered the standard of care for persons living with HIV/AIDS, although when to initiate this form of treatment is still under debate (Jani et al. 2002). The treatment of asymptomatic patients depends on several factors including the patients willingness and readiness to begin therapy, $CD4^+$ T cell count, level of plasma HIV RNA, provider perceived potential risks and benefits, and likelihood of adherence (Panel on Clinical Practices for Treatment of HIV Infections 2002, 2003; Shernoff and Smith 2000).

Treatment with antiviral medications remains the main form of therapy available for persons living with HIV/AIDS and requires a lifelong commitment. Although the complete eradication of HIV in infected individuals has not been achieved through the use of antiviral therapy as originally hoped, the combined use of these drugs has had a positive impact on the overall health of persons receiving the treatment and reduced the incidence of HIV-related opportunistic infections and cancers (Hammer et al. 1996; Hogg et al. 1998; Jani et al. 2002; Remien and Smith 2000; Shernoff and Smith 2000). In one of the first studies evaluating the efficacy of combination therapy as compared to monotherapy, Hammer and associates (1996) found that treatment with a combination of antiretrovirals (zidovudine plus didanosine, zidovudine plus zalcitabine) more effectively slowed the progression of HIV disease and increased patient survival than treatment with

Table 1[3]: Characteristics of Common Antiretroviral Prescription Medications

Drug[†]	Dietary Requirements	Adverse Events	Black Box Warnings[††]
Nucleoside Reverse Transcriptase Inhibitors (NRTI's)			**For all NRTI's**: Lactic acidosis and sever hepatomegaly with steatosis, including fatal cases. Lactic acidosis with hepatic steatosis is a rare but potentially life threatening toxicity with the use NRTI's.
Zidovudine (AZT, ZDV) [Retrovir]	None	Bone marrow suppression: Anemia and/or neutropenia GI intolerance, headache, insomnia, asthenia	May be associated with hematologic toxicities , including granulocytopenia and severe anemia. Prolonged use has been associated with symptomatic myopathy.
Didanosine (ddI) [Videx]	Take ½ hour before or 2 hours after meal.	Pancreatitis Peripheral neuropathy Nausea Diarrhea	Fatal and nonfatal pancreatitis have occurred with didanosine alone or in combination with other antiretroviral agents. Fatal lactic acidosis has been reported in pregnant women who received a combination of didanosine and stavudine along with other antiretroviral combinations.
alcitabine (ddC) [HIVID]	None	Peripheral neuropathy Stomatitis	Can cause sever peripheral neuropathy. May rarely cause pancreatitis. Rare cases of hepatic failure and death in patients with underlying hepatitis B infection.

[3] The information in this table is was adapted from Tables 13, 14, 15, 16, 17 and 18 of the *Guidelines for the Use of Antiretroviral Agents in HIV-1 Infected Adults and Adolescents*

Panel on Clinical Practices for Treatment of HIV Infections. 2002. "Guidelines for the Use of Antiretroviral Agents in HIV-Infected Adults and Adolescents." Department of Health and Human Services (DHHS) and the Henry J. Kaiser Family Foundation, Washington, DC,

------. 2003. "Guidelines for the Use of Antiretroviral Agents in HIV-Infected Aduls and Adolescents." Department of Health and Human Services (DHHS) and the Henry J. Kaiser Family Foundation, Washington, DC.

[†] The prescription drugs generic name is listed first followed by the trade name in brackets.
[††] The U.S. Food and Drug Administration may require that special problems associated with a prescription drug, particularly those that may lead to death or serious injury be displayed in a box or otherwise known as a "black box". The information provided in this table is not exhaustive of all the adverse effects or toxicities associated the use of individual antiretroviral drugs.

Table 1 cont. Characteristics of Antiretroviral Prescription Medications

Drug†	Dietary Requirements	Adverse Events	Black Box Warnings††
Tenofovir Disoproxil Fumarate [Viread]	Increased bioavailability when taken with food.	Asthenia Headache Diarrhea Nausea Vomiting Flatulence	
Stavudine (d4T) [Zerit]	None	Pancreatitis Peripheral neuropathy Lipodystrophy Rapidly progressive ascending neuromuscular weakness (rare).	Fatal lactic acidosis has been reported in pregnant women who received a combination of didanosine and stavudine along with other antiretroviral combinations. Fatal and nonfatal pancreatitis have occurred when stavudine was poart of a combination regimen with didanosine with or without hydroxyurea.
Lamivudine (3TC) [Epivir]	None	(Minimal toxicity)	Epivir tablets and oral solution (used to treat HIV infection) contain a higher dose of lamivudine than Epivir-HBV tablets and oral solution (used to treat chronic Hepatitis B). Patients with HIV whould receive only dosage and formulations appropriate for treatment of HIV.
Abacavir (ABC) [Ziagen]	None, Alcohol inc. ABC levels 41%, no effect on alchol.	Hypersensitivity reaction (can be fatal); fever, rash, nausea, vomiting, malaise or fatigue, and loss of appetite. Respiratory symptoms may also be component (sore throat, cough, SOB).	Fatal hypersensitivity reactions.

Table 1 cont. Characteristics of Antiretroviral Prescription Medications

Drug†	Dietary Requirements	Adverse Events	Black Box Warnings††
Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI's)			
Nevirapine [Viramune]	None	Rash Increase transaminase levels Hepatitis	Severe life threatening hepatotoxicity, including fulminant and cholestatic hepatitis, hepatic necrosis and hepatic failure. Severe, life-threatening, and even fatal skin reactions. Patients should be monitored intensively during first 12 weeks of nevirapine therapy; a 14-day lead in period with nevirapine 200mg daily must be strickly followed. Should not be restarted after severe reactions.
Delavirdine [Rescriptor]	None	Rash Increase transaminase levels Headaches	
Efavirenz [Sustiva]	Avoid taking after high fat meals. Levels inc 50%.	Rash Central nervous system symptoms (may include dizziness, somnolence, insomnia, confusion, abn. dreams and thinking, impaired concentration, amnesia, agitation, depersonalization, hallucinations, and euphoria. Increase transaminase levels False positive cannabinoid test Teratogenic in monkeys.	

Table 1 cont. Characteristics of Antiretroviral Prescription Medications

Drug†	Dietary Requirements	Adverse Events	Black Box Warnings††
Protease Inhibitors (PI's)			
Indinavir [Crixivan]	Take 1 hour before or 2 hours after meals; may take with skim milk or low fat meal. Levels decrease 77%.	Nephrolithiasis GI intolerance, nausea Increased indirect bilirubinemia (inconsequential) Headache, asthenia, blurred vision, dizziness, rash, metallic taste, thrombocytopenia, alopecia and hemolytic anemia Hyperglycemia Fat redistribution and lipid abnormalities Possible increased bleeding episodes in patients with hemophilia	
Ritonavir (Norvir]	Take with food if possible; this may improve tolerability. Levels increase 15%.	GI intolerance, nausea, vomiting, diarrhea Paresthesias – circumoral and extremities Hepatitis Pancreatitis Asthenia Taste perversion Hyperglycemia Fat redistribution and lipid abnormalities Triglycerides increase > 200%, transaminase elevation, elevated CPK and uric acid Possible increased bleeding episodes in patients with hemophilia	Co-administration of ritonavir with certain nonsedating antihistamines, sedative hypnotics, antiarrhythmics, or ergot alkaloids may result in potentially serious or life-threatening adverse events due to possible effects of ritonavir on hepatic metabolism of certain drugs.
Nelfinavir [Viracept]	Take with meal or snack. Levels increase 2 – 3 fold.	Diarrhea Hyperglycemia Fat redistribution and lipid abnormalities Possible increased bleeding episodes in patients with hemophilia. Transaminase elevation	

Table 1 cont. Characteristics of Antiretroviral Prescription Medications

Drug†	Dietary Requirements	Adverse Events	Black Box Warnings††
Saquinavir [Invirase, Fortovase]	Invirase: No food effect when taken with ritonavir Fortovase: Take with large meal, levels increase 6-fold.	Both: GI intolerance, nausea and diarrhea Headache Elevated transaminase enzymes Hyperglycemia Fat redistribution and lipid abnormalities Possible increased bleeding episodes in patients with hemophilia Fortovase: abdominal pain and dyspepsia	
Amprenavir [Agenerase]	Can be taken with or without meal, high fat meal should be avoided. High fat meal decreases AUC 21%.	GI intolerance, nausea, vomiting, diarrhea Rash Oral paresthesias Increase in liver function tests Hyperglycemia Fat redistribution and lipid abnormalities Possible increased bleeding episodes in patients with hemophilia	Potential risk of toxicity from large amounts of the excipient propylene glycol in Agenerase Oral Solution, contraindicated for children < 4, pregnant women, patients with renal and hepatic failure and patients treated with disulfiram or metronidazole. Oral solution should only be used when Agenerase capsules or other PI's cannot be used.
Lopinavir + Ritonavir [Kaletra]	Take with food. Moderate fat meal increases AUC of capsules and solution by 48% and 80%, respectively.	GI intolerance, nausea, vomiting, diarrhea Asthenia Elevated transaminase enzymes Hyperglycemia Fat redistribution and lipid abnormalities Possible increased bleeding episodes in patients with hemophilia	
Fusion or Entry Inhibitor			
Enfuvirtide [Fuzeon™]	None - Injectable	Local injection site reactions (pain, erthema, induration, nodules and cysts, pruritus, ecchymosis) Increased rate of bacterial pneumonia Hypersensitivity reaction (<1%) symptoms may include rash, fever, nausea, vomiting, chills, rigors, hypotension, or elevated serum transaminases; may recur on rechallenge.	

zidovudine alone. Findings of decreased mortality among patients treated with combination antiretrovirals as compared to monotherapy have been supported in numerous other studies with varying drug combinations (Aber and Aboulker 1996; Bangsberg et al. 2000; Hammer et al. 1996; Hogg et al. 1998; Montgomery et al. 2002).

Medication Non-Adherence

Strict adherence to antiviral regimens is associated with sustained virologic control, as well as reduced HIV related morbidity and mortality (Bamberger et al. 2000; Bangsberg et al. 2000; Bangsberg et al. 2001; Barnett and Whiteside 2002; Bartlett 2002; Cederfjäll et al. 2002; Chesney et al. 2000; Eldred et al. 1998; Escaffre et al. 2000; Gordillo et al. 1999; Murphy et al. 2000; Nieuwkerk et al. 2001; Panel on Clinical Practices for Treatment of HIV Infections 2002; Paterson et al. 2000; Schuman et al. 2001; Shernoff and Smith 2000; Singh et al. 1999). Several studies have found that a 95 percent adherence level or higher is necessary to obtain optimal health related outcomes (Bartlett 2002; Cederfjäll et al. 2002; Laurence 2003; Lewis and Abell 2002; Nieuwkerk et al. 2001; Paterson et al. 1999; Paterson et al. 2000).

The major biological markers used to determine disease presence and progression include $CD4^+$ cell and viral load counts. CD4 + cell counts refer to the number of $CD4^+$ T cells present in an individual's blood (Bartlett and Gallant 2001; Remien and Smith 2000). These T cells are the white blood cells used by the human body to fight infection. As discussed earlier, HIV infiltrates and uses the CD4 + T cells to make copies of itself, thereby destroying the original $CD4^+$ T cell and compromising the immune system. After the initial stage of disease development, or the window period, high $CD4^+$ T cell counts generally indicate immune system improvement. A $CD4^+$ T cell count below 200 cells/mm^3 or the onset of an AIDS defining illness indicates that HIV has progressed to AIDS in the individual (See Table 2, Appendix A) (Bartlett and Gallant 2001; HIV/AIDS Treatment Information Service 2002; Jones et al. 1999; Panel on Clinical Practices for Treatment of HIV Infections 2003). Viral load is a measure of the amount of HIV RNA

in a sample of blood. Increases in viral load indicate a progression towards AIDS. Current testing assays are able to detect the presence of the virus in blood when it has reached greater than 50 copies/mL (Bartlett and Gallant 2001). Viral loads below 50 copies/mL are considered to be undetectable. This can be achieved through the use of current antiviral medications (Bangsberg et al. 2003; HIV/AIDS Treatment Information Service 2002; Panel on Clinical Practices for Treatment of HIV Infections 2003).

Several studies have found a direct association between adherence and immune system response and viral load, as well as mortality (Bangsberg et al. 2000; Bangsberg et al. 2001; Lucas et al. 2002; Miller et al. 2003; Nieuwkerk et al. 2001; Paterson et al. 1999; Paterson et al. 2000; Singh et al. 1999; Singh et al. 1996; Yerly et al. 1999). This association has been especially true for viral load counts where a ten percent decrease in adherence has been associated with a two-fold increase in levels of HIV RNA (Bartlett 2002).

In their prospective study using the MEMS Track Cap system to assess patient adherence to medical regimens that included a protease inhibitor, Paterson and associates (1999, 2000) found that 81 percent of the individuals with a greater than 95 percent level of adherence had obtained complete viral suppression, followed by 64% of the subjects with a 90 – 95 percent adherence level, 50 percent with an 80 – 90 percent adherence level, 25 percent with a 70 to 80 percent adherence level and 6 percent with less than a 70 percent level of adherence (Lewis and Abell 2002). Nieuwkerk and associates (2001) found that individuals who were taking all of their prescribed medications but not following the time and dietary requirements for each medication were still more likely to have viral loads above 500 copies/mL as compared to patients who reported full

adherence. Overall rates of non-adherence with medical regimens range from 15 to 93 percent with an average rate of approximately 50 percent (Ickovics and Meisler 1997)

Behavioral Non-Adherence

The development and transmission of resistant viral strains to available antiviral medications and the relationship to adherence levels are a major concern among service providers and researchers (Chesney et al. 2000; Escaffre et al. 2000; Hecht et al. 1998; Kalichman, Ramachandran and Catz 1999; Lewis and Abell 2002; Murphy et al. 2000; Wagner 2002; Wagner and Rabkin 2000; Walsh et al. 2001; Yerly et al. 1999). The HIV replication process occurs hundreds of millions of times daily in the human body, with each of these representing an opportunity for viral mutation. When the subject is not medicated with antiviral medications, these randomly occurring mutations are believed to have very little impact (Menting 2001; Mirken 1997). When using a medical treatment that does not completely stop the viral replication process such as AZT monotherapy, resistance to the drug can occur but may take between 18 months to three years (Bangsberg et al. 2003; Mirken 1997). The multi-drug cocktails such as HAART are designed to completely stop the replication process. Particles that survive the onslaught of these cocktails are mutated forms which begin replicating and eventually lead to a point in which the virus no longer responds to the medication – drug resistance (Holme 2001; Jani et al. 2002; Menting 2001; Mirken 1997). Further, these mutant particles not only develop resistance to the particular drugs used by the subject but to drugs that are within and across classes of antiviral medications, leaving no treatment options available (Lewis and Abell 2002; Remien and Smith 2000; Yerly et al. 1999). More recent studies have found that resistant forms of the virus can and have been transmitted to seronegative

individuals, as well as the transmission of the resistant strains to seropositive individuals (Blower et al. 2001; Collaborative Group on Monitoring the Transmission of HIV Drug Resistance 2001; Hecht et al. 1998; Holme 2001; Little et al. 1999; Yerly et al. 1999). It has also been determined that multi-drug resistant HIV-1 is present in and successfully transmitted through pre-ejaculate secretions (Brenner et al. 2002; Hecht et al. 1998; Leigh Brown et al. 2003; Little et al. 2003).

Early on, it was argued that adherence to antiviral medications not only improved the health of the individual but had a negative association with the development of viral resistance, including cross-resistance to other drugs within the same drug class (Bangsberg et al. 2000; Bangsberg et al. 2001; Bartlett 2002; Chesney et al. 2000; Eldred et al. 1998; Gordillo et al. 1999; Lewis and Abell 2002; Murphy et al. 2000; Paterson et al. 2000; Yerly et al. 1999). However, recent evidence indicates that excellent adherence to antiviral treatment regimens may be more likely to result in the development of resistant viral strains than is poor adherence, especially when the treatment regimen produces suboptimal viral suppression (Bangsberg et al. 2003; Laurence 2003; Miller et al. 2003). Be that as it may, these authors still argue that strict adherence should continue to be the major goal of patients in order to achieve the best possible health outcomes and longevity (Bangsberg et al. 2003; Panel on Clinical Practices for Treatment of HIV Infections 2002, 2003; Shernoff and Smith 2000). However, the seemingly inevitable development of drug resistance makes the desistance of high-risk behaviors all the more important for the continued maintenance of one's own health and the prevention of drug resistant viral transmission to others (Bangsberg et al. 2003; Blower et al. 2001; Brenner

et al. 2002; Leigh Brown et al. 2003; Little et al. 1999; Little et al. 2003; Yerly et al. 1999).

Weinhardt and associates (2004) recently conducted a study across four major U.S. cities to determine the rates at which PLWH/As are engaging in HIV/AIDS risk behaviors. Interviews were conducted in HIV/AIDS service-related clinics and community-based organizations in Los Angeles, Milwaukee, New York City and San Francisco between June, 2000 and January, 2002. Overall, the investigators found that approximately 19 percent of the women, 15.6 percent of MSM and 13.1 percent of heterosexual males had engaged in unprotected vaginal, anal, or oral sex to the point of ejaculation with partners who were HIV seronegative or of unknown serostatus within the past three months (Weinhardt et al. 2004). Of the IDUs in the study, 18 percent reported lending their used injection equipment to others in the past three months. The authors estimated that 30.4 new infections would occur as a result of the participants' sexual risk behaviors alone. This estimate included a 50 percent reduction in estimated transmission risks for persons on HAART and would increase to 44 new infections without the reduction (Remien and Smith 2000). The jury is still out as to whether or not an undetectable viral load as result of treatment with antivirals translates into reduced transmissibility (Remien and Smith 2000; Weinhardt et al. 2004). It was also found that a significant minority of the study participants had failed to disclose their serostatus prior to engaging in sexual activities (Weinhardt et al. 2004; Wenger et al. 1994). In an analysis of data from the Women's Interagency HIV study, Wilson and colleagues (2004) found that HIV-positive women reported higher levels of participation in unprotected vaginal sex after initiating HAART than before starting antiviral treatment. For women

who reported being with two or more sexual partners within a six month period, the risk of engaging in unprotected sex was somewhat higher than for women who reported being with only one sex partner (Wilson et al. 2004)

Other studies have found similar if not higher levels of risk behavior among HIV-positive individuals, this is true especially for MSM between the ages of 15 – 22 (CDC 2001; Crosby et al. 2004; Halkitis and Parsons 2003; Halkitis et al. 2003; Heckman, Kelly and Somlai 1998; Teplin et al. 2003; Wolitski et al. 2001), MSM seroconcordant couples (Darrow et al. 1998; Fisher et al. 1998; Halkitis and Parsons 2003; Halkitis et al. 2003; Heckman et al. 1998; Koblin et al. 2003; Marks, Bingham and Duval 1998; Morin et al. 2003; Weinhardt et al. 2004; Wilson et al. 2004), and seropositive IDUs and substance users (Heckman et al. 1998; Koblin et al. 2003; Kwiatkowski and Booth 1998; Rhodes et al. 1999; Somlai et al. 2003; Wolitski et al. 2001).

"Bareback sex" and "bug-chasing" have been described as a cultural phenomenon among gay and bisexual men that has emerged in part due to AIDS fatigue and boredom with safe sex campaigns (Halkitis et al. 2003). "Bareback sex" was a term that originally referred to intentional unsafe anal sex. However, participants in the study conducted by Morin and associates (2003) indicated that it has been adopted as a colloquial term that refers to any occasion of unprotected anal sex, including intentional acts and accidental or impulsive encounters. "Bug-chasing" refers to actions taken by HIV seronegative men to seroconvert with the assistance of HIV-positive men who agree to "share the gift of HIV" (Gauthier and Forsyth 1998: 92). Encounters can occur as one-on-one meetings or through sex parties designed to seroconvert as many HIV negative individuals as possible. Given the nature of the act and the population being studied, the development

of reliable incidence and prevalence rates for the activity are currently not possible. However, in a survey of participants recruited from internet postings targeted to MSM seeking sexual partners, Halkitis and Parsons (2003) found that 42.9 percent of study subjects reported engaging in bareback sex with a partner of negative or unknown serostatus (Halkitis and Parsons 2003)

Further, Agronick and associates (2004) found that young Hispanic males in New York City who identified as bisexual were three and one-half times more likely to report unprotected insertive anal intercourse with a casual male sex partner at last sexual encounter than Hispanic males who self-identified as gay. Bisexually identified young Hispanic males were also more likely to report being under the influence of a mind altering substance at the time of last sexual encounter with both primary and casual male sex partners (Agronick et al. 2004). Díaz (1998) suggests that for Hispanic males who have unprotected sex with other men, regardless of their self-identified sexual orientation, risky behavior may be seen as culturally meaningful acts that function temporarily to address the "dilemma between family loyalty and same sex desire" (Díaz, 1998: 7). He further argues that current prevention strategies designed for Hispanics are insensitive and ultimately support the homophobic and oppressive belief systems of both Latin and Western cultures from which the problem originates (Díaz, Ayala and Bein 1999; Díaz 1998).

In a study of migrant and seasonal farm workers, Fernández and associates (2004) found that being female, being married, having used marijuana, being with two or more sexual partners in the last twelve months and ever having a sexually transmitted infection (STI) were the major factors predicting highest risk for acquiring HIV among this

sample. Fifteen percent of the women in this study reported that they had been paid for sex, and the women in the study were overall at 4.44 times greater risk for contracting HIV than their male counterparts. The investigators suggested that the understanding held by social scientists and service providers regarding the behavior of Hispanic women based on the cultural norm of *Marianismo* may not be reflective of current practices and may ultimately increase their risks for contracting HIV/AIDS (Fernández et al. 2004; Hirsch 1999). Mirandé (1997) argues that there is a misconception regarding the importance and meaning of *Machismo* among Hispanic males, as well (Hirsch 1999; Lesser et al. 2000). Furthermore, the engagement of Hispanic men in unprotected sexual intercourse and IDU, remain important risk factors for Hispanic women in committed or marital relationships (Arguelles and Rivero 1988; Keesee et al. 2005).

It is apparent that the identified correlates of adherence and involvement in high-risk health behaviors resemble a line up of the "the usual suspects" or explanatory variables commonly used in empirical tests of various criminology theories in general, and specific tests of General Strain Theory (GST), Self-Control and Social Control (Social Bonding) theories. In fact, there has been a growing recognition that both sociological and psychological factors and the theoretical models developed in these disciplines could make important contributions to the study of adherence to retroviral treatment regimens (Gordillo et al. 1999; Jani et al. 2002; Sherr 2000; Singh et al. 1996) and the continued involvement of persons in behaviors that place them at great risk for contracting or transmitting HIV (Eberstadt 2002; Harvey et al. 1998; Jani et al. 2002; Kelly et al. 2002).

With its focus on life stressors, loss of positively-valued stimuli, the introduction of negative or noxious stimuli and the importance of positive coping abilities, I suggest that GST is especially well suited to explain the occurrence of non-adherence to noxious antiretroviral medications and the continuation of risk behaviors. By its very nature, living with HIV/AIDS is stressful and many who are on antiretroviral therapy indicate that the act of constant medicating is a harsh reminder of the presence and control the disease has in their lives (Roberts and Mann 2003). Studies of life stress and coping styles have found that many HIV-positive individuals experience high levels of cumulative negative life stress resulting from loss of intimate partners and friends to HIV/AIDS or related complications, isolation from friends and family, increasing financial difficulties, loss of job, limits on physical ability, embarrassing and noxious side effects from medications, stigma, prejudice and discrimination, and negative changes in physical appearance, to name a few (Ammassari et al. 2001; Ammassari et al. 2002; Bouhnik et al. 2002; Carrieri et al. 2001; Delahanty, Bogart and Figler 2004; Heckman et al. 2004; Ickovics et al. 2002; Moatti et al. 2000; Roberts and Mann 2003; Stone et al. 2001; Stone et al. 2004; Thompson, Nanni and Levine 1996).

This study represents the beginning of what is hoped to be a long tenure in the application of sociological theory in general, and criminological theory specifically, to a field of study that is dominated by medical and public health disciplines. The purpose of this study is to determine the social and social psychological factors that are significantly related to an individual's ability to adhere to HIV medical regimens and involvement in high-risk behaviors which could lead to further transmission of HIV and other opportunistic infections (OIs). The ability of Agnew's general strain theory (GST) to

explain HIV/AIDS treatment non-adherence and risky behaviors will be specifically tested. The contribution of the present research is to test the applicability of criminological theory to a broader realm of deviant and unhealthy behaviors, as well as a rapidly growing immigrant group in the United States – Hispanics residing along the U.S.-Mexico Border.

CHAPTER II

Developmental Pathways of Agnew's GST

HIV/AIDS is a profound source of social change and trauma for seropositive individuals. The social stigma associated with being HIV-positive, as well as long term disruptions to daily routines, lifestyles and relationships, can produce a strong catalyst for non-adherence to medical regimens and involvement in risk behaviors (Stone et al. 1998). With its focus on negative emotions like anger and depression (Agnew 1995), general strain theory (GST) appears to be well suited to explain individual motivation to engage in unhealthy and potentially life threatening behaviors related to coping with a disease such as HIV/AIDS that is physically demanding, highly alienating and ultimately fatal.

Although the application of criminological theories such as GST is usually limited to studies of crime and delinquency, these theories can be applied to a broader and more diverse range of behaviors (Hirschi and Gottfredson 1994; Sharp 1998; Sharp et al. 2001). In fact, Hirschi and Gottfredson's definition of deviance as "acts in which the actor ignores the long-term negative consequences that flow from the act itself" (1994: pg. 1) is sufficiently inclusive to encompass issues such as medical treatment non-adherence and involvement in health related high-risk behaviors. This will therefore be adopted as the definition of deviance in this study.

The use of GST to examine other non-criminal forms of deviance is not unique to this study. Indeed, Broidy and Agnew (1997) suggest that the theory should be used to examine various types of deviance. GST has been used to predict disordered eating

(Sharp, Terling-Watt, Atkins, Gilliam & Sanders 2001), and Sharp (1998) suggested it would be useful for examining AIDS-risk behaviors among injecting drug users.

Non-adherence to HIV/AIDS treatment can be viewed as a similar type of deviance. It occurs when the individual fails to take his/her medications as prescribed. This includes incorrect dosing either by amount, frequency or spacing, failure to follow dietary restrictions, and involvement in risk-taking behaviors that can potentially result in negative health related consequences to themselves and others. Although non-adherence is common, less than 95 percent adherence to HIV medications has been associated with serious long-term consequences for patients including, at a minimum, reduced quality and quantity of life. Given that patients are generally counseled on the consequences of poor adherence and continued involvement in health risk behaviors by medical providers and case managers, continued noncompliance in one or more of these areas suggests that at some level the information provided is being ignored or disregarded (Roberts and Mann 2003). In addition, the infected person may even face criminal charges. There has been an increasing trend toward the criminalization of nondisclosure and the transmission of HIV with related criminal statutes enacted in thirty-three U.S. states as of September, 2002 (Legal 2002; Morin 2000).

General Strain Theory (GST)

In general, social psychological strain theories explain involvement in deviance as an adaptive response to strain caused by an individual's failure to obtain valued outcomes (Agnew 1995). This strain serves to "pressure or force" the individual into a response that may be deviant in nature in order to reduce the strain and related negative emotions (Agnew 1995:112).

Robert Merton is responsible for developing the foundation for most contemporary strain theories (Kornhauser 1978; Pfohl 1985). The main sources of traditional strain, according to Merton, come from the disjunction between the culturally induced aspirations of economic success and the actual resources available for individuals in society to achieve these aspirations (Merton 1938). Merton developed a typology of five possible adaptations created by the goal/means disjuncture. However, Merton did not specify how one could predict a given adaptive response. The subcultural theories of Cohen (1955) and Cloward and Ohlin (1960) were developed in response to this early criticism of the theory. From the late 1960's and into the 1970's, strain theories continued to be heavily criticized, with a few leading researchers in the field calling for their abandonment (Agnew 1995; Hirschi 1969; Kornhauser 1978). Although, the weaknesses of early strain theories are numerous (Cloward 1959; Cohen 1965; Kornhauser 1978; Pfohl 1985; Tittle 1995), most can be effectively addressed.

Robert Agnew's General Strain Theory (GST) rectifies several of the major weaknesses in traditional strain theory by refocusing the theory's unit of analysis to the microsociological level, expanding the theory to include more types of strain and conditions under which strain may occur (Agnew 1985, 1992, 1995). The theory specifies the relevant dimensions and measurement of strain (magnitude, recency, duration, and clustering of events) and its relationship to delinquency, and it provides a fuller, comprehensive description of the factors that mediate and condition the likelihood of a deviant response (Agnew 1992). Agnew's expansion of the types of strain that may be experienced by individuals includes the prevention of positively-valued goal achievement, the loss or removal of positively-valued stimuli, and the presentation of

noxious stimuli under which many of the factors associated with adherence to HIV/AIDS treatment can easily be recast, as will be discussed in Chapter III. According to Agnew, strain is linked to anger and other negative affective states, although this may be conditioned by such factors as self-esteem, self-efficacy and social support. Deviance is the result of an effort to reduce anger and other negative emotional states.

Since its introduction in 1985, Robert Agnew's GST has received significant attention from social scientists and a fair degree of qualified support in empirical tests of the theory by confirming the existence of a positive relationship between strain and individual involvement in delinquency (Agnew 1985, 1989, 1992; Agnew et al. 2002; Agnew, Rebellon and Thaxton 2000; Agnew and White 1992; Aseltine, Gore and Gordon 2000; Hay 2003; Hoffmann and Cerbone 1999; Hoffmann and Miller 1998; Hoffmann and Su 1997; Katz 2000; Mazerolle et al. 2000; Paternoster and Mazerolle 1994; Piquero and Sealock 2000; Sharp et al. 2001). Given that many of the tests of GST have been conducted on secondary data sources that do not include data fields specifically designed to measure the theoretical constructs of GST, the level of support found for the theory is notable (Mazerolle et al. 2000).

Stability of the strain-delinquency relationship has been demonstrated in both cross-sectional and longitudinal analyses of the theory (Agnew 1989; Hoffmann and Miller 1998; Mazerolle and Maahs 2000; Mazerolle et al. 2000; Paternoster and Mazerolle 1994). It should be noted that Agnew and White (1992) failed to replicate their cross-sectional findings in a longitudinal analysis of the Rutgers Health and Human Development Project data (HHDP). However, Agnew and White suggest that the effects of strain may be more proximate than the three year time lag between measurement

points in the data they analyzed as compared to the one year time lag utilized in the data analyzed by Paternoster and Mazerolle (1994), who did find longitudinal support for the theory. Since that time, additional studies have been conducted that continue to support the existence of a longitudinal relationship between strain and later delinquency (Aseltine et al. 2000; Hoffmann and Miller 1998; Mazerolle and Maahs 2000).

As outlined by Agnew and White (1992), strain occurs when an individual has been prevented from or threatened with the prevention of achieving positively-valued goals, has had positively-valued goals or stimuli removed or has been threatened with the removal of positively-valued goals or stimuli, or has been presented with or threatened with the presentation of noxious stimuli by others. As the individual's exposure to strain increases, the likelihood that the individual will experience negative emotions such as anger, depression and anxiety, also increases. Negative emotions of this nature create pressure on the individual to alleviate the strain, with deviant behavior or delinquent activity as possible methods.

Empirical support for each general category of strain as delineated in GST (i.e., achievement of positively-valued goals, removal of positively-valued goals, or presentation of noxious stimuli) is difficult to locate. It seems most investigators have paid greater attention to the statement made by Agnew regarding the cumulative nature of the effects of strain on crime and delinquency (Agnew 1989, 1992; Agnew and White 1992). This focus on cumulative measures of strain has resulted in few studies that have tested the association between individual classifications of general strain and deviant behavior (Agnew 2001; Mazerolle, Piquero and Capowich 2003; Mazerolle et al. 2000). Although limited in number, the studies that have been conducted tend to provide general

empirical support for the association of each theoretical classification of strain with participation in deviant or delinquent behavior (Sharp, Brewster and Love 2005; Sharp et al. 2001).

Prevented Achievement of Positively-valued Goals (Goal Blockage)

Three forms of strain that make up this category of general strain include the disjunction between aspirations and expectations or actual achievements, expectations and actual achievements, and just/fair outcomes and actual outcomes (Agnew 1992). The conception of strain resulting from the disjunction between aspirations and expectations and actual achievements is tied to classic strain theory and later versions of classic strain theory that focused on immediate goals relevant to the adolescent's life stage (Agnew 1992; Cloward and Ohlin 1960; Cohen 1955; Greenburg 1977; Merton 1938). Classic strain theory explains the use of deviance as an adaptive response to strain caused by the discrepancy between an individual's perceived aspirations (goals) and expectations (available means). The main sources of strain according to Merton are the disjunction between the culturally induced aspirations of economic success and the actual resources available to individuals in society. Although most of Merton's work on strain theory focused on monetary success, sources of strain can be found in any universally or socially induced long-term or immediate unmet need (Agnew 1985; Clark and Wenninger 1963; Elliott 1962; Empey 1956; Keesee 1989; Keller and Zavalloni 1964; Polk 1969; Quicker 1974; Reiss and Rhodes 1963).

The second form of strain subsumed under this category is the disjunction between expectations and actual achievements or rewards that are positively-valued. Based on findings from the justice literature, Agnew (1992) argues that the failure of

individuals to achieve expectations adopted from past experience or in reference to the achievements of others may lead to negative emotions such as anger, rage, and dissatisfaction (Agnew 1992).

The final form of strain included under the goal blockage category of general strain is the disjunction between just and fair outcomes and actual outcomes. In this instance, the individual is not focused on the achievement of specific outcomes, rather that there will be a certain amount of equity in the outcomes of the interaction (i.e., in comparison to the resources that the individual brought to or expended in the relationship or interaction, is parity or equity achieved in the outcome of the interaction). Agnew argues that if the inputs and outcomes are fairly equal to one another, the individual is likely to consider the outcomes as fair or just. However, if the individual brings more to the relationship or interaction than is perceived to be gained, the likelihood is greater that he or she will experience strain or distress, especially if left feeling under- rewarded (Agnew 1992).

In all three instances, strain is a result of individual perceptions regarding the gap between reality and what is expected, deserved or desired. Agnew further argues that strain may be greatest when "several of these standards are not being met, with perhaps the greatest weight given to expectations and just/fair outcomes" (Agnew 1992). Studies examining the relationship between failure to achieve positively-valued goals and deviance have provided some support for GST in general and for strain as a result of perceived inequity/injustice, specifically.

Unlike many of the current tests of GST, strain was measured as the disjunction between adolescents' immediate aspirations and goal attainment in a study conducted by

Keesee (1989). In this analysis of the Wave III (1978) of the National Youth Survey, family strain was found to be significantly associated with adolescent delinquency. Specifically, it was found that adolescents who perceive high levels of strain in their family relationships were more likely to engage in delinquent behavior than adolescents who did not feel their family relations were strained. Further, the direct positive effect of family strain on adolescent delinquency remained, even when controlling for age, gender, race, family structure and measures of social control.

Utilizing a random sample of adults, Agnew and his colleagues (1996) examined the relationship of strain resulting from the disjunction between actual achievements and expectations. Findings from this study indicate that dissatisfaction with monetary achievements had a significant positive association with individual involvement in income-generating crime and drug use, with the strongest effect for individuals who reported involvement with criminal friends and held beliefs supportive of crime (Agnew et al. 1996).

Literature describing tests of strain induced through inequity or injustice appears to be more prolific and in general follow the predicted patterns of association. In a study of undergraduate students at a mid-Atlantic state university, Mazerolle and Piquero (1998) found that feelings of injustice as well as experiencing noxious neighborhood conditions was significantly related to feeling angry for males, which in turn was associated with increased intentions to fight but not with intentions to shoplift or drive drunk. The relationships between perceived inequity, anger and intentions to fight for males remained significant even when controlling for the effects of moral beliefs and association with deviant peers. The findings from this study suggest that the relationship

between strain as a result of injustice and the resultant anger as identified through GST are important predictors of violent or retaliatory behaviors (Mazerolle and Piquero 1997, 1998).

Unfair goal outcomes were significantly associated with increased anger, which was in turn significantly associated with an increase in the likelihood of using illegitimate/criminal coping strategies in Broidy's (2001) analysis of undergraduate college students. However, observed pathways associated with other general categories of strain and the use of illegitimate/criminal coping strategies were not consistent with GST especially in regard to the relationship between coping strategies and other negative emotions.[4]

In a more recent study, Mazerolle and associates (2003) found that both strain and experiencing inequitable situations were related to the occurrence of situational anger and to intentions to shoplift, even when controlling for demographic characteristics, prior delinquency, delinquent peer associations and moral beliefs. Furthermore, the experience of inequitable situations was positively related to increased situational anger and intentions to assault, net of the effects of demographic characteristics and controls for differential association, prior delinquency and social control. Strong associations between trait anger, inequity-related strain, situational anger and behavioral intentions to deviate were discovered as well.

In analysis of the University of Alberta Study of Juvenile and Adolescent Behavior Survey which is comprised of post-elementary students in Canada, Peter,

[4] Further discussion of Broidy's (2001) findings will be provided in the appropriate sections later in this chapter.

LaGrange and Silverman (2003) included analyses of strain measures separately and as a composite scale and controlled for the effects of peer associations and self-control. Results indicated that Canadian youths' perceptions of unfair punishment by parents and schools were significantly related to a composite measure of self-reported delinquent behavior net the effects of delinquent peers and self-control. Regarding specific offense types, the youth's perceptions of unfair punishment from parents were significantly associated with violent offenses and perceptions of unfair school related punishment were significantly associated with property offenses.

Removal of Positively-valued Goals

Agnew (1992) identifies the "actual or anticipated removal (loss) of positively-valued stimuli" from an individual as a second category of strain that affects on the likelihood of involvement in deviant behavior. Incidents of this type are commonly included in composite indices of uncontrollable and undesirable life events and include measurement items such as injury and illness, premature death, loss of parent, moving, loss of a close friend, loss of a boy/girlfriend, being fired from a job, being expelled or suspended from school, and divorce of parents (Agnew 1992; Agnew and White 1992; Broidy 2001; Hoffmann and Miller 1998; Hoffmann and Su 1997; Pearlin and Schooler 1978).

In one of the earliest tests of GST, involvement in delinquent behavior and drug use was significantly associated with reported experiences of negative life events, life hassles, and parental fighting by adolescent participants in the Rutgers Health and Human Development Project (HHDP) (Agnew and White 1992). The experience of negative

relations with adults was also significantly associated with the occurrence of delinquent behavior, but not drug use.

Mazerolle and Piquero (1998), in their study of undergraduate university students, found that the removal of positively-valued stimuli in the form of breaking up with a boy or girlfriend or a broken friendship, was associated with increased intentions to shoplift for female participants only. Further, the subjects of a qualitative study of female intravenous drug users (IDUs) conducted by Sharp (1998) indicated that the loss of custody of their children operated as a disincentive to adopt practices targeted to reduce the risk of HIV/AIDS exposure.

Broidy (2001) found that stressful life events were related to both the anger and other negative emotions. As predicted by Agnew (1992), strain-induced anger was significantly associated with an increased likelihood of the selection of deviant or criminal coping strategies. However, other strain-induced negative emotions were significantly related to an increased likelihood in the selection of legitimate coping strategies. In addition she found that this relationship was conditioned by gender. Although the mean levels of anger were similar for both genders, the expression of other negative emotions were more likely among females than males (Broidy 2001).

Presentation of Noxious or Negative Stimuli

The third category of strain focuses on the "actual or anticipated presentation of negative or noxious stimuli" (Agnew 1992: 58). Agnew suggests that an individual's likely means of illegitimate or negative coping with noxious stimuli may include attempts to render the stimuli innocuous through acts of avoidance or escape, alleviation or termination, revenge, or self medication with illicit drugs. Consistent with Agnew's

argument, Paternoster and Mazerolle's (1994) analysis of the first two waves of the National Youth Survey data revealed significant positive relationships between involvement in delinquent behavior at Time 2 of the study and neighborhood problems, negative life events, school and peer hassles and negative relationships with adults, at Time 1, even when controlling for the effects from various measures of social control and differential association.

Similarly, Hoffmann and Miller (1998) found that increases in negative family life events were significantly related to changes in delinquency, controlling for family and school attachment and demographic variables such as age and family income (Hoffmann and Su 1997). Although Hoffmann and Miller state that the measures of strain used in this study were measures of the larger general category of presentation of noxious stimuli (1998: 90-91), the index includes elements that could be considered as measures of both noxious events and the removal of positive stimuli such as the deaths of family members. The interchangeability between measurement items reflects the overlapping nature of the three major categories of strain in GST (Agnew 1992; Peter, LaGrange and Silverman 2003) and limits the interpretability of the findings. It may prove to be more fruitful in future studies to include separate measures of the major categories of strain and a cumulative index. Similar to the findings of Hoffmann and Miller (1998), Mazerolle (1998) found that for males, exposure to negative life events and negative relations with adults were associated with involvement in violent offenses. This association did not hold for females in the sample (Aseltine et al. 2000).

Findings from a study conducted by Brezina (1999) suggest that acts of aggression or violence by parents toward their children contribute to the use of

aggression by children. This in turn is associated with a reduction in parental aggression. Brezina argues that the use of aggression by children tends to bring about a short-term reduction in the level of strain or negative treatment experienced and may operate as form of negative reinforcement. The negative reinforcement of past success then supports the use of this type of behavioral coping in the future, possibly aiding in the development of a behavioral propensity towards deviant coping (Brezina 1999).

More recently, Peter, LaGrange and Silverman (2003) found that for Canadian youths, negative relations with parents were associated with self-reported involvement in delinquent activity overall and drug offenses in particular. Negative school experience was associated with the index of overall delinquency and with self-reported involvement in property offenses. These relationships held even when controlling for measures of self-control and delinquent peer association.

Negative Affective States

Overall, the underlying argument of GST is that negative relationships and negative life events compel individuals to cope with strain in which deviant or criminal actions are possible coping strategies. Although Agnew does not rule out a direct relationship between strain and illegitimate coping, an indirect relationship between deviance and negative affective states, especially anger, is proposed (Agnew 1992). Unfortunately, the role of negative affective states and that of various conditioning effects has not been sufficiently studied at this time. However, early support has been found for this element of GST especially in regard to explaining violent forms of deviance through the pathway of strain-induced anger.

Anger

In an early test of GST, Agnew (1985) found that all three measures of environmental aversiveness were related to increased anger, which was in turn positively related to delinquency, controlling for social control and differential association. Similarly, Mazerolle and Piquero (1997) found that strain was related to anger, which increased the likelihood to report intentions to assault, net the effects of measures for moral beliefs and peer associations (Mazerolle and Piquero 1998). Mazerolle and his colleagues (2000) examined two types of anger, trait and situational anger. Trait anger refers to a stable personality trait and situational anger refers to a direct emotional response due to a given stimulus or strain. For Midwestern high school students, trait or dispositional anger was associated with the occurrence of violent behavior but through its effect on strain as opposed to GST's hypothesized direction of strain to anger (Mazerolle et al. 2000).

Following this study, Capowich, Mazerolle and Piquero (2001) examined the effects of situational anger, as opposed to trait anger, on delinquency. Here the investigators argued that the anger response defined in GST is situational anger as opposed to trait anger. In this study, the predicted strain to anger relationship was found and results indicated that the reported likelihood of an anger response by undergraduate university students was significantly associated with fighting, but not to shoplifting or drunk driving. The effect of situational anger on intentions to fight remained statistically significant across both high and low levels of social support

Other Forms of Negative Emotions

Few empirical tests were found of specific strain-induced emotions with the exception of anger. Using a composite measure of negative emotionality, Capowich and

his associates (2001) found that negative emotionality was significantly associated with intentions to shoplift but not to fight or drive drunk. When controlling for the respondents' reported level of global social support, only generic strain was positively associated with the occurrence of shoplifting for persons with high levels of global social support. This finding is counter-intuitive because it suggests that among those with increased levels of negative emotionality, those with greater levels of social support are more likely to shoplift.

Aseltine, Gore and Gordon (2000) provide one of the first studies to include anxiety in a longitudinal empirical test of GST that also includes measures of anger and conditioning factors (2000: 270). The results from their study provide support for a pathway from strain-induced anger to involvement in violent offenses only.

In their study of youths detained at a U.S. residential treatment program between1992 and 1994, Piquero and Sealock (2000) found that self-reported depression was not associated with interpersonal aggression or property offenses. The authors suggest that the relationship between negative affect and strain appears to vary by the type of offense being examined and suggest that depression may be related to other forms of criminal or deviant acts such as self-destructive behaviors, drug use, suicide or self-degradation (Broidy and Agnew 1997; Mazerolle and Piquero 1998; Piquero and Sealock 2000).

Sharp and colleagues (2001) examined the relationship between strain, anger, depression and purging behavior in university women. The investigators found a modest interactional relationship between negative emotions and purging behaviors, suggesting that the relationship between strain, negative affect and deviance is more complex than

originally conceptualized by Agnew (1992). Specifically, anger interacted with depression to increase the likelihood of purging behaviors when levels of depression were high. A co-occurrence of anger and depression for females was also found in a study conducted by Mirowsky and Ross (1995).

Similarly, a number of researchers have suggested that by focusing on anger as the key emotion, investigators may be prematurely limiting the ability of GST to explain other nonviolent behaviors (Capowich, Mazerolle and Piquero 2001; Mazerolle and Piquero 1997, 1998; Mazerolle et al. 2000; Sharp et al. 2001). Specifically, investigators argue that other emotions such as depression and anxiety may be important in explaining the occurrence of differing forms of deviant behavior, and investigators should examine the "full range of conditioning factors linking exposure to strain with various deviant outcomes" (Mazerolle and Piquero 1997:341).

Studies conducted by Broidy (2001) and Hay (2003) suggest that gender differences may be related to both the experience of and response to specific types of strain. Broidy (2001) found that although anger was similar across both genders, the experience of other negative emotions was more likely to occur among females than males. Results from a study of adolescents in the U.S. Southwest provided strong support for Broidy's findings and suggested that gender differences in crime and delinquency may be a result of differences in the way women experience and respond to family forms of strain (Hay 2003). Hay found that males were more likely to receive harsher punishment from authority figures in response to rule violations than females, females experienced significantly higher levels of guilt than males, and family strain and anger had greater effects on males than females.

Overall, more research is needed in the area of negative affective states and their relationships to strain and deviant outcomes in general, focusing on emotions such as shame, guilt, frustration, depression and anxiety (Aseltine et al. 2000; Sharp et al. 2001). Although relying on measures of trait anger, the current study will assess the relationship between the emotions of anger and depression, strain and both outer directed and inner directed forms of deviant coping.

Mediating/Conditioning Factors

Given that deviant or delinquent action is only one of many options that can be used to successfully neutralize or eradicate the emotional effects of strain, it is entirely possible for individuals to utilize positive or legitimate coping strategies. Recognizing that only some individuals respond to strain with deviance, one of the greatest problems that GST has to address is the identification of the conditions under which individuals are likely to respond to strain with deviant behavior. Agnew (1992) argues that individuals are more likely to respond to strain when certain conditioning factors are present. More specifically, Agnew argues (as reported in Agnew and White 1992: 477) that "strain is most likely to lead to delinquency when (1) the constraints to nondelinquent coping are high and the constraints to delinquent coping are low and (2) the adolescent has a disposition for delinquent coping." Suggested variables that affect individuals' dispositions toward deviance and constraints with coping include the individuals' temperaments, self-efficacy, self-esteem, problem solving skills, social support (nondelinquent), levels of social control, association with delinquent peers, and attribution of blame for strain onto others (Agnew 1992; Agnew and White 1992).

Legitimate Coping Strategies

Results from Agnew and White's (1992) cross-sectional analysis of the Rutgers (HHDP) data indicate that strain interacts with reported self-efficacy in its effect on delinquency but not drug use. This finding partially supports the argument made in GST that strain is more likely to lead to deviant behavior and in this case delinquency when conditioning factors such as self-efficacy are low. However, results from the study conducted by Hoffman and Miller (1998) failed to find support for this hypothesis. Results from their study indicated that increased occurrences of negative life events were related to an increased likelihood of delinquency regardless of levels of self-esteem or self-efficacy (Hoffmann and Cerbone 1999). On the other hand, there was evidence that individuals with high levels of self-esteem and self-efficacy decreased their level of involvement in delinquency when examining the occurrence of negative life events although these findings were inconsistent across time periods and failed to reach statistical significance at the .05 level. Results from the change analysis conducted by Hoffman and Miller indicated that strain increased involvement in delinquency for adolescents who reported no association with delinquent peers. However, this may be a result of the relatively stable pattern of delinquent behavior among individuals with delinquent associates, suggesting that negative events may have little effect on those who are already fairly active in delinquent activities (Hoffmann and Miller 1998).

The interactional analysis conducted by Piquero and Sealock (2000) to test the relationship between negative affective states and coping skills failed to provide theoretical support. The investigators examined the relationship between strain, anger, depression and five coping skills (i.e., cognitive, emotional, social, physical and spiritual). Specifically, none of the interaction terms had a significant effect on

interpersonal aggression and the measure of strain continued to maintain a significant additive effect. It should be noted that emotional and spiritual coping did appear to inhibit the effect of depression on the occurrence of property offenses, but the association between depression and property offenses was not significant (Piquero and Sealock 2000). More recently, results from a study conducted by Eitle and Turner (2003) failed to find support for the interactional relationship between negative affective states and coping skills, as well.

Social Control, Self-Control and Differential Association/Social Learning

Early on in the development of GST, Agnew (1989a) argued that various measures of social control and differential association may have a mediating or conditioning role between strain and delinquency. In addition, tests of GST by Agnew and his colleagues have focused on a direct relationship between strain and deviance, net the effects of social control and differential association (Agnew 1985, 1989; Agnew and White 1992). I suggest this is in part due to the critique of strain theory leveled by Ruth Kornhauser (1978) in her review of the major theories of crime and delinquency. The result has been that the value of any version of strain theory is partially determined by its ability to overcome Kornhauser's two major criticisms including: 1) The amount of strain an individual experiences is variable; however, its variance is minor, and 2) Strain leads to weak controls, and weak controls cause deviance (Peter et al. 2003). The impact of strain is absorbed in measures of weak controls, having no direct relationship to deviance (Elliott, Huizinga and Ageton 1985; Hirschi 1969; Keesee 1989; Kornhauser 1978).

Kornhauser's comments have ultimately placed any test of strain theory in the position of proving a direct association to deviance and crime net any affect of social

control in order to be considered a viable theory. In addition, it is important that new theory is based on the known facts of crime and deviance so that relationships consistently found to be of importance such as the relationship between deviant peer associations and delinquency are addressed, either through integration, improved specification of relationships or the development of a new theory (Gottfredson and Hirschi 1990; Tittle 1995). In addition, it has been noted by other investigators that the operationalization of key theoretical concepts of GST may overlap measures used in other theories of criminology such as social control and social learning/differential association (Agnew 1992; Agnew and White 1992; Hay 2003; Mazerolle and Maahs 2000; Mazerolle et al. 2000; Paternoster and Mazerolle 1994). Therefore, it becomes necessary for adequate tests of GST not only to control for the effects of social control and learning theories but to find and utilize measures of the two theories that cannot be identified as strain variables as well (Hay 2003).

Social control theorists argue that an individual's ties to conventional society prevent him or her from engaging in deviant behavior. If the individual's ties to society are weakened there is an increased likelihood that he/she will engage in deviant behavior. In their re-analysis of the Glueck data, Sampson and Laub (1993) found that although social bonds remain important throughout an individual's life course, the level of priority and importance given to specific relationships may shift with attachment and commitment to spouse and stability of employment reaching greater importance for middle-aged males. Similarly, Sharp (1998) found that a woman's bond to her children was extremely important in avoidance of AIDS-risk-behavior. Family attachment may be salient in this study, as well, due to the level of importance placed on the family in

Hispanic culture (Flores 2000; Frevert and Miranda 1998). Many of the individuals in the study population have experienced marginalization and isolation due to their lifestyle or HIV status, with friends acting as a surrogate family. Therefore, attachment to friends may be an important informal social bond for a large proportion of the population being studied.

More recently, Agnew, Rebellon and Thaxton (2000) found that strain experienced by adolescents may also have an indirect effect on delinquency through the reduction of social controls and increased association with delinquent peers (Agnew 1985, 1989, 1995; Agnew et al. 2000). Similarly, in an analysis of Wave III data for the National Youth Survey, Keesee (1989) found that adolescents who reported strain in their friendships were more likely to report stronger commitments to their friends, resulting in a greater likelihood of involvement in adolescent delinquency. Further, she found that in addition to its direct effect on delinquency, high levels of family strain had a significant negative relationship to moral beliefs which in turn had a negative effect on the occurrence of adolescent delinquency. This finding suggests that adolescents who experience high levels of strain in their family relations are less likely to internalize moral beliefs, resulting in a greater likelihood of involvement in delinquent behavior (Agnew et al. 2000; Keesee 1989). This finding was further supported by Mazerolle and his colleagues (2000) in a study of Midwestern high school students. Specifically, the investigators found that the effect of strain on drug use and school-related deviance was especially strong when social bonds were weak and the students reported a high level of association with delinquent peers.

Paternoster and Mazerolle's (1994) analysis of Waves I and II of the National Youth Survey data produced similar results to those of Keesee (1989), with a negative association between general strain and social control and a positive relationship with delinquent peer association. These findings are consistent with those of Agnew and his colleagues (1996) in a study of adults residing in an urban area in the Midwestern U.S.. In an additional analysis of Waves I and II of the National Youth Survey, Mazerolle and Maahs (2000) provide both cross-sectional and longitudinal support for the hypothesis that the effects of strain on illegitimate or deviant coping are conditioned or mediated by levels of social control, association with delinquent peers and a behavioral propensity towards deviance. In particular, the analysis revealed that the effects of strain on delinquency were attenuated when the levels of delinquent beliefs, association with delinquent peers, and a propensity to deviance were low. When levels of these factors were high, the effect of strain on delinquency was significantly increased.

The pathways of strain on deviance identified by the study conducted by Agnew and Brezina (1997) suggest that interpersonal strain was more likely to result in outwardly-directed behavior such as fighting. The presence of close ties with peers, especially romantic ties, was associated with a somewhat increased likelihood to engage in delinquent behaviors. Furthermore, the measures of poor peer relations and peer problems, which are more aligned with GST's definition of strain, were positively associated to delinquency for males as well, with a slightly weaker association for females (Agnew and Brezina 1997).

Capowich and associates (2001) findings related to the relationship between negative affect, high levels of social support and shoplifting among undergraduate

university students were counter to what was predicted. The investigators found that persons high in social support were more likely to shoplift when experiencing negative affect than to opt for a legitimate form of coping as suggested by GST. This finding may be a result of the way in which global social support was measured. The study's measure of global social support was created by combining two different scales measuring perceived overall support and immediate support (Capowich et al. 2001). The immediate support scale is comprised of parochial sources of support including visiting with friends, neighborly interaction, and social outings such as having dinner together. Given that respondents were university students, the measure seems more appropriate as a measure of peer support. In the stepwise regression conducted with the two support measures separately, only perceived overall support had a significant relationship to shoplifting, in the predicted negative direction. Although not significantly related, the measure of immediate support (peer support) had a positive association with intentions to shoplift, supportive of Agnew's argument regarding the influence of peers (Capowich et al. 2001). Similarly, the findings of Terling-Watt and Sharp (2001), found that, for females, having close friends increased the likelihood of attempting suicide. However, the findings are not contrary to the assumptions of GST. In this sense, close friends may not be functioning as conventional social support but as deviant peers that support the subjects wishes to engage in deviant acts (Terling-Watt and Sharp 2001)

In a more recent work, Agnew and colleagues (2002) argued that individual personality traits may have important conditioning effects on the relationship between strain and deviance. Specifically, they argue that the personality traits of low constraint and negative emotionality, rather than conditioning variables that have been typically

examined, may play a more significant role in conditioning the effects of strain on the nature of the emotional reaction, as well as the availability of and the disposition to use illegitimate coping responses (Agnew and Brezina 1997; Agnew et al. 2002). Capowich, Mazerolle and Piquero (2001) examined the effects of situational anger, as opposed to trait anger, on delinquency arguing that the anger response defined in GST is situational anger as opposed to trait anger. Trait anger refers to a stable personality trait and situational anger refers to a direct emotional response due to a given stimulus or strain. In this study, the predicted strain to anger relationship was found and results indicated that the reported likelihood of a situational anger response by undergraduate university students was significantly associated with fighting, but not to shoplifting or drunk driving. The effect of situational anger on intentions to fight remained statistically significant across both high and low levels of social support.

The results from Colder and Stice's (1997) study of seniors from two southwestern metropolitan area high schools provides partial support for the inclusion of low constraint as a conditioning variable on the relationship between anger and deviance. In the cross-sectional analysis, impulsivity had both a main effect on involvement in delinquency and substance use and a moderating effect on the relationship between anger and delinquency (Colder and Stice 1998). For impulsive adolescents, high levels of trait anger were associated with increased deviance. Longitudinally impulsivity at Time 1 was significantly related to substance use over time but not to delinquent behaviors. For delinquent behavior, anger as measured at Time 1 retained a significant direct effect on involvement in delinquent behavior over time (Colder and Stice 1998). In addition, the results from Colder and Stice's study suggest that gender may have a moderating effect

on the relationship between impulsivity and deviance. Therefore, further tests of GST's unique contribution in explaining adherence to HIV/AIDS treatment regimens and the continued involvement of PLWH/As in high-risk behaviors requires that the key theoretical components of social learning and informal social control theories as well as personality traits of negative emotionality and low constraint are controlled.

In general, the studies reviewed provide support for GST as it was presented by Agnew in 1992, especially in relation to strain resulting from unjust/inequitable outcomes. This support is qualified and suggests that GST needs additional development in order to account for what appears to a more complex strain/crime relationship than originally envisioned (Agnew 2001; Broidy 2001). Taken together, the findings from these studies suggest that a great deal more attention needs to be given to group differences (i.e., gender, race/ethnicity, age etc.) in specific types of strain, negative affective states and other factors said to condition the relationship between strain and deviant behavior (Broidy and Agnew 1997; Eitle and Turner 2003; Hay 2003; Katz 2000; Mazerolle and Maahs 2000; Piquero and Sealock 2000). In addition, most of the studies conducted to date have relied on large pre-existing data sets that were not designed to measure all the elements of GST (i.e., including only conservative measures of strain and lacking measures of severe forms of strain such as family violence and child abuse) as well as convenience samples or samples of low-risk populations with middle-class backgrounds that may have a better arsenal of coping skills at their disposal than persons residing in extreme poverty areas (Katz 2002). I attempt to overcome the latter weakness in the current study. One such area of interest in this study is colloquially known as the *colonias de la Frontera* which are unincorporated rural settlements along the U.S.-

Mexico border with economic, health and safety conditions equal to that of third world countries.

Further, it is argued here that the elements of social support identified in the adherence literature can be viewed as outward, tangible manifestations of informal social control such as the provision of emotional support and comfort, assistance in problem-solving and in completing daily routine activities, support during crisis situations, as well as spending time together and expressed feelings of closeness, attachment and commitment to family, friends and caregivers (Altice, Mostashari and Friedland 2001; Bakken et al. 2000; Catz et al. 2001; Chesney et al. 2000; Kalichman et al. 1999; Murphy et al. 2000; Roberts 2000a). These measurement items are similar to those frequently used to quantify levels of informal social control (Elliott et al. 1985; Hirschi 1969).

Unfortunately the database used in the present study does not contain measures of the key theoretical constructs associated with social learning theory. However, the design of this study will address several of the key weaknesses of past studies. First, it is a study of a chronically stressed population -- HIV-positive individuals who reside along the U.S./Mexico border in an area known as *la Frontera*. Second, measures of trait anger, negative emotionality, legitimate coping and social control have been included as well as separate measures for goal blockage, equity/justice and negative life events including abuse items. Finally, deviance is measured both in terms of outer directed actions such as involvement in unprotected sexual intercourse as well as inner directed actions such as non-adherence to antiretroviral medications and substance use.

CHAPTER III

The Role of Strain in Explaining Non-Adherence to HIV/AIDS Treatment Regimens and Involvement in Risk-Behavior

Adherence is defined in this study as the "extent to which a person's behaviour (in terms of taking medications, following diets, or executing life style changes) coincides with medical or health advice" (Cederfjäll, Languius-Eklöf, Lidman and Wredling 2002:609). In addition to pharmaceutical and dietary requirements, abstention from involvement in high-risk behavior is an integral part of HIV/AIDS treatment. The adoption of safer sex practices is necessary to reduce the risk of contracting other opportunistic infections (OIs) and STDs that could further compromise the immune system (Stine 2003) and transmitting HIV/AIDS to seronegative partners, or reinfecting seropositive partners with a new viral strain or a strain that is drug-resistant (Cohen and Fauci 1998; Gauthier and Forsyth 1999; Grant et al. 2002; Halkitis and Parsons 2003; Hecht et al. 1998; Holme 2001; Little 2001). The current study focuses on the link between strain, negative emotionality and adherence to treatment regimens.

Explaining Non-Adherence through the Lens of GST

From the perspective of GST, the findings that many PLWH/As struggle with issues of adherence to medical treatment and have increased their involvement in risk-behaviors are not surprising. The basic tenet of GST is that people will take action either through the use of legitimate or illegitimate coping strategies to eliminate the negative emotions being experienced due to strain. In addition, it is argued that the effects of

strain are cumulative, exerting increasing levels of pressure until the stimulus is effectively removed or neutralized. Deviant or illegitimate coping strategies are utilized when legitimate coping strategies are not available to the individual. In addition, mediating or conditioning factors exist that affect the individual's ability to utilize legitimate coping strategies successfully, such as attachments and commitments to family and other social institutions, association with deviant peers, self-esteem and self-efficacy (Agnew 1985, 1989; Agnew and White 1992). The finding that a majority of clients being served at the study site for this project were engaged in deviant activity prior to their viral infection indicates that they lacked sufficient levels of social support, informal social control, and the personal resources necessary to successfully utilize legitimate coping strategies to reduce life strain prior to infection. Therefore, the strains of being diagnosed HIV-positive, add additional burdens to a coping system that was already overwhelmed. This increases the mounting pressure to engage in illegitimate coping strategies, in this case health-risk-behaviors including medication and behavioral non-adherence. Major correlates of adherence and involvement in risk-behavior identified in the literature are consistent with the three major categories of strain described by Agnew (1992) as strains resulting from the threatened or actual loss of positively-valued stimuli, the threatened or actual prevention of achieving positively-valued goals, and the threatened or actual presentation of noxious stimuli.

Elements of Strain

Loss of Positively-valued Stimuli

Identified correlates that are reflective of strain resulting from the threatened or actual loss of positively-valued stimuli include the fear of disclosure, loss of status or respect at home and work (Ammassari et al. 2002; Choi et al. 1999; Díaz et al. 1999; Díaz 1998; Meystre-Agustoni et al. 2000; Morin et al. 2003), loss of community respect for the family (Díaz 1998), loss of control over one's life (Roberts and Mann 2000; Stone et al. 1998), loss of physical attractiveness (Roberts and Mann 2000),loss of health and family (Roberts and Mann 2000; Díaz 1998), loss of intimacy, emotional closeness and connectedness, loss of community, loss of highly erotic sexual pleasure (Halkitis and Parsons 2003; Halkitis et al. 2003; Morin et al. 2003), and loneliness and isolation resulting in lowered self-esteem and survivor's guilt (Morin et al. 2003).

Several studies examining medication adherence report that being away from home for work or social reasons was associated with increased levels of medication non-adherence. Chesney and associates (2000) found that patients who labored outside the home for pay were significantly more likely to be non-adherent to their medication plans, with one-half of the 75 study participants stating that being away from home was a common reason for not taking antiviral medications. These findings are supported by Roberts (2000), who found patients often failed to carry medications with them when they left their homes, and by Eldred and associates (1998) who found that subjects were more likely to obtain adherence rates of greater than 79 percent if they took their medications when they were away from home.

Part of the reason for reduced adherence while being away from home may be related to patients fears of status disclosure, stigmatization and social rejection (Lewis and Abell 2002; Meystre-Agustoni et al. 2000; Murphy et al. 2000; Roberts and Mann

2000; Roberts 2000a; Westerfelt 2004). Study findings indicate that patients believe the side effects from antiviral treatments put them at risk of being recognized as HIV-positive and fear being socially rejected by those who are unaware of their status. This may include family, friends and co-workers (Ammassari et al. 2002; Meystre-Agustoni et al. 2000). Patients who have experienced alterations in their physical appearance from complications such as lipodystrophy (LDS)[5] were twice as likely to feel that they were recognizable as being HIV-positive than patients who were not presenting with problems from LDS (Oette et al. 2002) Although not investigated in relation to adherence, Hispanics may be especially sensitive to issues of disclosure because of the potential for bringing shame and dishonor to the entire family and the severing of important family ties (Díaz 1998).

In a study of HIV-positive women, Roberts and Mann (2000) found that individuals may respond with intentional non-adherence and drug holidays to the loss of control over their lives from daily demands of rigid medication regimens. The subjects profiled in Roberts and Mann's (2000) qualitative study of HIV-positive women expressed distress over the loss of control of her life to HIV medications and regret for the loss of her health. Concerns regarding the loss of control over environmental and personal decision making were also expressed by HIV-positive IDUs in Vancouver, British Columbia (Harvey et al. 1998) and in focus groups conducted with HIV-positive

[5] Lipodystrophy or fat redistribution syndromes include elements of fat redistribution and metabolic disorders. Fat redistribution includes "fat accumulations on the upper back and neck (buffalo hump) and under the muscles of the abdomen (Crix belly, protease paunch); in addition, lipomas, breast enlargement, and peripheral fat wasting …in the face, legs, arms, and buttocks have been described" (Chesney, 2003: 173).

males at a public health clinic in the U.S. (Westerfelt 2004). The men participating in focus groups rewarded themselves with what they referred to as drug holidays or a "Club Med vacation" where they would consciously choose not to take their medications for a period of time (Westerfelt 2004: 235). Roberts and Mann (2000) also suggest that female antiviral patients may be fearful of losing or gaining weight due to the dietary requirements associated with the medications they are prescribed.

Studies of gay and bisexual male involvement in risk-behaviors such as bareback sex and bug-chasing identified similar reasons for involvement in such behavior by study participants. Specifically, participants in these studies indicated that the use of safe sex practices resulted directly in a loss of intimacy, emotional closeness, connectedness and heightened levels of sexual pleasure (Gauthier and Forsyth 1999; Halkitis and Parsons 2003; Halkitis et al. 2003; Morin et al. 2003). In addition, the participants stated that they felt the gay community itself had become divided into camps based on serostatus and no longer provided the sense of community that was present before the AIDS epidemic. This loss of community has resulted in increased levels of loneliness and isolation for some gay men (Morin et al. 2003). Guilt for having survived the early years of the epidemic while loved ones died was also described by focus group participants as a significant source of strain (Morin et al. 2003).

Prevention of Achieving Positively-valued Stimuli

Strains uniquely associated with the actual or threatened prevention of achieving positively-valued goals were not specifically identified in the medical adherence literature reviewed. A partial explanation for this may be the terminal nature of the disease early in the epidemic which forced individuals of prime working and child-

bearing age to consider the possibility of imminent death (Judd et al. 2000; Mitchell and Linsk 2004). With the increased longevity provided by antiviral medications, it is likely that issues associated with goal blockage (i.e., the ability to develop committed intimate relationships, produce and raise offspring, achieve educational and career goals) as well as the purchase of status items such as a home will become more significant than they have been in the past (Chen et al. 2001; Judd et al. 2000; Mitchell and Linsk 2004; Roberts and Mann 2000; Sowell, Moneyham and Aranda-Naranjo 1999; Stone et al. 1998). For example almost 30 percent of the HIV-positive men and women indicated that they wished to have children in the future (Chen et al. 2001). Furthermore, several of the participants' surveyed by Stone and her colleagues (1998) reported that their greatest motivating factor for staying healthy was to care for and raise their children. This was also reported by Sharp (1998).

Factors identified in the behavioral risk literature that are reflective of strains associated with the actual or threatened prevention of achieving positively-valued goals include desires for a sense of purpose, status in community, confirmation of sexual desirability, physical attractiveness and masculinity, affirmation of gay identity, fear of not finding a significant relationship, failure to obtain emotional fulfillment, fear of rejection, financial hardships and social power imbalances that make it difficult to negotiate for safe sex especially for men of color. These factors were identified by 113 MSM focus group participants from the San Francisco area conducted in May and June of 2001 (Morin et al. 2003). Recent findings from internet surveys (Halkitis and Parsons 2003), street-intercept surveys (Choi et al. 1999; Díaz et al. 1999; Halkitis et al. 2003)

and surveys of HIV primary-care consumers (Fisher et al. 1998) provide support for factors identified by the focus groups.

Presentation of Noxious Stimuli

Strains identified that relate to the threatened or actual presentation of noxious stimuli include increased HIV symptomology (Ammassari et al. 2002; Chesney 2003; Gao et al. 2000), adverse side effects of antiretroviral drugs (Ammassari et al. 2001; Carrieri et al. 2001; Chesney 2003; Westerfelt 2004), stressful life events such as the loss of family and friends to AIDS, domestic violence and childhood abuse (Ammassari et al. 2002; Choi et al. 1999; Díaz et al. 1999; Díaz 1998; Moatti et al. 2000; Morin et al. 2003; Thompson et al. 1996), difficulties obtaining needed health care including access issues and the quality of the patient-provider relationship (Catz et al. 2001; Chesney 2003; Ickovics and Meisler 1997; Jani et al. 2002; Lewis and Abell 2002; Stone et al. 1998), constant fear of infection (Gauthier and Forsyth 1999), guilt and shame associated with having the disease (Morin et al. 2003), death anxiety (Morin et al. 2003; Thompson et al. 1996), and the burden of the responsibility not to infect others (Morin et al. 2003).

Thompson, Nanni and Levin (1996) conducted interviews with 105 HIV-positive men to assess their levels of stress, stressful life events, risk-behavior and psychological adjustment. Overall they found that male PLWH/As experienced large amounts of life stress and negative life events especially in relation to problems with partners, finances, family and friends and decreased income. The events that were rated the highest included loss of housing, loss of committed relationships and the death of a friend. Similarly, Moatti and associates (2000) found a significant association between cumulative negative life events and non-adherence to medical regimens for a sample of 164 French IDUs

(Ammassari et al. 2002; Moatti et al. 2000). In addition, the occurrence of cumulative negative life events such as racism, peer abuse, extreme poverty, homelessness, domestic violence, child sexual and physical abuse, loss of friends and partners is a recurring theme in much of the behavioral risk literature (Ammassari et al. 2002; Cederfjäll et al. 2002; Choi et al. 1999; Díaz et al. 1999; Díaz 1998; Gauthier and Forsyth 1999; Gifford et al. 2000; Harvey et al. 1998; Moatti et al. 2000; Thompson et al. 1996)

In a study of HIV-positive mothers with young children, Murphy and her colleagues (2002) found that levels of negative life events varied by race and were positively associated with increased HIV disease severity. Similar to the findings of Eitle and Turner (2003) regarding the stress-crime relationship, the investigators found that White and African American mothers reported a significantly greater number of negative life events than Hispanic women (Murphy et al. 2002).

In a few studies, late disease stage or the presence of complications has been found to be associated with increased adherence to treatment regimens (Chesney 2003; Gao et al. 2000; Simoni et al. 2003). The participants in the study conducted by Gao and associates (2000) were more likely to take their antiviral medications if they perceived that they were at risk of getting worse due to the health complications they were experiencing (Jani et al. 2002). However, in the meta-analysis conducted by Ammassari and associates (2002), only one of the 20 studies examined reported an association between adherence and CDC disease stage.

One of the most consistent findings in the research literature for HIV/AIDS medication adherence is the role of actual or perceived negative medication side effects in adherence to prescribed medication regimens (Ammassari et al. 2001; Ammassari et al.

2002; Carrieri et al. 2001; Chesney 2003; Donovan and Blake 1992; Gallant and Block 1998; Jani et al. 2002; Lewis and Abell 2002; Roberts and Mann 2003; Simoni et al. 2003; Stone et al. 2004). Chesney (2003) reports that negative medication side effects are responsible for more changes in and failures of treatment regimens than any other source. In addition, Carrieri and associates (2001) found that the effect of self reported or perceived symptoms on non-adherence was more important than symptoms that could be medically confirmed (Ammassari et al. 2001; Ammassari et al. 2002; Carrieri et al. 2001; Chesney 2003; Donovan and Blake 1992; Gallant and Block 1998; Jani et al. 2002; Lewis and Abell 2002; Roberts and Mann 2003; Simoni et al. 2003; Stone et al. 2004). The relationship between regimen complexity and non-adherence has found mixed and contradictory support in the research (Ammassari et al. 2002; Eldred et al. 1998; Simoni et al. 2003) and may soon become a moot point as efforts are continuously being made to compress dosing to fewer and smaller pills, reduce pill burden to once or twice daily dosing, combining drug classes and agents within classes with extended half-lives, as well as research in the areas of scheduled drug interruptions and front-loading potent regimens (Jani et al. 2002).

Several studies have found that patient satisfaction with medical care is positively correlated with improved adherence (Catz et al. 2001; Chesney 2003; Ickovics and Meisler 1997; Jani et al. 2002; Lewis and Abell 2002; Stone et al. 1998). Provider and medical staff characteristics identified as being important include consistent access to care and medications, satisfaction with provider and health care staff, and clear communication from provider(s) to patients on expectations and regimen instructions (Ammassari et al. 2002; Catz et al. 2001; Chesney 2003; Ickovics and Meisler 1997; Jani

et al. 2002; Martini, Parazzini and Agnoletto 2001; Stone et al. 1998). Provider and service characteristics not associated with adherence include physician specialty-training or experience with HIV care (Landon et al. 2002) and a long waiting time for appointments, respectively (Jani et al. 2002).

Negative Affect

The relationship between negative affective states and involvement in unsafe practices provides further support of the utility of GST in explaining medical and behavioral non-adherence (Marks et al. 1998). Overall, it was found that negative affective states were significantly associated with engagement in unprotected anal sex with a male partner but not a female partner. These findings remained significant regardless of the serostatus of the partner. The lack of association between negative affect and engaging in risk-behaviors with females may be the result of a limited number of reported female partners (Marks et al. 1998). Marks and associates (1998) suggest that the association between negative affect and involvement in unprotected anal sex reflects the subject's attempt to escape the pressure he feels from the added responsibility of protecting sexual partners from infection. This relationship was further mediated by the use of alcohol and other drugs prior to the sexual encounter and going through a process in which the subject shifts the attribution of transmission responsibility to the sexual partner (Fisher et al. 1998; Marks et al. 1998). This explanation of events fits well within the parameters of GST with the use of alcohol and drugs reflecting the use of an illegitimate coping strategy and the shifting of blame reflecting the use of denial similar to the techniques of neutralization described in Drift theory (Sykes and Matza 1957). It should be noted that the use of alcohol and drugs prior to or during involvement in sexual

risk-behaviors and in relation to medication adherence has been noted in several studies (Ammassari et al. 2002; Bouhnik et al. 2002; Catz et al. 2001; Chesney et al. 2000; Cook et al. 2001; Halkitis et al. 2003; Haubrich et al. 1999; Ingersoll 2004; Lewis and Abell 2002; Marks et al. 1998; Moatti et al. 2000; Morin et al. 2003)

Results from another study conducted provide additional support for the use of GST as a theoretical framework for explaining adherence. The investigators assessed the association between stress, psychological adjustment and engagement in unhealthy behaviors in a convenience sample of HIV-positive males. Reports from HIV-positive men in the study indicate that they are subject to an increased number of negative life events as a result of the disease and present with elevated levels of stress and depression (Thompson et al. 1996). The areas of stress with the strongest association to elevated depression included relationships, finances, and the illness of others. For these men, increased alcohol consumption was associated with increased numbers of stressors and increased tobacco use and involvement in unsafe sex practices were associated with greater levels of perceived stress (Thompson et al. 1996).

The relationship between social and psychological factors and non-adherence is a growing area of research in the adherence field, with depression being one of the main factors examined (Singh et al. 1999). In general several studies have found depression to be an independent predictor of adherence (Bouhnik et al. 2002; Holzemer et al. 1999; Jani et al. 2002; Kleeberger et al. 2004; Kleeberger et al. 2001; Perdue et al. 2003; Reynolds et al. 2004; Singh et al. 1999; Singh et al. 1996). A significant association has been found between depression and adherence across different groups as well. For example, feelings of depression and loneliness were cited by participants in the study

conducted by Choi and associates (1999) as leading to involvement in risky sexual behavior by Asian/Pacific Islander MSM. Furthermore, in a study of IDUs and MSM in Seattle, depressed IDUs were more likely to report syringe sharing and engaging in sex with multiple partners (Perdue et al. 2003). Additionally the investigators found that younger females and white IDUs reported higher rates of depression. The role of depression in adolescent adherence was supported by a study conducted by Murphy and colleagues (2000) as well. These findings are consistent with the argument made by Capowich, Mazarolle and Piquero (2001), who suggest depression may be related to other forms of criminal or deviant acts such as self-destructive behaviors (see also Piquero and Sealock 2000).

However, not all studies have found a significant association between depression and non-adherence (Ammassari et al. 2002; Catz et al. 2001; Ingersoll 2004). Findings from the study conducted by Catz and associates (2001) indicate that for HIV-positive individuals who are 45 year of age or older, factors such as social support, depression and hostility were not related to adherence. The investigators suggest that older individuals may be more likely to express negative emotions in the form of somatic concerns or alcohol use (Catz et al. 2001). Ingersoll (2004), in a study of 120 PLWH/As recruited from an Infectious Disease clinic, did not find a significant association between depression and four different measures of adherence. However, anxiety disorder symptoms did emerge as an independent predictor of adherence and may have possibly replaced the importance of depression (Ingersoll 2004). Furthermore, Ammassari and her colleagues (2002) identify depression as being an inconsistent predictor of non-adherence in their meta-analysis of various adherence research studies.

Contrary to the role anger has played in studies of delinquency, anger and rebelliousness did not negatively affect coping ability for individuals who were HIV-positive in the study conducted by Brook and colleagues (2001). The investigators suggest that anger may function positively as a safety-valve for PLWH/As and reflect a realistic response for persons in life threatening situations.

Mediating/Conditioning Factors

Within this body of literature, the findings from studies examining the mediating effects of coping strategies on the occurrence of behavioral and medical non-adherence have met with the same inconsistency in results as the criminology literature (Agnew and White 1992; Hoffmann and Cerbone 1999; Piquero and Sealock 2000). Ickovics and associates (2002) found that heterosexual women with lower incomes had greater levels of stress and were more likely to be involved with high-risk partners. Personality characteristics found to be associated with positive coping among PLWH/As included ego integration and high self-esteem. Personality characteristics negatively associated with coping were intolerance of deviance, psychotic-like symptoms, depression, anxiety and mental problems (Brook et al. 2001).

Coping Strategies

Leserman, Perkins and Evans (1992) found that asymptomatic PLWHs who responded to their HIV infection with denial were more likely to be depressed, angry and to utilize helpless coping than PLWHs that adopted a fighting spirit and viewed the infection as an opportunity for personal growth (Cederfjäll et al. 2002; Westerfelt 2004). Additionally, African American PLWHs were more likely to report higher levels of

denial and helplessness and less social support (Leserman, Perkins and Evans 1992) PLWH/As who presented with symptoms of poor adjustment to their HIV status reported ineffective coping responses such as decreased fighting spirit, hopelessness, fatalistic attitude and anxious preoccupation, as well as inadequate social support and a greater likelihood of expressing sadness and repressing anger (Grassi et al. 1998; Westerfelt 2004).

An examination of the relationship between active and passive coping as it relates to involvement with high-risk partners, revealed that there was no relationship between coping style and partner risk (Ickovics et al. 2002). Further, DeMarco, Ostrow and DiFranceisco (1999) found that the coping strategies examined in their study of gay males were not associated with depression or AIDS-specific distress except for participants scoring the highest on depression, while stress exerted a strong unconditioned direct effect on depression.

Other the other hand, findings from the study conducted by Chibnall and associates (2002) suggest that PLWH/As were more likely to use maladaptive or illegitimate coping strategies such as substance use and disengagement when experiencing pain and not feeling well (Chibnall et al. 2002; Vosvick et al. 2003). Overall, the association between pain and maladaptive coping strategies accounted for approximately 30 to 50 percent of the total variance in the models (Vosvick et al. 2003: 55). Weaver and associates (2004) found that the use of denial and cognitive coping strategies were significantly associated with the perceived quality of life reported by PLWH/As. A cognitive coping style (i.e., positive reinterpretation, growth and acceptance) was associated with a positive perception of current quality of life and a

stress induced denial coping strategy was associated with a poorer perceived quality of life (Weaver et al. 2004).

Social Control, Differential Association and Self-Control

Lack of social and family support is considered one of the most consistent predictors of adherence (Ammassari et al. 2002; Simoni et al. 2003). Several studies investigating the relationship between medical adherence and social support have found that a lack of family or other forms of social support was significantly related to non-adherence (Altice et al. 2001; Ammassari et al. 2002; Catz et al. 2000; Duran et al. 2000; Gifford et al. 2000; Gordillo et al. 1999; Jani et al. 2002; Murri et al. 2000; Simoni et al. 2003; Singh et al. 1999). For HIV-positive subjects in a study conducted by Brook and associates (2001), family and friends were identified as two major sources of social support that aided seropositive individuals in effectively coping with both family support and personality characteristics operating as mediators between peer support and coping (Brook et al. 2001; Leserman et al. 1992). Likewise, Reilly and Woo (2004) found that HIV-positive patients at a public health clinic were less likely to engage in high-risk sexual practices if they viewed the social support available to them as helpful (Heckman et al. 1998). Furthermore, Heckman, Kelly and Somlai (1998) found that perceived lower levels of social support were associated with increased involvement in high-risk behaviors and medical non-adherence (Westerfelt 2004).

Also in line with a GST theoretical framework, a higher proportion of subjects in the study conducted by Reilly and Woo (2004) who engaged in unsafe sexual practices reported receiving help for HIV/AIDS related issues from friends, as well as a marginally significant relationship between unsafe sex practices and negative parental support

(Reilly and Woo 2004). Likewise, having conventional friends was associated with reduced risk-taking and more effective coping for HIV-positive individuals (Brook et al. 2001). Mendez and associates (2001-02) found that college males who expressed a high level of concern regarding their public image were more likely to report engaging in high-risk sexual behaviors regardless of their own personal beliefs or broader social norms (Mendez, Hulsey and Archer 2001-02). For these individuals, peer approval regarding sexual competence had a stronger influence on their behavior than personal harm-reduction or level of sexual satisfaction. Contrary to investigators' predictions, however, higher levels of private self-consciousness (more attune to moods, self-esteem, values) tended to increase levels of negative emotionality such as depression and loneliness, which in turn led to greater numbers of sexual partners for women in the study (Mendez et al. 2001-02).

Given that both low constraint and trait anger are components of the self-control personality trait central to Gottfredson and Hirschi's (1990) theory, controlling for the effects of self-control are important in order to test for unique contributions made by GST. Several of the most common reasons given by PLWH/As for not taking their medications as prescribed could be viewed as indicators of low self-control including sleeping through scheduled doses (Murphy et al. 2000), simply forgetting (Ammassari et al. 2002; Eldred et al. 1998; Gallant and Block 1998; Meystre-Agustoni et al. 2000; Nieuwkerk et al. 2001) and being too busy or having too unstructured a life (Chesney et al. 2000; Gallant and Block 1998; Murphy et al. 2000; Nieuwkerk et al. 2001; Roberts 2000b; Singh et al. 1999; Sorensen et al. 1998). Furthermore, in the focus groups conducted by Morin and associates (2003) and the internet research conducted Halkitis

and Parsons (2003), respondents indicated that the desire for very erotic sex was a motivating factor for engaging in high-risk sexual behaviors.

Statement of the Problem

Much of the research examining the occurrence of non-adherence to HIV/AIDS medication and behavioral risk reduction regimens has been atheoretical, with a focus on the identification of correlates or modifiable factors (Ickovics and Meisler 1997; Simoni et al. 2003). Overall, the known factors associated with behavioral and medical non-adherence to HIV/AIDS treatment regimens are compatible with a GST theoretical model. Specifically to be tested is the applicability of Agnew's (1992) General Strain Theory (GST) in explaining both medical and behavioral non-adherence to HIV/AIDS treatment regimens in a Hispanic population residing along the U.S.-Mexico International Border.

Research Hypotheses

H1: Strain will be positively related to negative affective states including anger.

H2: The impact of strain on negative affective states will be conditioned by self-efficacy, self-esteem and social support.

H3: Increased levels of strain will increase the likelihood of negative affect resulting in an increased likelihood of non-adherence to HIV/AIDS treatment regimens.

H4: Increased levels of strain will increase the likelihood of negative affect resulting in an increased likelihood of involvement in high-risk behaviors.

H5: The impact of negative affect on non-adherence to HIV/AIDS treatment regimens will be conditioned by self-esteem, self-efficacy and social support.

H6: The impact of negative affect on involvement in high-risk behavior will be conditioned by self-esteem, self-efficacy and social support.

H7: Controlling for the effects of self-control and social control, increased levels of strain will increase the likelihood of negative affect resulting in an increased likelihood of non-adherence to medical treatment regimens.

H8: Controlling for the effects of self-control and social control, increased levels of strain will increase the likelihood of negative affect resulting in an increased likelihood of involvement in high-risk behaviors.

CHAPTER IV

Methodology

Special Projects of National Significance

This study was supported by the U.S. Department of Health and Human Services (DHHS), Health Resources and Services Administration (HRSA), HIV/AIDS Bureau (HAB), Office of Science and Epidemiology, Special Projects of National Significance (SPNS) (Grant #1 H97 HA 00180-01) through the University of Oklahoma, Center for Health Ethics, Research and Policy (CHERP) and approved by the University of Oklahoma – Norman Campus Institutional Review Board for the Protection of Human Subjects prior to data collection. The University of Oklahoma Center for Health Ethics, Research and Policy functions as the technical assistance and multi-site data collection arm in this SPNS initiative. Through this SPNS initiative, a total of five demonstration service projects along the U.S./Mexico border were funded. Two projects were funded in Texas, with one funded in New Mexico, Arizona and California. Most of the SPNS project sites have numerous primary clinics through which clients are served. The purpose of these projects was to design and implement effective and innovative models of HIV/AIDS primary care for high-risk populations along the border. The present study was conducted at the Texas SPNS site located in the Lower Rio Grande Valley of Texas because of the interest in adherence research by the primary care physician located at this

site. The study demonstration site provides clinical services in Harlingen, Brownsville, Corpus Christi and McAllen, Texas.

Sample

Data for this project were gathered from HIV-positive individuals receiving HIV/AIDS primary medical care services from a SPNS Border Health demonstration project located in Texas that has four clinic locations spread throughout the lower Rio Grande Valley of Texas excluding El Paso. However, only one site participated in this study. Three sources of client data were collected for this study including individual level data collected by the medical provider on an ongoing basis, patient interviews regarding medical adherence, and a self-administered patient survey. A HRSA and IRB approved unique client identifier (URN) was used to link individual client records across all three data sources.

All clients who had been identified as HIV-positive with a current prescription for HIV/AIDS medications and who were between the ages of 18 and 64 at the time of the study were asked if they would like to participate in the study during routine clinic intake and follow-up appointments between July, 2003 and June, 2005. Patients known to be members of a protected class of research subjects were excluded from participation. Patients were instructed that their participation was completely voluntary and failure to participate would not result in a loss of services or benefits from the clinic. All participants were required to sign IRB-approved consent and HIPPA release forms with a copy of each form returned to them for their personal records (see Appendix C). Two separate informed consent forms were signed by study participants, one for participation in the medical adherence interview and one for participation in the self-administered

survey. The informed consent form signed for participation in the self-administered survey also granted permission to obtain client information currently collected by the service agency.

Designated clinic staff reviewed all study documents to ensure that data submitted to the investigator were stripped of all personal identifying information. As well, all data forms and electronic databases used in this study are housed in a secure location with access limited to the principal and co-investigators. Each study participant was given monetary incentives for completed medical adherence interviews and self-administered surveys in the form of a generic gift card. A total of 66 patients completed both adherence interviews and patient surveys. In order to retain as many cases as possible for the analysis, the missing values for items with fewer than eight (10.6%) missing cases were recoded to the series mean for the item. The four items used to measure partner attachment had ten missing cases each. In order to retain as much sample as possible, a crosstabulation was conducted for the four items by marital status to determine the group means for these items. Missing values for each of these items were then recoded to the group mean scores for married, separated/divorced, widowed and single never married. One-half of the missing cases for these variables were for persons who reported being currently married.

Agency MIS information

As a result of participation in numerous demonstration and service grants under the Ryan White Care Act, the participating service agency developed a comprehensive standardized database containing ongoing and pre-existing information on client demographics, lifestyle, quality of life, barriers to service utilization, client satisfaction,

risk-behavior, services provided, and medical chart review extractions for quarterly viral loads and CD4 counts. Individual level client information was obtained from the study site for each participant who signed IRB approved informed consent and HIPPA release forms. Data items provided from agency MIS information for this research project included HRSA URN (unique record number), race/ethnicity, gender, exposure category (most likely form of HIV transmission), marital status, age, and inferred employment stability.

Patient Interview

The Medical Adherence Patient Interview instrument used in this arm of the study was designed by CHERP and Valley AIDS Council staff to obtain multiple indicators of adherence including self-report, provider estimate and pill counts, viral load, and related psychosocial factors (See Appendix B). Specifically, the questions measured gender, sexual orientation, race, household size and composition, Hispanic group, date of birth, education, new/existing patient, use of medication watch, number of months of HIV medical treatment, indicators of psychiatric diagnosis and treatment, history of opportunistic infections, physician perceptions of patient knowledge and adherence to medical treatment regimen, pill-count adherence measure, self-reported patient adherence (in general and to dietary restrictions), belief in and satisfaction with treatment and care providers, perceived level of support, alcohol and substance use, social support, access to needed resources, barriers to adherence, and need for translation services. An agency nurse specializing in HIV/AIDS primary care administered the standardized medical adherence interview to the patient in a confidential setting in the clinic. Study participants were asked to respond to each self-report item by instructing the

administering nurse of the choice which best represented their experience or attitude. Participants were instructed throughout the study process that if at any time they felt uncomfortable or disturbed in any way by the questions being asked they could stop and seek counseling services.

Due to the large number of study participants who are non-English speakers or unable to read, a bilingual nurse trained in research interviewing techniques was hired to administer the interview. The nurse did not provide explanations or interpretations of any of the items asked. The administering nurse also completed the provider information sections of the medical adherence interview form based on current lab work, physician notes, information extracted from the client's medical chart and HRSA URN. On average, the interview took 20 to 30 minutes to complete and patients were given $5.00 in the form a generic gift card for participation in the interview. Information from completed interviews minus any personal identifying information was entered electronically through the use of a web-based data entry system which transmitted the data to a secure database housed at the CHERP. Original paper interviews are housed in a locked file cabinet separate from their clients' medical records at the clinic site.

Self-Administered Patient Survey

The self-administered patient survey was developed to augment the Medical Adherence Interview arm of the study with standardized self-report measures of general strain, modes of coping, self-control, opportunity, informal social control and continued involvement in risk-behavior. Only individuals who participated in the medical adherence interview were given the opportunity to participate in this arm of the study. After signing an IRB informed consent and HIPPA release form, participants were

escorted by a designated clinic staff member to a confidential location to complete the survey. Based on participant preference, participants were given an English or Spanish version of the patient survey, informed consent form and HIPPA release form. The survey consisted of 139 questions measuring attitudes and behaviors. Specifically, the questions measured spouse/partner, peer, children and family attachment, spouse/partner commitment, self-control, achievement of positively-valued stimuli, perceived fairness in being able to obtain positively-valued stimuli, stressful life events, mode of coping, opportunity to engage in deviant behavior, and involvement in risk-behavior.

As in the medical adherence interview, participants were instructed that participation in the survey was completely voluntary and they could choose to stop taking the survey at any time during the process. Further, participants were instructed to contact clinic staff for assistance if the questions left them feeling anxious or frustrated. On average, the self-administered survey required between 20 and 30 minutes to complete. Agency clients completing the survey were asked to respond to each item by marking the choice that best represented their opinions or attitudes. Although, the clinic staff person assigned to the project did not answer questions requiring interpretation or opinion regarding the meaning of survey questions, they were available to assist participants in reading the survey and marking responses appropriately on the form. Respondents returned completed forms to the designated clinic staff member, who then ensured the correct HRSA URN was coded on the first page of the survey form, and patients were given $10.00 in the form a generic gift card for participation in the interview. Information from completed interviews minus any personal identifying information was entered electronically through the use of a web-based data entry system which

transmitted the data to a secure database housed at the CHERP. Completed self administered study forms (Valley AIDS Council Adherence: Part 2) minus any personal identifying information were sent to the CHERP via Federal Express and are secured in a locked file cabinet.

Cultural Sensitivity of Measures

Standardized measures were used to quantify key theoretical components tested in this study (i.e., general strain, self-control, perceived opportunity, modes of coping, and informal social control). However, given the unique nature of the population under study – predominantly Hispanic and MSM – each measure was piloted with individuals who identified as MSM and Hispanic MSM to ensure that the items would be culturally sensitive and elicit the same response for non-MSM as MSM and non-Hispanics and Hispanics alike. Traditional items were not removed from any of the measures as a result of this exercise. However, a few new items were added to scales (i.e., "Being in a committed relationship with the person I want to be with" in addition to "Marrying the person I want to marry") and wording changes such as "spouse/partner" instead of wife/husband, "Personal Divorce/Partner Separation" instead of Divorce, and "close friend/partner moved way" instead of close friend moved away.

A Spanish version of the self-administered patient survey, as well as corresponding informed consent and HIPPA release forms were used in this study. In order to ensure the validity of the survey items, the original English version of the instrument was translated into Spanish by Dr. Fernando Garcia and his medical staff at the study site in Texas, who are native-speakers of Spanish. Once this was completed, the Spanish version of the survey was then back translated into English by two native-

speakers of Spanish in Oklahoma, Professor Herman Curiel, Ph.D. a co-investigator at the University of Oklahoma, School of Social Work and Arturo Ramos a local private entrepreneur. The back translations were then reviewed for significant deviations from the original English version by the principal investigator. Any items that significantly differed from the original English version were re-addressed by Professor Curiel and piloted with a native Spanish speaking student from Columbia. The revised version was then reviewed by Dr. Garcia and his staff. Further negotiation between Dr. Garcia and Dr. Curiel occurred until consensus was reached by both translators. Dr. Garcia piloted the final Spanish version of the patient survey with five native-speaking patients at the study site. The Spanish version of the informed consent and the HIPPA release form were developed in this same manner and piloted by native Spanish speaking patients at the study site to ensure participant comprehension.

Study Limitations

As with other studies in the area of non-adherence to HIV/AIDS treatment regimens this study has design limitations. Given the study's reliance on a canvass of SPNS clients at a designated primary care facility, these data are not generalizable to the general population of PLWH/As or to Hispanic PLWH/As. Further, this study fell short of recruiting the targeted number of study participants. Due to competing clinical drug trials offering greater levels of participant incentives, significant turnover in clinic nursing staff, and research burn-out on the part of the clinic population, only 72 subjects agreed to participate in this study. Of those, five were not of Hispanic descent and one failed to complete the Medical Adherence Patient Interview, resulting in study sample size of 66 subjects. Although still able to use multiple regression with a sample of this

size (Green 1991), small samples with multiple predictors are likely to result in a reduction of the needed statistical power to detect significant effects resulting in increased Type II Error (Kraemer and Thiemann 1987; Kramer and Rosenthal 1999). Additionally, it has been found that small sample analyses including both direct and mediating effects, have resulted in a failure to detect significant mediating relationships, thereby exaggerating the magnitude of the direct effect resulting in the an increased risk of Type I and II Errors, especially in the presence of poor measurement reliability and collinearity problems (Hoyle and Kenny 1999; Trochim 2001).

The small sample size also made it necessary to condense the number of explanatory variables considered in the model (Tabachnick and Fidell 2001). Therefore some items were collapsed into composite measures of key theoretical components while others considered less integral to the GST theoretical argument were dropped from the analysis, including several of the proposed measures for informal social control (peer attachment, family attachment, commitment to one's spouse or partner, and job stability) and social support from primary care providers. The effects of differential association on behavioral and medical non-adherence were not able to be taken into account either. However, this investigation is designed to test the utility of GST in predicting inner and outer directed forms of deviance that are non-criminal in nature, with a population that is likely experiencing elevated levels of daily strain due to extreme poverty conditions, immigration issues and being HIV-positive. It also provides an opportunity to test the reliability and validity of commonly used instruments in the field of criminology with native Spanish speakers residing along the U.S.-Mexico border. This preliminary analysis of the data will aid in determining if this direction of inquiry has the potential of

adding valuable information to current scientific knowledge on medication adherence and HIV/AIDS risk-behaviors and if an expenditure of additional federal dollars on this is warranted.

Independent Variables

General Strain

One composite index and three specific dimensions of general strain -- failure to achieve positively-valued goals, loss of positively-valued stimuli and the presentation of noxious stimuli-- were measured in this study. The individual's level of perceived goal blockage and fairness of opportunities to achieve goals were used to measure strain as a result of failure to achieve positively-valued goals. Measures of stigmatization developed by the U.S.-Mexico Border HIV/AIDS Collaborative (2003) were used to measure strain resulting from loss of perceived positively-valued stimuli and a modified version of the negative life events scale in Broidy (2001) was used to measure strain resulting from the presence of noxious stimuli. In accordance with the GST literature, the composite and dimension specific measures of strain were created by summing across specified item z-scores and composite measures to create cumulative or additive indices of strain (Agnew 1992; Sharp et al. 2001)

Failure to achieve positively-valued goals

Agnew identified three types of strain in this major strain category. In this study, two forms of this type of strain are measured – perceived goal blockage in the actual achievement of goals and strain as a result of the disjunction between just or fair outcomes and the outcomes actually achieved. One form of goal blockage-induced strain

occurs when there is a disjunction between what an individual has achieved and the goals that were set for themselves. Deviance is a possible response to this form of strain when the individual lacks other forms of legitimate coping to reduce the resulting negative affect. Due to the medical and social nature of the disease and associated medical costs, the achievement, continued maintenance or ownership of a home, car, significant relationship, or job is often impossible. Perceived goal blockage was measured by determining the respondents' perceived level of success in obtaining or achieving common goals in life such as marriage or being in a committed relationship, a car or house, high school or college graduation, and social life. Each item was prefaced with the statement "Fill in the bubble (Spanish version: Circle the number) that best represents how successful you have been at the following." A four-response Likert format (0 – 4) ranging from "very successful" (1) to "not at all successful" (4) was used, with a fifth response category of "no goals in this area" (0) resulted in high scores reflecting high levels of failure in goal achievement. The items were:

1. Making good grades in school.
2. Graduating from college.
3. Getting the job I wanted after finishing school.
4. Graduating from High School.
5. Marrying the person I wanted to marry.
6. Making the amount of money I deserve.
7. Looking the way I want to look.
8. Having the social life that I want.
9. Being in a committed relationship with the person I wanted to be with.

10. Buying the car I want.

11. Buying the house I want.

Individual item means and standard deviations along with those for the composite measure of FAILGOAL are provided in Table 3.

Table 3: Failure to Achieve Positively Valued Goals - Perceptions of Successful Goal Achievement: Means and Standard Deviations

	Mean	Standard Deviation
Success - Making good grades in school (v14_62m).	2.23	1.02
Success - Graduating from college (v14_63m).	1.71	1.63
Success - Getting the job I wanted (v14_64m).	2.13	1.46
Success - Graduating from High School (v14_65m).	1.88	1.37
Success - Marrying the person I want to (v14_66m).	1.90	1.51
Success - Making the money I deserve (v14_67m).	2.65	1.27
Success - Looking the way I want to look (v14_68m).	2.52	1.10
Success - Having the social life I want (v14_69m).	2.82	1.09
Success - Being in a committed relationship with person I want (v14_70m).	1.93	1.26
Success - Buying the car I want (v14_71m).	2.37	1.36
Success - Buying the house I want (v14_72m).	2.33	1.54
Failure to achieve goals cummulative measure (FAILGOAL).	.00	7.15

The disjunction between the inputs an individual brings to a relationship and the perceived equity or justice of what is received in return is a form of strain that Agnew (1992) suggests may be the most relevant in producing a deviant response. Individuals are more likely to experience strain when they are under the perception that they gave more to a relationship or exchange than was received in return. Strain is less likely to occur when an individual gets back more than invested (Agnew 1992). Examples of this form of strain may include situations where the amount of time and effort an individual labors is considered to be greater than the buying power of the wage earned, the time and effort required to obtain and remain in a committed relationship with a desired person

may be great without ever achieving the desired result, or the time and effort to obtain a certain look or be accepted into a certain crowd and never achieving, or getting less in return once achieved. In this study, perceived fairness to obtain goals was measured by determining how fair the respondent believed his/her opportunities to achieve several common goals have been such as marriage or being in a committed relationship, obtaining a car or house, high school or college graduation, and a desired social life. Each item was prefaced with the statement "Fill in the bubble (Spanish version: Circle the number) that best represents how fair your opportunities have been to achieve the following." A four-response Likert format (0 – 4) ranging from "very fair" (1) to "not at all fair" (4) was used with a fifth response category of "no goals in this area" (0). The items were:

1. Graduating from high school.
2. Graduating from college.
3. Getting the job that I want.
4. Marrying the person I want to marry.
5. Making the amount of money I deserve.
6. Looking the way I want to look.
7. Having the social life that I want.
8. Being in a committed relationship with the person I wanted to be with.
9. Buying the car I want.
10. Buying the house I want.

High scores reflect high levels of perceived unfairness in opportunities to obtain goals. Individual item means and standard deviations along with those for the composite measure of FAIRGOAL are provided in Table 4.

Table 4: Failure to Achieve Positively Valued Goals - Perceptions of Fairness in Achieving Desired Goals: Means and Standard Deviations

	Mean	Standard Deviation
Fair - Graduating from high school (V14_73m).	1.6	1.15
Fair - Graduating from college (v14_74m).	2.0	1.26
Fair - Getting the job that I wanted (v14_75m).	1.8	1.52
Fair - Marrying the person I wanted to (v14_76m).	1.7	1.41
Fair - Making the money I deserve (v14_77m).	2.3	1.23
Fair - Looking the way I want to look (v14_78m).	2.3	1.16
Fair - Having the social life I want (V14_79m).	2.3	1.19
Fair - Being in a committed relationship with person I want (v14_80m).	1.8	1.21
Fair - Buying a car (v14_81m).	2.0	1.32
Fair - Buying a house (v14_82m).	2.0	1.48
Percieved fairness in achieving desired goals cummulative measure (FAIRGOAL).	.0	7.16

Loss of positively-valued stimuli – Stigmatization

Agnew (1992) argues that in attempts to prevent the anticipated or actual loss of positively-valued stimuli, individuals may resort to deviance to alleviate the negative affect being experienced from the strain. One form of positively-valued stimuli is social status and standing among peers and co-workers. As discussed, the loss of anonymity for PLWH/As is a great concern for many due to past history of discrimination and abuse associated with disease. In this study, loss of positively-valued stimuli was measured by determining how concerned the respondents were about the opinions of others in regard to their positive HIV/AIDS status. Each was prefaced with the statement "Fill in the

bubble (Spanish version: Circle the number) that best represents how strongly you agree or disagree with the following statements." A four-response Likert format (1 – 4) ranging from "strongly agree" (1) to "strongly disagree" (4) was used. The following questionnaire items were included:

1. I was concerned that others might think I was gay or lesbian if I sought HIV medical care.
2. I was concerned that somebody might find out that I have HIV if I went to a medical provider.
3. I was concerned that my family might think badly of me because I am HIV+.
4. I was concerned that my friends would think badly of me because I am HIV+.
5. I was concerned that other people would think badly of me because I am HIV+.
6. I was concerned that my spouse/partner would think badly of me because I am HIV+.

Items were reverse coded to create a measure of stigma in which high scores reflected high levels of perceived stigmatization. Individual item means and standard deviations along with those for the composite measure of STIGMA are provided in Table 5.

Table 5: Loss of Positively Valued Stimuli - Stigmatization: Means and Standard Deviations

	Mean	Standard Deviation
Concerned others might think gay/lesbian - Reverse (RE14_83m).	2.90	1.08
Concerned somebody find out that I have HIV - Reverse (RE14_84m).	2.56	1.17
Concerned family might think badly of me - Reverse (RE14_85m).	2.56	1.23
Concerned that friends would think badly of me - Reverse (RE14_86m).	2.22	1.10
Concerned others think badly of me - Reverse (RE14_87m).	2.17	1.03
Concerned spouse/partner think badly of me - Reverse (RE14_88m).	2.79	1.11
Concerns of Stigmatizatio cummulative measure - Reverse coded ZSTIGMA2).	.00	4.75

Presentation of Negative Stimuli – Negative Life Events

Agnew (1992) suggests that a third major category of strain is the actual or threatened presentation of noxious stimuli. Noxious stimuli may include events such as physical abuse, verbal threats and insults, pain, unpleasant side effects from medications, loss of intimate partner or friends, and abnormal changes in physical appearance, and negative interactions with primary care staff. The singular or cumulative experience of negative stimuli of this nature could increase the likelihood that individuals would experience such emotions as anger and depression. In an effort to reduce or eliminate the pressure caused by such negative affect, the individual is likely to respond with deviance if they lack the ability to utilize legitimate coping strategies. In this study presentation of negative noxious stimuli was measured by determining how many different stressful negative life events participants had experienced in their lifetime. For this measure the

following nine items were prefaced with the statement "Things happen in life to everyone. I would like for you to tell me if any of the following events ever happened to you and how much they bothered you. Fill in the bubble (Spanish version: Circle the number) that best represents how much the following bothered you." A four-response Likert format (1 – 4) ranging from "not at all" (1) to "bothered me quite a lot" (4) was used with a fifth response category of "did not occur" (0). Individual item scores will be summed to create a composite score of negative life events. The following questionnaire items were included:

1. Loss of family member through death.
2. Personal Divorce/Partner Separation.
3. Parents' Divorce.
4. Loss of friends through death.
5. Family members moved away.
6. I was physically abused.
7. I was sexually abused.
8. I moved away from family members and friends.
9. Close friend/partner moved away.

Individual item means and standard deviations along with those for the composite measure of NEGLIFE are provided in Table 6.

Table 6: Presentation of Noxious Stimuli - Negative Life Events: Means and Standard Deviations

	Mean	Standard Deviation
Loss of family member through death (v14_89m).	2.65	1.52
Personal divorce/partner separation (v14_90m).	.82	1.36
Parents divorce (v14_91m).	1.30	1.58
Loss of friends through death (v14_92m).	2.22	1.60
Family members moved away (v14_93m).	1.49	1.50
I was physically abused (v14_94m).	1.03	1.58
I was sexually abused (v14_95m).	1.06	1.60
I moved away from family members and friends (v14_96m).	1.70	1.61
Close friend/partner moved away (v14_97m).	1.43	1.60
Presentation of negative stimuli - cummulative negative life events (NEGLIFE).	.00	5.23

Composite Measure of Strain

Due to the small sample size and the large number of strain variables included in this study, a composite measure of strain (COMPSTR) was created by summing scores across the dimension specific measures discussed above which include FAILGOAL, FAIRGOAL, STIGMA and NEGLIFE. This strategy not only fits well with the recommendations made by Tabachnick and Fidell (2001) as a means of reducing the number of independent variables in the analysis, but also with the theoretical arguments made by Agnew (1992) regarding the construction of strain measures.

Emotional Responses to Strain

For Agnew (1992), deviance is only one response strategy that individuals may utilize to reduce the negative affect associated with strain. Among other conditioning factors such as social support and self-esteem, Agnew (1992) argues that the likelihood

that deviance will be employed increases when the individual lacks access to legitimate coping strategies. Anger is one of the main emotional coping strategies identified by Agnew as being important. Depression is another emotional form of coping that has been identified in tests of GST as being important to explaining inner-directed forms of deviant behavior (Sharp et al. 2001).

Anger. Using anger as a way of coping with stimuli or situations perceived to be negative was measured by determining the respondent's typical way of responding to noxious life events or stimuli. This is a measure of trait rather than situational anger (Capowich et al. 2001; Mazerolle et al. 2000). Each statement was prefaced with the statement "Now I would like to know a little about how you typically respond when bad things happen in your life. Please fill in the bubble (Spanish version: Please circle the number) that best represents how often you do the following." A four-response Likert format (1 – 4) ranging from "Never" (1) to "Almost Always" (4) was used. The following questionnaire items were included:

1. Blow up (i.e., yell, scream, make idle threats, say harsh things to others).
2. Take it out on others (i.e., punching, hitting, throwing things at them).
3. Take it out on other things (i.e., key a car, trash a room/apt., break something).

Factor analysis produced a single factor solution for the anger coping scale (ANGER) with an eigenvalue of 1.978 (second eigenvalue = .666); 65.9% of the total common variance was explained. The factor reflects a tendency to respond with anger to stimuli or situations perceived to be negative. The amount of item variance explained by the

common factor ranges from .508 to .755 with associated factor loadings ranging from .713 to .869 (Reliability, standardized alpha = .738, see Table 7).

Table 7: Emotional Response to Strain - Anger: Means, Standard Deviations and Factor Loadings

	Mean	Standard Deviation	Factor Loadings
Blow up (v14_103m).	2.09	.91	.713
Take it out on others (v14_104m).	1.41	.63	.869
Take it out on other things (v14_105m).	1.41	.70	.845

Reliability Analysis: standardized alpha = .738

Negative Emotions. Negative affective states were measured by determining the respondent's typical way of responding to noxious life events or stimuli. Each statement was prefaced with the statement "Now I would like to know a little about how you typically respond when bad things happen in your life. Please fill in the bubble (Spanish version: Please circle the number) that best represents how often you do the following." A four-response Likert format (1 – 4) ranging from "Never" (1) to "Almost Always" (4) was used. The following questionnaire items were included:

1. Withdraw (i.e., become quiet, withdrawn, don't talk much, feel bad inside).
2. Shutdown (i.e., stop regular routines with friends and family, spend most my time alone).
3. Cry (either alone or with other(s))
4. Drink alcohol or use some other drug.

Factor analysis produced a single factor solution for the negative emotions coping scale (NEGEMO) with an eigenvalue of 1.829 (second eigenvalue = .741); 60.9% of the total common variance was explained. The item "drink alcohol or use some other drug" failed

to achieve a factor loading of .40 or greater and was removed from the scale. The factor reflects a tendency to respond to stimuli or situations perceived to be negative with emotions such as withdrawing or crying and is used as a proxy for depression in this study. The amount of item variance explained by the common factor ranges from .474 to .737 with associated factor loadings ranging from .689 to .859. Reliability analysis indicated at marginally acceptable level of measurement reliability with a standardized item alpha of .676 (see Table 8).

Table 8: Emotional Response to Strain - Other Negative Emotions: Means, Standard Deviations and Factor Loadings

	Mean	Standard Deviation	Factor Loadings
Withdrawal (v14_106m).	2.88	.92	.786
Shutdown (v14_107m).	2.29	1.03	.859
Cry (v14_110m).	2.69	1.01	.689

Reliability Analysis: standardized alpha = .676

Other mediating/conditional variables.

Self-Esteem and Self-Efficacy. According to Agnew (1992), the effects of strain on negative affect are conditioned by personal characteristics or resources such as high levels of self-esteem and self-efficacy or mastery. In order to measure self-esteem and self-efficacy, thirteen items based on the work of Rosenberg (1965) and Pearlin and Schooler (1978) were used. Each statement was prefaced with the statement "Please fill in the bubble (Spanish Version: Circle the number) that best indicates how strongly you agree or disagree with the following statements." A four-response Likert format (1 – 4) ranging from "Strongly Agree" (1) to "Strongly Disagree"(4) was used. An asterisk at the beginning of the listed item indicates the item was reverse coded. The following questionnaire items were included:

1. There is no way I can solve some of the problems I have.
2. *I can do just about anything I really set my mind to.
3. *What happens to me in the future depends mostly on me.
4. *I feel that I am a person of worth, at least on an equal basis with others.
5. All in all, I'm inclined to feel that I am a failure.
6. *I am able to do things as well as most other people.
7. *I take a positive attitude toward myself.
8. I certainly feel useless at times.
9. There is no sense in planning a lot. If something good is going to happen, it will.
10. *I am responsible for my own successes.
11. *My misfortunes are the result of mistakes I have made.
12. *I am responsible for my failures.
13. Most of my problems are due to bad breaks.

All items were factor analyzed simultaneously to ensure that two unique concepts existed in the data. A principle components factor analysis using varimax rotation produced four factors with eigenvalues over 1.0. However a review of the scree plot revealed that the findings more adequately reflected a two factor solution with eigenvalues of 3.780 for the first factor and 2.404 for the second. In the final analyses items v14_120m, "There is no sense in planning a lot. If something good is going to happen it will", v14_124m "Most of my problems are due to bad breaks" and v14_112 "There is no way I can solve some of the problems I have" failed to obtain a minimum factor loading of .40 on either factor and were dropped from the analysis. Item z-scores for variables numbered 2, 3, 10, 11,

and 12 above were summed to create the self-efficacy scale (EFFICACY) (see Table 9 below). A second factor analysis of items found to be measuring self-efficacy produced a one factor solution with an eigenvalue of 2.728 (second eigenvalue = .767) and 54.567 percent of the total common variance explained. The amount of item variance explained by the common factor ranged from .424 to .687. The associated factors loadings ranged from .651 to .829 with a standardized alpha of .789 (see Table 9).

Table 9: Self-Efficacy and Self-Esteem: Means, Standard Deviations and Factor Loadings

	Mean	Standard Deviation	Factor Loadings
Self-Efficacy	.	.	
*There is no ay I can solve some of the problems I have (v14_112m).	2.08	0.93	---
I can do just about anything I really set my mind to (v14_113m).	3.18	0.76	0.665
What happens to me in the future depends mostly on me (v14_114m).	3.44	0.59	0.741
I am responsible for my own successes (v14_121m).	3.28	0.57	0.792
My misfortunes are the result of mistakes I have made (v14_122m).	3.02	0.94	0.651
I am responsible for my failures (v14_123m).	3.29	0.72	0.829
*There is no sense in planning alot. If something good is going to happe	2.60	0.92	---
*Most of my problems are due to bad breaks (v14_124m).	2.27	0.92	---
Self-Efficacy scale (EFFICACY)	15.69	2.82	
Self-Esteem			
I feel that I am a person of worth (v14_115m).	3.32	0.78	0.685
*All in all, I'm inclined to feel that I am a failure (v14_116m).	3.05	0.90	0.625
I am able to do things as well as most other people (v14_117m).	3.15	0.81	0.692
I take a positive attitude towards myself (v14_118m).	3.41	0.65	0.689
*I certainly feel useless at times (v14_119m).	2.77	0.91	0.774
Self-Esteem scale (ESTEEM)	16.21	2.62	

Reliability Analysis - Self-Efficacy: standarized alpha = .789; Self-Esteem: standardized alpha = .730

Item z-scores for variables numbered 4, 5, 6, 7 and 8 above were summed to create the self-esteem scale (ESTEEM) (see Table 9). A second factor analysis of items found to be measuring self-esteem produced a one factor solution with an eigenvalue of 2.413 (second eigenvalue = .947) and 48.264 percent of the total common variance explained. The amount of item variance explained by the common factor ranged from .391 to .599. The factor loadings for the self-esteem scale ranged from .625 to .774 with a standardized item alpha of .730. Item means, standard deviations and factor loadings are provided in Table 9.

Social Support: Additionally, the lack of adequate social support when experiencing difficulty can increase the likelihood that individuals will engage illegitimate coping strategies. Social support in the form of the provision or availability of goods and services, communication and open discussion, understanding, and closeness with family and friends was measured in both the patient interview and the self-administered survey. During the patient interview participants were asked to respond to six questions. Each item was prefaced with the statement "Please answer the following questions as they relate to you. Fill in the bubble that best represents your answer". Respondents were provided with three response options ranging from No, Somewhat, and Yes. Items scores ranged from 0 to 2 with No coded as 0, Somewhat as 1, and Yes as 2. The item scores from the six items listed below were dichotomized to 0 and 1 with values of 1 and 2 recoded to 1. The following questionnaire items were included:

1. Agency staff discuss my treatment at every visit.
2. I use the grocery pantry at VAC.
3. I am informed about community resources as I need them.
4. I have family support (from my spouse/partner/immediate family).
5. If needed, I have access to childcare.
6. I have easy access to transportation to go to VAC.

The second set of social support measures were collected on the self-administered patient survey. This set of four questions focused on the patient's level of perceived support from family and friends. Each item was prefaced with the statement "I would like to ask you some questions about your relationship with your family, friends and partner. Fill in the bubble (Spanish version: Circle the number) that best represents how strongly you

agree or disagree with the following statements." A four-response Likert format (1 – 4) ranging from "Strongly Agree" (1) to "Strongly Disagree" (4) was used. The following questionnaire items were included:

7. I feel close to my friends.
8. My friends are willing to listen if I have a problem.
9. My family understands me.
10. I feel I can confide in my family about virtually anything.

The original intent was to create two scales measuring the subjects perceived level of support from both health care providers and personal groups such as family and friends. Issues of sample size and item distributions required that this be reconsidered. Given that social support is an integral part of the GST theory and the issue is the presence of such support (Agnew 1992), it is argued here that a single additive measure of perceived social support in the form of goods, services and information, as well as forms of emotional and cognitive support meet the requirement set forth in the theory. The item scores from the four items listed above were dichotomized to 0 and 1 with values of 1 and 2 recoded to 1 and values of 3 and 4 coded to 0. The composite additive measure of social support (SUPPORT) was then created by summing the scores on the ten dichotomized questionnaire items. Individual item means and standard deviations along with those for the composite measure of SUPPORT are provided in Table 10.

Table 10: Social Support: Means and Standard Deviations

	Mean	Standard Deviation
Agency staff discuss my treatment at every visit (v13_102ynm).	.95	.21
I use the grocery pantry at VAC (v13_110ynm).	.90	.29
I am informed about community resources as I need them (v13_112ynm	.84	.36
I have family support (from my spouse/partner/immediate family (v13_ 119ynm).	.90	.29
If needed, I would have access to childcare (v13_127ynm).	.57	.50
I have easy access to transportation to go to VAC (c13_130ynm).	1.00	.00
I feel close to my friends (v14_23ynm).	.74	.44
My friends are willing to listen if I have a problem (v14_24ynm).	.73	.44
My family understands me (v14_28ynm).	.90	.29
I feel I can confide in my family about virtually anything (v14_29ynm).	.78	.41
Composite Social Support (SUPPORT).	8.33	1.59

Dependent Variables

Non-Adherence

In order to establish comparability to previous work in the field, treatment adherence in this study is defined as the extent to which an individual's behavior coincides with a behavioral and attitudinal plan developed with his/her primary care provider(s). Such behavior includes taking medications, following dietary requirements and making lifestyle changes (Cederfjäll et al. 2002; Nieuwkerk et al. 2001). At present, there is a lack of consensus on the measurement of adherence due to the imprecision of measurement tools currently available. Table 11 provides a list of the most common methods used to measure patient adherence to HIV/AIDS medical and dietary treatment regimens with the associated strengths and weaknesses for each measure. Investigators currently recommend that multiple measures be used in studies of adherence including self-report and other more objective measures such as biological or biochemical data

(Murri et al. 2000; Simoni et al. 2003). Therefore, measurements for adherence in this study include self-report and pill count. Given that a standard self-report instrument for monitoring either medication adherence or behavioral adherence has not been adopted by investigators in the field, instruments developed by the U.S.-Mexico Border HIV/AIDS Collaborative and medical staff at the study site were be utilized.

Table 11: Common Methods of Measuring Adherence to HIV/AIDS Treatment Regimens

METHOD	STRENGTHS	WEAKNESSES
Directly Observed Therapy (DOT)	• Theoretically associated with 100% accuracy. • Can be used for a limited time for patients who are predicted to have problems with adherence.	• Highly labor intensive, impractical outside institutional or residential settings and/or for regimens that require more than once or twice daily dosing
Electronic Pill Bottle monitoring (e.g., Medication Event Monitoring System (MEMS))	• Considered to be among one of the most accurate measures	• Costly ($80.00 - $100.00 per cap) • Can be circumvented by patients who can remove more than one dose at each opening. • Use usually limited to research settings. • Considered to underestimate adherence
Patient self-report	• Types include interviews, surveys and diaries. • Convenient and inexpensive. • Highly correlated with increased levels of plasma HIV and viral load.	• Less accurate than objective measures. • Accuracy can be improved by collecting longitudinally and average across time. • Considered to overestimate adherence • No standard established on questions
Pill counts	• May be more accurate than self-report.	• Labor intensive, although less so than Direct Observation. • Considered to overestimate adherence
Plasma drug testing	• Objective measure of adherence.	• Useful only if the pharmacokinetic profile of an agent is well defined. • Cannot discern whether patient is taking medication only right before blood sample is obtained and omitting other doses.
Pharmacy records/prescription refill monitoring	• The standard assay used for assessing treatment success or failure.	• Not a primary measure of adherence. • Can be an objective adherence measure when used in combination with patient self report.
Clinician Report	• Convenient and inexpensive.	• Considered one of the least accurate • Tend to overestimate adherence • Tend to inadequately detect poor adherence with inaccuracy associated with higher CD4 count nadir.

Reproduced and adapted with permission from: Bartlett, John A. 2002. "Addressing the Challenges of Adherence." *Journal of Acquired Immune Deficiency Syndromes* 29:S2-S10. Additional sources of information:(Ammassari et al. 2002; Miller et al. 2002; Wagner and Rabkin 2000)

Medical: Self-report level of adherence to prescribed medication regimens was ascertained by asking clients to indicate "the extent to which you have adhered to the prescribed treatment since your last visit." The subjects were asked to provide a percentage that best described their overall level of adherence from 100% (excellent) to 0% (not at all). During the patient interview, the project nurse reviewed the patient's treatment plan and counted the number of remaining pills for each of his or her prescribed medications. The nurse then divided the number of remaining medications minus the number needed for the remaining time in the treatment cycle by the total that should have been taken during the treatment cycle and multiplied by 100 to obtain a percentage for the overall level adherence during that treatment cycle. The author then took the average of these two measures to create a measure of average adherence (ADHERENCE) to be used in this study. The item means and standard deviations for the self-report, pill count, and averaged measures of adherence are provided in Table 12. Given that this measure is a positive continuous interval level measure of adherence as opposed to non-adherence, care will be taken in the results and discussion section to ensure the appropriate reporting and interpretation of findings.

Table 12: Average Level of Adherence to Antiretroviral Medications: Means and Standard Deviations

	Mean	Standard Deviation
Adherence level by pill count (v13_26m).	90.87	15.57
Adherence level by self report (v13_27m).	94.30	11.92
Avg level of medication adherence (ADHERENCE).	92.59	13.26

Risk Behavior: In order to measure the respondent's participation in high-risk behavior, the Risk Factors module used to collected multi-site data for the SPNS Border Health initiative was modified for use in this study as a self-report measure (U.S.-Mexico Border HIV/AIDS Collaborative 2003). Participants were asked to respond to 13 items regarding personal involvement in AIDS risk-behavior. Each item was prefaced with the statement "Please fill in the bubble (Spanish version: Please circle the number) that best indicates how often in the PAST YEAR you have done any of the following things." A four-response Likert format (1 – 4) ranging from "Never" (1) to "Always" (4) was used. All items were recoded so that high scores indicate higher levels of risk-behavior. The following items were included:

1. Had unprotected sex with males.
2. Had unprotected sex with females.
3. Had unprotected sex with someone that is an intravenous drug user or shoots up.
4. Exchanged sex for money or drugs.
5. Threatened or forced another person to have sex with you.
6. Were threatened or forced by someone else to have sex with them.
7. Had unprotected sex with a person who has HIV/AIDS.
8. Shared a rig with someone to shoot up.
9. Received a blood transfusion in Mexico.
10. Used alcoholic beverages.
11. Used Heroin.
12. Used Cocaine and/or Crack.

13. Used other illegal drugs.

Because I am more concerned here with involvement in a variety of HIV/AIDS related risk-behaviors and have no expectation that these items will form an overriding measure of risk-behaviors, a composite additive measure of HIV/AIDS risk-behaviors (RISKBEH) was created by summing across z-scores for the items listed above. Table 13 provides item means and standard deviations for each of the risk-behavior items listed above and for the composite measure of HIV/AIDS risk-behavior. Higher scores reflect a higher frequency of involvement in a multitude of risk-behaviors during the past year with low scores reflecting a lower frequency of involvement in fewer risk-behaviors.

Table 13: Invovlement in HIV/AIDS Risk-Behavior: Means and Standard Deviations

	Mean	Standard Deviation
Had unprotected sex with males (v14_125m).	1.48	.91
Had unprotected sex with females (v14_126m).	1.37	.81
Had unprotected sex with someone that is IDU or shoots up (v14_127m).	1.16	.64
Exchanged sex for money or drugs (v14_128m).	1.24	.67
Threatened or forced another person to have sex with you (v14_129m).	1.14	.63
Were threatened or forced by someone else to have sex with them (v14_130m).	1.20	.73
Had unprotected sex with a person who has HIV/AIDS (v14_131m).	1.31	.74
Shared a rig with someone to shoot up (v14_132m).	1.19	.72
Received a blood transfusion in Mexico (v14_133m).	1.19	.65
Used alcoholic beverages (v14_134m).	1.49	.70
Used heroin (v14_135m).	1.18	.72
Used cocaine and/or crack (v14_136m).	1.28	.71
Used other illegal drugs (v14_137m).	1.33	.76
Engaged in risk behaviors in past year cummulative sum of zscores (RISKBEH).	.00	9.55

Control Variables

Sociodemographic Variables

Sociodemographic data used as controls in this study include gender, marital status, and age. Overall, the research in the area of adherence has produced inconsistent findings on the association between most sociodemographic measures and medication adherence (Ammassari et al. 2002; Holzemer et al. 1999). However, most of the past research has been atheoretical. It is possible that the effect of sociodemographic measures such as age, gender and marital status may have indirect contributions to the occurrence of behavioral and medical non-adherence through their effects on strain and informal social control. In addition, Mazerolle and Piquero (1998: 209) argue that "inconsistent knowledge exists concerning the ability of GST to explain crime and delinquency across different social groups based on gender, age and ethnicity." Therefore, in order to further scientific knowledge and understanding of the complex relationship that exists in non-adherence, sociodemographic information on age, gender, and marital status were collected.

AGE was measured by calculating current age in years using the date the study began and the client's date of birth reported at intake ($\bar{X}$ =39.04, *s*= 9.83). Gender was originally coded into six response categories which included male, female, transgender male to female, transgender female to male, refused and unknown. However, all of the respondents self-identified as being either male (n=48, 72.7%) or female (n=18, 27.3%). Thus, for the purposes of this study gender was dummy coded into MALE (males = 1 and all others = 0). Because the overwhelming majority of subjects reported being currently married or living with someone in a committed relationship (n=32, 48.5%) or single

(n=22, 33.3%), the original eight category measure of current marital status collected at intake were dummy coded into MARRIED (married and/or committed relationship=1 and all others = 0). Table 14 provides means and standard deviations for each of the demographic measures included in the study.

Table 14: Socio-demographic Measures: Means and Standard Deviations

	Mean	Standard Deviation
Age in Years from date of (AGE)	39.05	9.83
MALE	.73	.45
Married or living with someone in a committed relationship (MARRIED)	.48	.50

Self-Control and Informal Social Control

Although the focus of this study is not to test Gottfredson and Hirschi's (1990) theory of self-control or Sampson and Laub's (1993) life course theory, it is important to control for key variables that are regarded to be significant predictors of deviant behavior including self-control, and informal social control.

Self -control

The self-control scale developed by Grasmick et al. (1993) was used in this study. The scale uses 24 items to measure the six subcomponents of the unidimensional latent trait of self-control (Arneklev, Grasmick and Bursik 1999; Gottfredson and Hirschi 1990). Although there is controversy in the field regarding the unidimensionality of both self-control as defined by Gottfredson and Hirschi in general and Grasmick et. al's Self-Control scale in particular (Arneklev et al. 1999; Longshore, Stein and Turner 1998; Longshore, Turner and Stein 1996; Marcus 2003; Piquero and Rosay 1998), there is

sufficient support for the measure, as well as a lack of a well-tested alternative, to justify its use in this study as a control.

The subcomponents of self-control include impulsivity, preference for simple tasks, risk seeking, preference for physical activity, self-centeredness, and temper. These six components were measured by determining the respondents preferred way of completing tasks or functioning in life. Self-control items were prefaced with the statement "Next, I am going to ask you some questions about how you like to do things. Fill in the bubble (Spanish version: Please, circle the number) that best represents how strongly you agree or disagree with the following statements." A four-response Likert format (1 – 4) ranging from "Strongly Agree" (1) to "Strongly Disagree" (4) was used. The following questionnaire items were included:

a. Impulsivity

1. I often act on the spur of the moment without stopping to think.
2. I don't devote much thought and effort to preparing for the future.
3. I often do whatever brings me pleasure here and now, even at the cost of some distant goal.
4. I'm more concerned with what happens to me in the short run than in the long run.

b. Preference for Simple Tasks

5. I frequently try to avoid projects that I know will be difficult.
6. When things get complicated, I tend to quit or withdraw.
7. The things in life that are easiest to do bring me the most pleasure.
8. I dislike really hard tasks that stretch my abilities to the limit.

c. Risk-Seeking

9. I like to test myself every now and them by doing something a little risky.
10. Sometimes I will take a risk just for the fun of it.
11. I sometimes find it exciting to do things for which I might get in trouble.
12. Excitement and adventure are more important to me than security.

d. Preference for Physical Activity

13. If I had a choice, I would always do something physical than mental.
14. I almost always feel better when I am on the move than when I am sitting and thinking.
15. I like to get out and do things more than I like to read or contemplate ideas.
16. I seem to have more energy and a greater need for activity than most other people at my age.

e. Self-Centeredness

17. I try to look out for myself first, even if it means making things difficult for other people.
18. I'm not very sympathetic to other people when they are having problems.
19. If things upset people, it's their problem, not mine.
20. I will try to get things I want even when I know it's causing problems for other people.

f. Temper

21. I lose my temper pretty easily.

22. Often when I am angry at people I feel more like hurting them than talking to them about why I'm angry.
23. When I'm angry, other people better stay away from me.
24. When I have a serious disagreement with someone, it's usually hard for me to talk calmly about it without getting upset.

Principle components factor analysis was used to assess the dimensionality of the measure as recommended originally by the scale designers (Arneklev et al. 1999; Arneklev et al. 1993; Gottfredson and Hirschi 1990; Grasmick et al. 1993). This analysis produced five factors with eigenvalues over 1.0 instead of the predicted six. In line with Grasmick et. al.'s argument for a unidimensional solution, a review of the scree plot revealed that the findings more adequately reflected a one factor solution with eigenvalues of 6.638 for the first factor and 2.718 for the second. A second analysis was conducted for a one factor solution. Given the need to retain theoretical face validity and as many individual item indicators as possible when using factor analysis with small samples, it was determined to lower the cutoff score for size of factor loadings to .30 or higher for this scale (Mundfrom, Shaw and Ke 2005; Tabachnick and Fidell 2001). Additionally, measurement reliability was not negatively affected by the inclusion of the individual items with factor loadings between .30 and .40. Lowering the cutoff point to a factor loading of .30 or greater allowed the author to retain all but two of the original items. Both items "I like to test myself every now and them by doing something a little risky" and "I seem to have more energy and a greater need for activity than most other people at my age" failed to obtain a factor load of .30 or better and were dropped from the analysis. It should be noted that in the original test of the Grasmick self-control scale

Table 15: Unidimensional Self-Control Scale: Means, Standard Deviations and Factor Loadings

	Mean	Standard Deviation	Factor Loading
I often act on the spur of the moment without stopping to think (v14_38m).	2.54	0.96	0.619
I don't devote much thought and effort to preparing for the future (v14_39m).	2.70	0.89	0.502
I often do whatever brings me pleasure here and now, even at the cost of some distant goal (v14_40m).	2.71	0.94	0.697
I'm more concerned with what happens to me in the short run than in the long run (v14_41m).	2.51	0.98	0.707
I frequently try to avoid projects that I know will be difficult (v14_42m).	2.38	0.85	0.443
When things get complicated, I tend to quit or withdraw (v14_43m).	2.50	0.92	0.387
The things in life that are the easiest to do bring me the most pleasure (v14_44m).	2.49	0.90	0.560
I dislike really hard tasks that stretch my abilities to the limit (v14_45m).	2.66	0.85	0.608
I like to test myself every now and then by doing something a little risky (v14_46m).	2.38	0.89	----
Sometimes I wll take a risk just for the fun of it (v14_47m).	2.92	0.93	0.522
I sometimes find it exciting to do things for which I might get in trouble (v14_48m).	3.23	0.82	0.608
Excitement and adventure more important to me than security (v14_49m).	3.27	0.79	0.615
If I had a choice, I would always do something physical than mental (v14_50m).	2.63	0.88	0.612
I almost always feel better when I am on the move than when I am sitting and thinking (v14_51m).	1.98	0.92	0.301
I like to get out and do things more than I like to read or contemplate ideas (v14_52m).	2.06	0.91	0.388
I seem to have more energy and a greater need for activity than most other people at my age (v14_53m).	2.08	0.81	---
I try to look out for myself first, even if it means making things difficult for other people (v14_54m).	2.91	0.96	0.610
I'm not very sympathetic to other people when they are having problems (v14_55m).	3.14	0.84	0.413
If things upset people, it's their problem, not mine (v14_56m).	2.91	0.91	0.413
I will try to get things I want even when I know its causing problems for other people (v14_57m).	3.29	0.63	0.338
I lose temper pretty easily (v14_58m).	2.91	0.84	0.547
Often when I am angry at people I feel more like hurting them than talking to them about why I am angry (v14_59m).	3.15	0.88	0.626
When I'm angry, other people better stay away from me (v14_60m).	2.78	0.97	0.692
When I have a serious disagreement with someone, it's usually hard for me to talk calmly about it without getting upset (v14_61m).	2.84	0.93	0.534
Unidimensional scale of self control (SECONTROL).	60.51	10.50	

Reliability Analysis: Standardized Alpha = .881

these same items were either dropped from the scale ("I seem to have more energy and a greater need for activity than most other people at my age") or failed to obtain a minimal factor loading of .30 ("I like to test myself every now and them by doing something a little risky") (Grasmick et al. 1993).

The associated factor loadings range from .301 to .707 with a standardize alpha from the reliability analysis of .881. The final scale was constructed by summing across the z-scores for the remaining items listed above. Values on the final self-control scale (SECONTROL) were recoded so that high scores on the scale represent high levels of low self-control. See Table 15 for a listing of the individual item means, standard deviations and factor loadings, as well as the overall scale mean and standard deviation.

Closer scrutiny of the dropped items suggests that a health-related bias may be embedded in at least one of these questions resulting in a measurement of something other than low self-control. For example, the nature of HIV/AIDS and its associated medications often limit the nature and extent of physical and mental activity that PLWH/As can engage in. The statement "I seem to have more energy and a greater need for activity than most other people at my age" assumes a choice or that it is not physically painful or impossible to engage in such activities.

Opportunity. According to Gottfredson and Hirschi (1990) an individual possessing the low self-control trait is still not likely to deviate without having opportunities to engage in acts of deviance present themselves. For the purposes of this study, the author is interested in creating an opportunity measure that simply reflects increased opportunity to engage in known HIV/AIDS risk-behaviors and does not expect the final measure to represent an overall construct of deviant opportunities. Therefore, a

composite score of HIV/AIDS transmission opportunities (OPPORT) was developed by summing z-scores for the items listed below.

1. Have sex with someone other than your spouse/partner?
2. Have sex with a prostitute or paid sex worker?
3. Share a rig with someone to shoot up?
4. Get something you wanted by threatening to use force against another person?
5. Exchange sex for drugs or money?

Opportunity items were prefaced with the statement "Please fill in the bubble (Spanish version: Please, circle the number) that best indicates how often in the past year you have had the opportunity to do any of the following things." A four-response Likert format (1 – 4) ranging from "Never" (1) to "Almost Always" (4) was used, with high scores reflect greater opportunity. Item means and standard deviations as well as those for the composite scale are provided in Table 16. The final additive measure was created by summing across the z-scores of the questionnaire items listed above.

Table 16: Opportunities to Engage in HIV/AIDS Risk-Behaviors: Means and Standard Deviations

	Mean	Standard Deviation
Have sex with someone other than your spouse/partner (v14_98m)?	1.56	.88
Have sex with a prostitute or paid sex worker (v14_99m)?	1.21	.60
Share a rig with someone to shoot up (v14_100m)?	1.00	.00
Get something you wanted by threatening to use force against another person (v14_101m)?	1.00	.00
Exchange sex for drugs or money (v14_102m)?	1.03	.17
Opportunities to engage in HIV/AIDS risk behaviors - composite measure (OPPORT).	.00	1.77

Informal Social Control

The determination to include measures of attachment to spouse/partners as a source of informal social control was based on the findings from Sampson and Laub (1993) in their re-analysis of the original Glueck data, Sharp's (1998) study of female IDUs, as well as a growing literature regarding Hispanic culture, the lifestyles of MSM, and HIV/AIDS adherence. Measures of attachment were modeled after those used by Elliott et al. (1983) and Godwin and Scanzoni (1989). The measure of marital attachment was modified to include partners. Attachment to spouse/partner was measured by asking respondents to reply to four items (Godwin and Scanzoni 1989). Each statement was prefaced with the statement "I would like to ask you some questions about your relationship with your family, friends and partner. Fill in the bubble (Spanish version: Circle the number) that best represents how strongly you agree or disagree with the following statements." A four-response Likert format (1 – 4) ranging from "Strongly Agree" (1) to "Strongly Disagree" (4) was used. All items were recoded so that high scores indicate higher levels of attachment. The following questionnaire items were included:

1. I want to feel that my spouse/partner is a part of me.
2. If I were lonely, my first thought would be to seek my spouse/partner out.
3. If I could never be with my spouse/partner, I would really miss him/her.
4. It would be hard for me to get along without my spouse/partner.

Factor analysis produce a single factor solution for the spouse/partner attachment scale (SPATT) with an eigenvalue of 2.334 (second eigenvalue .446) and 77.80% of the total common variance explained. The associated factor loadings range from .836 to .923 with

a standardize alpha from reliability analysis of .856. Reliability analysis indicated that the standardized alpha could be improved by removing the item "It would be hard to get along without my spouse/partner" from equation. Therefore, this item was not included in the final spousal/partner attachment scale. Z-scores were summed across the remaining items to create the final scale. Table 17 provides a list of item means, standard deviations and factor loadings, as well as the scale mean and standard deviation.

Table 17: Attachment to Spouse/Partner: Means, Standard Deviations and Factor Loadings

	Mean	Standard Deviation	Factor Loading
I want to feel that my spouse/partner is a part of me (v14_03m).	1.49	.79	.887
If I were lonely, my first thought would be to seek my spouse/partner out (v14_04m).	1.80	.96	.838
If I could never be with my spouse/partner, I would really miss him/her (v14_06m).	1.55	.79	.924
Spouse/partner attachment scale (ZSPATT346b).	.00	2.65	---

Reliability Analysis: Standardized Alpha=.859

CHAPTER V

Data Analysis

Plan of Analyses

This study was a preliminary test of the utility of GST in explaining non-adherence to antiretroviral treatment regimens and involvement in HIV/AIDS risk-behavior. More specifically, Ordinary Least Squares (OLS) regression analysis was used to test the hypotheses presented at the end of Chapter III. According to Agnew (1992) individuals are *"pressured into delinquency by the negative affective states—most notably anger and related emotions"* (p. 49). Therefore, I began the analysis by reviewing the bivariate correlation matrix for all variables included in the study, not only to identify preliminary relationships in the data, but also to detect any problems with collinearity. I then examined the relationship between anger and each form of strain, including a composite measure of strain, controlling for the effects of selected demographic measures (i.e., age, marital status, and gender). This was followed by an analysis of the relationship between negative emotionality and each form of strain using the same control measures as above. Self-esteem, self-efficacy and social support were added to each equation to test for the moderating effects of these variables on relationships between composite strain and the negative affective states of anger and negative emotion. Due to the need to preserve degrees of freedom and in line with Agnew's argument that the effects of strain are cumulative, only the composite measure of strain was included in analyses from this point forward.

In the next set of analyses I explored Agnew's (1992) argument that individual forms of coping such as self-esteem and self-efficacy moderate the effects of strain on negative affective states resulting in a reduced likelihood of risk-behavior and high levels of adherence. This was tested by regressing involvement in risk-behavior and adherence on negative affective states, strain, self-esteem, self-efficacy, social support and cross-product terms for composite strain by each personal coping resource, controlling for the effects of selected demographics. Not only does Agnew argue that personal coping resources condition an individual's sensitivity to strain, he suggest that these resources may condition an individual's actual response to experienced negative affect (Agnew 1992). In others words, personal coping resources may condition both the relationship between strain and experienced negative affect and the relationship between negative affect and involvement in deviant behavior. Therefore, the last set of analyses was repeated with the addition of cross-product terms for anger and negative emotion by each personal coping resource.

In order to retain a minimum of 50 degrees of freedom in each analysis, cross-product terms that failed to achieve a minimum of a .10 level of significance were excluded from inclusion in further examinations. In the initial equations that included cross-product terms for both forms of moderating effects, marital status was also excluded from the analysis to ensure adequate degrees of freedom. Finally, I regressed risk-behavior and adherence on negative affective states, strain, personal coping resources, and significant cross-product terms controlling for the effects of partner attachment, low self-control, deviant opportunity and selected demographics.

Bivariate Correlations

Results from the bivariate correlation analysis for all the variables used in this study are presented in Table 18. There were a number of associations of note. An important finding for the study was the positive relationship between negative emotion and risk-behavior (.267, p=.030). The lack of a significant association between treatment adherence and risk-behavior with any of the measures of strain used in the study does not preclude the presence of significant conditioning effects. In fact, the significant negative associations between negative emotion (-.292, p=.017) and anger (-.357, p=.003) with self-esteem and the positive association between risk-behavior and self-efficacy (.238, p=.054) indicate that this is still a viable possibility.

Although supportive of possible conditioning effects, the positive association between involvement in risk-behavior and self-efficacy was contrary to the hypothesized direction of the relationship. Although the composite measure of strain used throughout the study was not associated with measures of negative affect or personal coping resources, stigma was negatively associated with anger (.290, p=.018) and goal failure was negatively associated with self-esteem (-.273, p=.027). Given the similarities between the items used to create the measures of deviant opportunity and risk behavior, the lack of a significant between the two is surprising. This may due to the low frequency of participation in the items shared across both measures.

Table 18: Bivariate Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Married (MARRIED)	(1)	1																	
Age (AGE)	(2)	-0.020	1																
Male (MALE)	(3)	-0.019	-0.015	1															
Negative Events (NEGLIFE)	(4)	***-0.511******	0.169	0.003	1														
Anger (ANGER)	(5)	0.018	-0.035	0.061	-0.095	1													
Negative Emotion (NEGEMO)	(6)	-0.077	-0.076	-0.119	0.144	***0.304****	1												
Self-Efficacy (EFFICACY)	(7)	0.051	***-0.385******	0.037	-0.190	-0.020	-0.017	1											
Self-Esteem (ESTEEM)	(8)	-0.066	-0.197	***-0.281****	-0.207	***-0.357****	***-0.292****	***0.353****	1										
Social Support (SUPPORT)	(9)	0.068	0.059	-0.053	-0.084	-0.130	-0.122	-0.032	0.152	1									
Goal Failure (GOALFAIL)	(10)	-0.112	-0.080	0.087	0.221	0.094	0.225	-0.208	***-0.273****	-0.120	1								
Goal Fairness (GOALFAIR)	(11)	-0.039	-0.072	-0.092	0.095	0.103	0.048	-0.136	-0.154	-0.101	***0.589******	1							
Stigma (STIGMA)	(12)	0.123	0.112	-0.146	-0.003	***-0.290****	-0.173	0.190	***0.280****	0.146	***-0.326****	***-0.290****	1						
Composite Strain (COMPSTR)	(13)	-0.228	0.024	-0.051	***0.537******	-0.033	0.135	-0.183	-0.201	-0.096	***0.787******	***0.752****	0.024	1					
Deviant Opportunity (OPPORT)	(14)	-0.140	0.038	***0.347****	0.052	0.170	-0.006	-0.034	-0.114	***-0.276****	0.206	0.162	***-0.281****	0.112	1				
Low Self-Control (SECONTROL)	(15)	0.182	-0.030	0.053	-0.155	***0.324****	-0.017	0.165	***-0.315****	-0.117	-0.122	-0.072	-0.100	-0.192	0.161	1			
Partner Attachment (SPATT)	(16)	***0.320****	-0.079	-0.098	-0.127	0.079	0.051	-0.009	-0.088	-0.103	0.161	0.017	0.073	0.068	-0.088	0.104	1		
Risk Behavior (RISKBEH)	(17)	-0.018	-0.119	***0.261****	-0.090	0.015	***0.267****	0.238	0.051	0.174	-0.034	-0.136	-0.047	-0.137	-0.009	-0.114	-0.162	1	
Medical Adherence (ADHERENCE)	(18)	-0.027	***0.308****	-0.087	0.057	-0.200	-0.094	-0.182	0.014	0.231	0.052	0.096	0.161	0.152	-0.055	***-0.306****	0.178	***-0.251****	1

* p = .05 ** p = .01 *** p = .001

Hypothesis 1 and 2

The first set of analyses test the hypotheses that 1) strain will be positively related to negative affective states, and 2) the impact of strain on negative affective states will be conditioned by self-efficacy, self-esteem and social support. This was accomplished by regressing anger and negative emotion on each form of strain controlling for selected demographics (male, age, and married). Table 19 and 20 provide the results from this series of tests with Model 1 in both tables representing the equation with goal failure as the measure of strain, Model 2 represents the equation for goal fairness, Model 3 the equation for stigma, Model 4 the equation for negative events and Model 5 the equation for composite strain. Findings from this first series of regression analyses do not provide support for the postulate that strain is positively related to negative affective states. A statistically significant positive relationship was not found between the any of the five measures of strain and the negative affective states examined in this study.

Table 19: Unstandarized OLS Regression of Anger on Composite Strain and Individual Component Measures of Strain Controlling for Marital Status, Age and Gender (standardized coefficients in parentheses)

Dependent Variable	Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
		(Goal Failure)	(Goal Fairness)	(Stigma)	(Negative Events)	(Composite Strain)
Anger						
	Married	0.136	0.109	0.261	-0.187	0.058
		(0.028)	(0.023)	(0.054)	(-0.039)	(0.012)
	Age	-0.065	-0.063	-0.002	-0.039	-0.081
		(-0.027)	(-0.026)	(-0.001)	(-0.016)	(-0.033)
	Male	0.288	0.383	0.102	0.326	0.320
		(0.053)	(0.071)	(0.019)	(0.060)	(0.059)
	Strain	0.031	0.037	***-0.151****	-0.052	-0.005
		(0.091)	(0.109)	(-0.294)	(-0.112)	(-0.027)
	Adj. R^2 =	-0.052	-0.048	0.028	-0.05	-0.059

†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

Table 20: Unstandarized OLS Regression of Negative Emotion on Composite Strain and Individual Component Measures of Strain Controlling for Marital Status, Age and Gender (standardized coefficients in parentheses)

Dependent Variable	Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
		(Goal Failure)	(Goal Fairness)	(Stigma)	(Negative Events)	(Composite Strain)
Negative Emotion						
	Married	-0.255	-0.368	-0.271	-0.058	-0.247
		(-0.055)	(-0.079)	(-0.058)	(0.002)	(-0.053)
	Age	-0.143	-0.180	-0.138	-0.059	-0.190
		(-0.061)	(-0.077)	(-0.059)	(-0.105)	(-0.081)
	Male	-0.732	-0.620	-0.768	-0.147	-0.600
		(-0.141)	(-0.119)	(-0.147)	(-0.121)	(-0.115)
	Strain	***0.074*** †	0.009	-0.089	-0.181	0.020
		(0.226)	(0.028)	(-0.181)	(0.163)	(0.119)
	Adj. R^2 =	0.016	-0.036	-0.004	-0.017	-0.023

† p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

Stigma (b=-.151, p = .022) proved to be the only measure of strain significantly related to either of the measures for negative affect at the .05 level. Contrary to Hypothesis 1, the statistically significant relationship between anger and stigma was negative suggesting that as concerns of stigma increased the likelihood of responding with anger decreased. On the other hand, the relationship between goal failure (b=.074, p=.074) and negative emotion was in the predicted direction and approached statistical significance at the .05 level.

Hypothesis II argues that the impact of strain on negative affect will be conditioned by self-efficacy, self-esteem, and social support. A moderating or buffering variable such as the one proposed here is a variable that "weakens the effect of the predictor variable on the outcome" (Frazier, Tix and Barron 2004 :117-118) and maybe "introduced when there is an unexpected weak or inconsistent relation between a predictor and a criterion variable" (Baron and Kenny 1986:1187). A formal test for moderating relationships includes the addition of interaction terms in the regression equation (Baron and Kenny 1986; Frazier et al. 2004), therefore cross-product terms were created for composite strain by each coping resource (i.e., self-esteem X composite strain,

self-efficacy X composite strain, and social support X composite strain). In Model 1, anger is regressed on composite strain, self-efficacy, self-esteem and social support controlling the effects of selected demographics. In Model 2, this analysis is repeated with the addition of interaction terms to test for significant moderating effects.

Table 21: Unstandarized OLS Regression of Anger on Composite Strain, Personal Coping Resources and Coping Resources/Composite Strain Interactions (standardized coefficients in parentheses)

Dependent Variable	Independent Variable	Model 1	Model 2
		With Coping Resources	With Strain X Coping Moderators
Anger	**Married**	-0.207	-0.458
		(-0.043)	(-0.095)
	Age	-0.207	-0.284
		(-0.085)	(-0.117)
	Male	-0.427	-0.532
		(-0.079)	(-0.098)
	Self-Efficacy	0.055	0.073
		(0.083)	(0.110)
	Self-Esteem	***-0.311****	***-0.382****
		(-0.443)	(-0.545)
	Social Support	-0.166	-0.098
		(-0.068)	(-0.040)
	Composite Strain	-0.022	-0.019
		(-0.126)	(-0.106)
	Self-Esteem X Comp. Strain	---	0.011
		---	(0.209)
	Self-Efficacy X Comp. Strain	---	-0.003
		---	(-0.070)
	Soc. Support X Comp. Strain	---	-0.011
		---	(-0.046)
	Adj. R^2 =	0.067	0.052

†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

Findings from regression analysis (see Table 21) of anger on composite strain, personal coping resources and the three interactions terms indicate that Hypothesis 2 was not supported. As seen in Model 2, the interactions terms of self-esteem X composite strain (b-.011), self-efficacy X composite strain (b=-.003), and social support X

composite strain (b=-.011) were not significantly related to the individual's tendency to respond to difficult situations with anger. A significant negative direct effect was found between self-esteem and anger in both Model 1 (b=-.311, p=.003) and Model 2 (b=-.382, p=.002). This finding indicates that as an individual's level of self-esteem increases, they have less anger (Sharp et al. 2005). This relationship is in the postulated direction but does not condition the relationship between composite strain and anger.

The preceding analyses were repeated to test for the presence of moderating effects on the relationship between composite strain and negative emotion (see Table 22). Model 1 represents the regression of negative emotion on composite strain, self-efficacy, self-esteem and social support controlling for select demographics. Model 2 represents the same regression equation with the addition of the three interactions terms for the predicted moderating effects. The results from this set of equations were similar to those for anger and failed to provide support for Hypothesis 2. The interactions terms of self-esteem X composite strain (b=.001), self-efficacy X composite strain (b=.009), and social support X composite strain (b=-.026) were not significantly related to the individual's tendency to respond to difficult situations with negative emotion. As with anger, a significant negative effect was found between self-esteem and negative emotion in both Model 1 (b=-.278, p=.005) and Model 2 (b=-.291, p=.011) indicating that as the individual's levels of self-esteem increases, their negative emotion decreases. In Model 2 of this analysis, being male (b=-1.367. p=.046) had a statistically significant negative relationship to negative emotion suggesting that the likelihood of responding to difficult situations with negative emotion decreased for males.

Table 22: Unstandarized OLS Regression of Negative Emotion on Composite Strain, Personal Coping Resources and Coping Resources/Composite Strain Interactions (standardized coefficients in parentheses)

Dependent Variable	Independent Variable	Model 1	Model 2
		With Coping Resources	With Strain X Coping Moderators
Negative Emotion	**Married**	-0.487	-0.647
		(-0.105)	(-0.140)
	Age	-0.284	-0.306
		(-0.122)	(-0.131)
	Male	***-1.267*** †	***-1.367****
		(-0.243)	(-0.263)
	Self-Efficacy	0.064	0.052
		(0.101)	(0.081)
	Self-Esteem	***-0.278****	***-0.291****
		(-0.412)	(-0.433)
	Social Support	-0.120	0.012
		(-0.052)	(0.005)
	Composite Strain	0.005	0.004
		(0.032)	(0.027)
	Self-Esteem X Comp. Strain	---	0.001
		---	(0.016)
	Self-Efficacy X Comp. Strain	---	0.009
		---	(0.192)
	Soc. Support X Comp. Strain	---	-0.026
		---	(-0.112)
	Adj. R^2 =	0.076	0.083

† p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

It is interesting that the relationship between negative emotion and being male failed to achieve statistical significance at the .05 level in Model 1, but did so once the three interaction terms were added in Model 2. The lack of a significant relationship between being male and anger coupled with the observed negative relationship between negative emotion and being male provides support for the argument made by Hay (2003) regarding gender differences in emotional responses to strain (see also Sharp et al. 2005).

Hypothesis 3 and 4

Hypotheses 3 and 4 state that increased levels of strain will increase the likelihood of negative affect resulting in an increased likelihood of non-adherence to HIV/AIDS treatment regimens and involvement in HIV/AID risk-behaviors. The lack of a significant relationship between composite strain and either anger or negative emotion in the previous set of analyses automatically dictates that Hypothesis 3 and 4 are not supported. However it is still important to continue the analysis in order to identify any significant indicators and pathways that may exist, as well as improve our understanding of treatment adherence and involvement in risk-behaviors. Also stigma was significantly associated with anger and the relationship between goal failure and negative emotion approached the .05 level of significance; therefore the identification of potential strain-related pathways to adherence and risk-behavior for future research is still of interest.

Adherence. In Model 1 of the adherence related analyses (see Table 23), only age (b=.294, p=017) was significantly associated with adherence to antiretroviral treatment at the 05 level of significance which indicates as age increases so does adherence to HIV/AIDS medical treatment. The addition of personal coping resources to the equation (self-esteem, self-efficacy and social support) did not subjectively change the results observed in Model 1. When adding the interaction terms for composite strain by self-esteem, self-efficacy and social support to Model 3, social support (b=.280, p=.028) was found to be significantly related to treatment adherence at the .05 level significance, but the relationship between age and adherence failed to reach statistical significance.

Table 23: Unstandarized OLS Regression of Adherence on Composite Strain, Negative Affect, Coping Resources andCoping Resources/Composite Strain Interactions (standardized coefficients in parentheses)

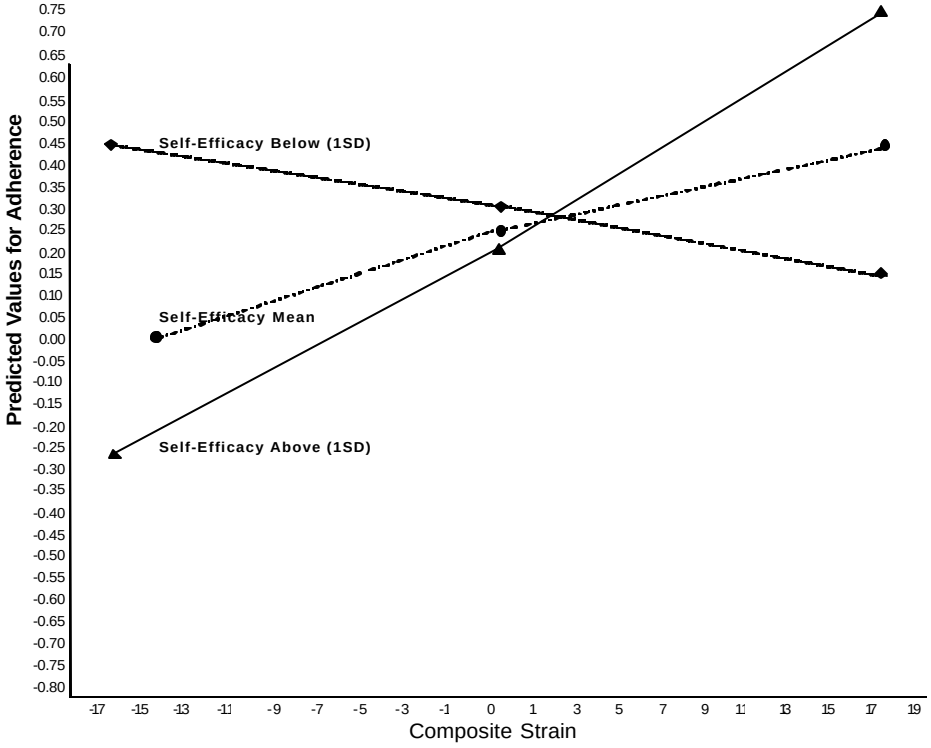
Dependent Variable	Independent Variable	Model 1	Model 2	Model 3	Model 4
			With Coping Resources	With Strain X Coping Moderators	With Self-Efficacy X Composite Strain
Adherence					
	Married	.0.019	0.005	-0.106	-0.076
		(0.010)	(0.002)	(-0.053)	(-0.038)
	Age	***0.294****	***0.267****	***0.237*** †	***0.274*** †
		(0.294)	(0.267)	(0.237)	(0.274)
	Male	-0.157	-0.121	-0.217	-0.216
		(-0.070)	(-0.054)	(-0.098)	(-0.097)
	Composite Strain	0.010	0.011	0.011	0.010
		(0.145)	(0.155)	(0.154)	(0.135)
	Anger	-0.068	-0.059	-0.066	-0.057
		(-0.166)	(-0.144)	(-0.160)	(-0.139)
	Negative Emotion	-0.021	-0.013	-0.047	-0.038
		(-0.048)	(-0.031)	(-0.110)	(-0.088)
	Self-Efficacy	---	-0.013	-0.020	-0.011
		---	(-0.048)	(-0.074)	(-0.039)
	Self-Esteem	---	0.003	-0.017	-0.009
		---	(0.009)	(-0.058)	(-0.030)
	Social Support	---	0.202	***0.280****	***0.235****
		---	(0.202)	(0.280)	(0.235)
	Self-Esteem X Comp. Strain	---	---	0.001	---
		---	---	(0.025)	---
	Self-Efficacy X Comp. Strain	---	---	***0.005*** †	***0.005*** *
		---	---	(0.245)	(0.249)
	Soc. Support X Comp. Strain	---	---	-0.019	---
		---	---	(-0.188)	---
	Adj. R ^{2} **=**	0.070	0.069	0.125†	0.118†

†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

The positive relationship between social support and adherence indicates that as levels of perceived social support increase so do levels of treatment adherence. However, it is of interest that the relationship between social support and adherence was not observed until the composite strain X coping resource interaction terms were added to the model. This suggests that the relationship between social support and adherence may have been influenced by one or more of the interaction terms. The equations for Model 3 were repeated but with the addition of interaction terms separately to determine which interaction(s) had the most influence on the relationship between social support and adherence. Results from this analysis indicated that the cross-product term self-efficacy

X composite strain (b=.005, p=.047) was significantly associated with adherence to antiretroviral medications (see Model 4, Table 23) while the relationship between social support (b=.235, p=.057) and adherence approached statistical significance at the .05 level. Specifically the positive association between the interaction term of self-efficacy X composite strain and adherence indicates that for persons with low self-efficacy increased levels of strain are associated with decreased adherence as prescribed by Agnew (1992). In order to further understand the moderating relationship of self-efficacy on composite strain and adherence; the relationship between composite strain and adherence was plotted, controlling for high, mean and low levels of self-efficacy (see Figure 1) (Aiken and West 1991; Frazier et al. 2004). As seen in Figure 1, the finding that increased strain for persons with high levels of self-efficacy was associated with increased adherence is contrary to the predicted relationship and counterintuitive.

Figure 1: Regression Analysis for Adherence: Self-Efficacy X Composite Strain Interaction



The relationship between age (b=.274, p=.037) and adherence regained statistical significance at the .05 level as well. Based on the results of this analysis, the theoretical importance of the moderated composite strain variable, and the need to keep at a minimum the number of variables carried over into further analyses, it was determine to retain the self-efficacy X composite strain interaction term and eliminate the cross-product terms of self-esteem and social support by composite from further analyses (Frazier et al. 2004).

Risk-behavior. In Model 1 of the risk-behavior analyses (see Table 24), being male (b=6.380, p=013) and negative emotion (b=1.447, p=.006) were positively related to involvement in HIV/AIDS risk-behaviors at the .05 level of significance. These findings suggest that males and individuals who tend to respond to stressful events with negative emotion have a greater likelihood of engaging in HIV/AIDS risk-behaviors. These findings persisted even with the addition of coping resources (Model 2) and the coping resources by composite strain interaction terms (Model 3). When adding the interaction terms for composite strain by self-esteem, self-efficacy and social support to Model 3, social support (b=2.256, p=.048) was found to be significantly related to involvement in risk-behavior at the .05 level significance, but the relationship was positive and does not appear to be moderated by negative affect. This finding suggests that as levels of social support increased, so did involvement in risk-behavior. This finding is counter to a GST based argument which would suggest increased levels of social support would provide individuals with alternative methods dealing with negative affect.

Table 24: Unstandarized OLS Regression of Risk-Behavior on Composite Strain, Negative Affect, Coping Resources and Coping Resources/Composite Strain Interactions (standardized coefficients in parentheses)

Dependent Variable	Independent Variable	Model 1	Model 2	Model 3
			With Coping Resources	With Strain X Coping Moderators
Risk Behavior				
	Married	-0.479	-0.325	-0.102
		(-0.025)	(-0.017)	(-0.005)
	Age	-0.845	-0.032	-0.464
		(-0.088)	(-0.003)	(-0.049)
	Male	***6.380****	***7.431****	***8.072****
		(0.300)	(0.349)	(0.379)
	Composite Strain	-0.121	-0.069	-0.045
		(-0.177)	(-0.101)	(-0.066)
	Anger	-0.470	-0.212	-0.320
		(-0.119)	(-0.054)	(-0.081)
	Negative Emotion	***1.447****	***1.652****	***1.729****
		(0.354)	(0.404)	(0.423)
	Self-Efficacy	---	0.446	0.333
		---	(0.172)	(0.128)
	Self-Esteem	---	0.366	0.353
		---	(0.133)	(0.128)
	Social Support	---	***2.021***†	***2.256****
		---	(0.212)	(0.236)
	Self-Esteem X Comp. Strain	---	---	0.007
		---	---	(0.032)
	Self-Efficacy X Comp. Strain	---	---	-0.037
		---	---	(-0.188)
	Soc. Support X Comp. Strain	---	---	-0.197
		---	---	(-0.205)
	Adj. R^2 =	.125*	.184†	.224

†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

As before, the equations for Model 3 were repeated but with the addition of interaction terms separately to determine which interactions had the most influence on the relationship between social support and risk-behavior. The relationship between social support and risk-behavior attained statistical significance with the addition of the social support X composite strain cross-product term. Although it approached significance, the relationship between risk-behavior and the social support X composite strain interaction

did not attain statistical significance at the .05 level. Due to sample size limitations, it was necessary to exclude the non-significant interaction term from future equations even though others have suggested interaction terms of this nature be retained (Aiken and West 1991; Frazier et al. 2004). The moderated relationship between strain and risk-behavior by social support should be included in future investigations when a larger sample size is available.

Hypothesis 5 and 6

In Hypotheses 5 and 6, I test the contention that the impact of negative affect on non-adherence to HIV/AIDS treatment regimens and involvement in HIV/AIDS risk-behaviors is conditioned by self-esteem, self-efficacy and social support. As before, these hypotheses argue for a moderating effect of personal coping resources on the relationships between negative affect and deviant outcomes. This requires the addition of six interactions terms to the previous adherence and risk-behavior regression equations. In the equations used to test Hypothesis 5 and 6 it was necessary to exclude marital status from the analysis to retain a minimum number of degrees of freedom. Marital status was selected for exclusion because it had not to this point proven to be an important predictor of either outcome. Therefore I repeat the preceding analyses for adherence excluding marital status in Model 1, with the addition of the six negative affect by personal coping resources interactions in Model 2, and the addition of the composite strain X self-efficacy interaction in Model 3. Results from this set of analyses can found in Table 25. This set of analyses was then repeated for involvement in risk-behavior (see Table 26).

Adherence. When adherence was regressed on strain, anger and personal resources, the results revealed that age (b=.267, p= .045) was significantly related to adherence (see Table 25, Model 1). This statistically significant and positive association

Table 25: Unstandarized OLS Regression of Adherence on Composite Strain, Negative Affect, Coping Resources and Coping Resources/ Strain and Negative Affect Interactions (standardized coefficients in parentheses)

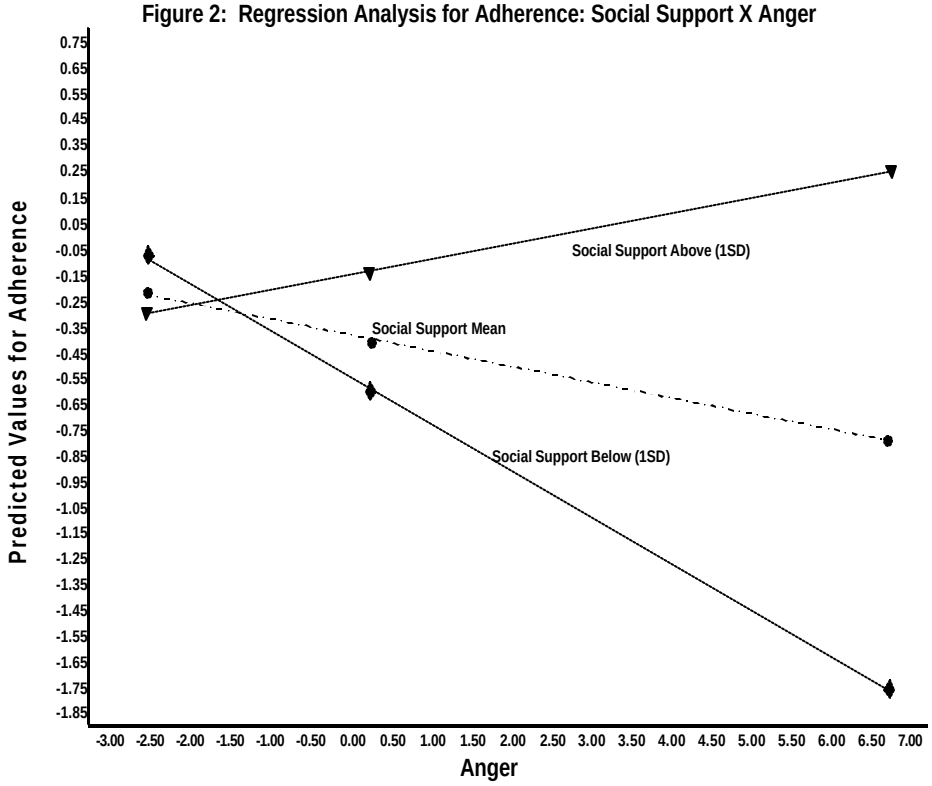
Dependent Variable	Independent Variable	Model 1	Model 2	Model 3
			With Negative Affect X Coping Moderators	With Additional Strain X Coping Moderators
Adherence				
	Age	***0.267****	***0.348****	***0.354****
		(0.267)	(0.348)	(0.354)
	Male	-0.122	0.083	-0.001
		(-0.055)	(0.037)	(0.000)
	Composite Strain	0.011	0.013	0.013
		(0.155)	(0.174)	(0.174)
	Anger	-0.059	-0.066	-0.062
		(-0.144)	(-0.160)	(-0.150)
	Negative Emotion	-0.013	0.000	-0.024
		(-0.031)	(-0.001)	(-0.055)
	Self-Efficacy	-0.013	-0.038	-0.030
		(-0.048)	(-0.140)	(-0.112)
	Self-Esteem	0.003	0.033	0.020
		(0.009)	(0.114)	(0.070)
	Social Support	0.202	0.140	0.189
		(0.202)	(0.140)	(0.189)
	Self-Esteem X Anger	---	***-0.023*** †	-0.020
		---	(-0.215)	(-0.185)
	Self-Efficacy X Anger	---	0.014	0.017
		---	(0.104)	(0.129)
	Social Support X Anger	---	***0.112****	***0.113****
		---	(0.324)	(0.325)
	Self-Esteem X Negative Emotion	---	-0.024	-0.019
		---	(-0.193)	(-0.148)
	Self-Efficacy X Negative Emotion	---	-0.014	-0.018
		---	(-0.117)	(-0.153)
	Social Support X Negative Emotion	---	-0.016	-0.032
		---	(-0.035)	(-0.070)
	Self-Efficacy X Comp. Strain	---	---	***0.005*** †
		---	---	(0.231)
	Adj. R^2 =	0.085	0.197*	0.241†

†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

between age and adherence holds throughout this set of analyses. Model 2 represents the results from the regression equation with the addition of the six negative affect by personal coping resources interactions terms including self-esteem X anger, self-efficacy X anger, social support X anger, self-esteem X negative emotion, self-efficacy X negative emotion and social support X negative emotion.

Findings from this analysis reveal that the interaction term for social support by anger (b=.112, p=.014) was statistically related to treatment adherence at the .05 level of significance in both Model 2 (b=.122, p=.014) and Model 3 (b=.113, p=.011). As seen in Figure 2, the positive relationship between the interaction term social support X anger and adherence indicates that for persons with low levels of perceived social support, the increased likelihood of responding to difficult situations with anger is associated with decreased adherence to HIV/AID treatment regimens. Conversely, Figure 2 indicates that anger's negative affect of adherence to was reduced to the point that for persons with high levels of social support increased levels of anger were associated with increased adherence. As with self-efficacy these findings both support and contradict Agnew proposition regarding the moderating relationship of personal coping resources on negative affect and deviance. The relationship between the interaction term of self-efficacy X composite strain and adherence was also retained in Model 3.

Figure 2: Regression Analysis for Adherence: Social Support X Anger



Another key finding in this analysis was the moderated relationship between anger and adherence. Prior to this analysis, a relationship between anger and either measure of deviant outcome had failed to surface[6]. Therefore these findings support the postulate advanced in Hypothesis 5 that the impact of anger on non-adherence to HIV/AIDS treatment regimens is conditioned by perceived levels of social support.

[6] Given the importance Agnew (1992) assigns to the role of anger, all the regression analyses for risk-behavior and adherence were repeated with the inclusion anger and negative emotion separately to determine if the effects of anger were being masked by that of negative emotion. Overall, the findings from these analyses did not significantly differ from those reported and do not alter study results or conclusions.

Risk-behavior. The preceding analyses were repeated to test for the hypothesized moderator relations between personal coping resources and negative affect on risk-behavior. Table 26, shows being male and the tendency to respond with negative

Table 26: Unstandarized OLS Regression of Risk-Behavior on Composite Strain, Negative Affect, Coping Resources and Coping Resources/Composite Strain and Negative Affect Interaction (standardized coefficients in parentheses)

Dependent Variable	Independent Variable	Model 1	Model 2	Model 3
			With Negative Affect X Coping Moderators	With Additional Strain X Coping Moderators
Risk Behavior				
	Age	-0.025	-0.344	-0.390
		(-0.003)	(-0.036)	(-0.041)
	Male	***7.471***	***5.483****	***6.177****
		(0.351)	(0.258)	(0.290)
	Composite Strain	-0.066	-0.088	-0.088
		(-0.097)	(-0.128)	(-0.128)
	Anger	-0.210	-0.119	-0.152
		(-0.053)	(-0.030)	(-0.039)
	Negative Emotion	***1.660****	***1.689****	***1.884*****
		(0.406)	(0.413)	(0.461)
	Self-Efficacy	0.443	0.503	0.438
		(0.171)	(0.194)	(0.169)
	Self-Esteem	0.377	0.461	0.568
		(0.137)	(0.167)	(0.206)
	Social Support	***2.011***†	0.941	0.530
		(0.210)	(0.098)	(0.055)
	Self-Esteem X Anger	---	0.076	0.049
		---	(0.073)	(0.047)
	Self-Efficacy X Anger	---	0.068	0.040
		---	(0.053)	(0.031)
	Social Support X Anger	---	-0.545	-0.549
		---	(-0.165)	(-0.166)
	Self-Esteem X Negative Emotion	---	0.148	0.101
		---	(0.123)	(0.084)
	Self-Efficacy X Negative Emotion	---	***0.289***†	***0.325****
		---	(0.254)	(0.286)
	Social Support X Negative Emotion	---	***1.151****	***1.286****
		---	(0.262)	(0.292)
	Self-Efficacy X Comp. Strain	---	---	***-0.040***†
		---	---	(-0.202)
	Adj. R^2 =	.198**	.290†	.321†

†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

emotion remain significant predictors at the .05 level of involvement in HIV/AIDS risk-behaviors across all three regression models. When adding the six interaction terms representing the moderating effects of personal coping resources on the relationship between negative affect and risk-behavior, it was revealed that involvement in risk-behavior was positively associated with the cross-product term of social support X negative emotion at the .05 level of significance (see Table 26, Model 2). With the addition of the interaction term for self-efficacy X composite strain in Model 3, a significant positive relationship between risk-behavior and the cross-product term of self-efficacy X negative emotion (b=.325, p=.047) was also found.

The positive relationship between involvement in risk-behavior and the cross-product terms of self-efficacy X negative emotion and social support X negative emotion suggest that for individuals with high levels of social support and self-efficacy the tendency to respond to difficult situations with negative emotion is associated with increased involvement in high risk-behavior. This finding is in direct contrast to the theoretical relationships posited by Agnew (1992) regarding the role of personal resources. In this case it appears that they operate to enable involvement in deviant behavior (see Figures 3 and 4).

Figure 3: Regression Analysis for Risk-Behavior: Negative Emotion X Social Support Interaction

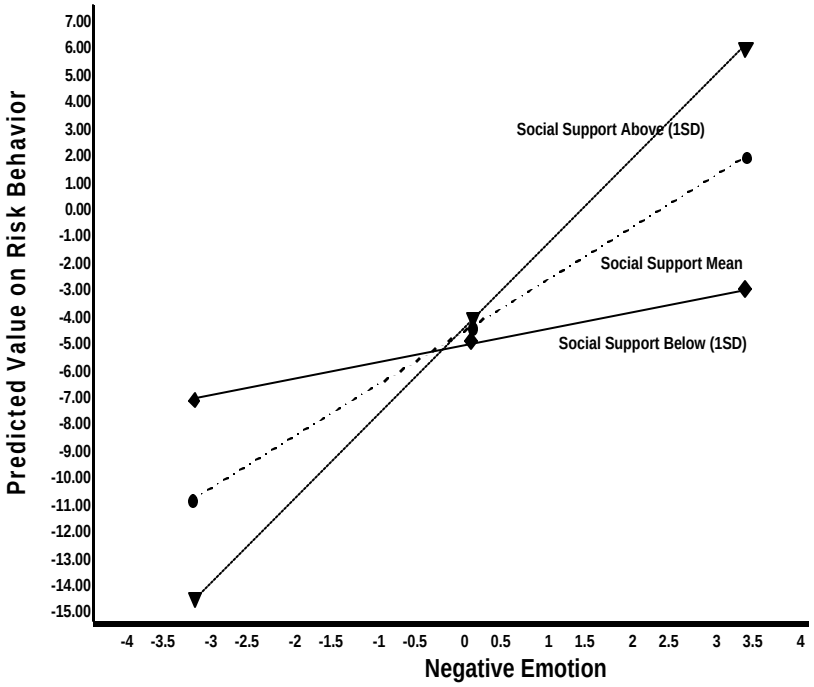
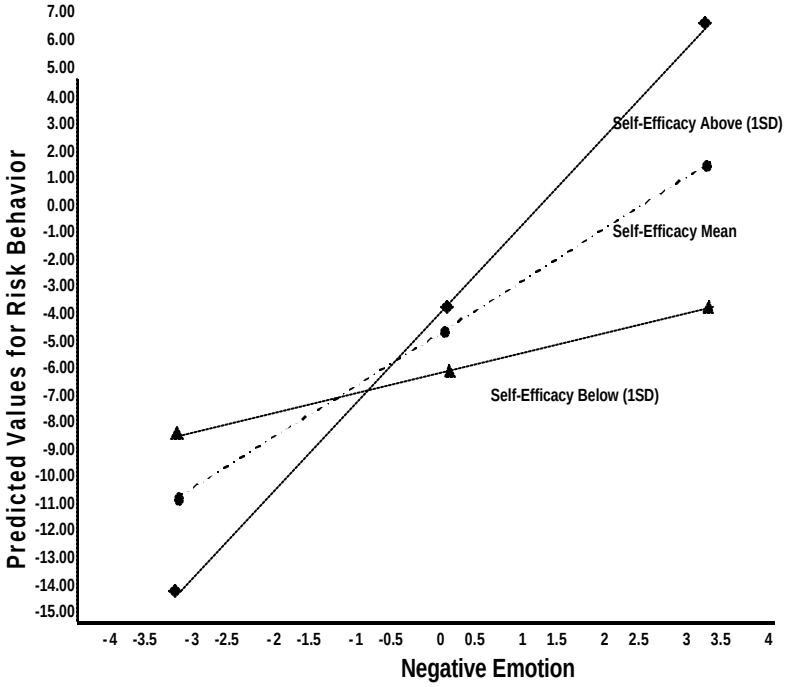


Figure 4: Regression Analysis for Risk-Behavior: Negative Emotion X Self-Efficacy Interaction



Hypothesis 7 and 8

Hypotheses 7 and 8 state that controlling for the effects of self-control and social control, increased levels of strain will increase the likelihood of negative affect resulting in an increased likelihood of non-adherence to medical treatment regimens and involvement in high-risk behaviors. Again the lack of a direct or moderated relationship between composite strain and negative emotion or anger dictates the current analysis fails to support the postulates put forth in Hypotheses 7 and 8. However, it is still of value to follow this analysis to its conclusion and identify important predicators for use in future research. Agnew (1992) argues that GST should be viewed as being complimentary to leading microsociological theories of crime and deviance including social and self-control and differential association. He argues that the relationship between strain, negative affect and deviance will provide additional explanatory power over and above that provided by control and differential association. Therefore, the preceding analyses for both dependent measures of treatment adherence and risk-behavior were repeated with the inclusion of measures for both low self-control and social control.

Adherence. Table 27 provides the results from the regression of treatment adherence on composite strain, negative affect, personal coping resources, the cross-product terms of self-efficacy X composite strain and social support X anger controlling for the effects of low self-control, partner attachment, deviant opportunity and select demographics including being married. Findings from this analysis reveal that age, low self-control, partner attachment and the cross-product term of social support X anger were significantly associated with treatment adherence at the .05 level of statistical significance. Specifically, the positive relationships between age (b=.290, p=.017) and

partner attachment (b=.119, p=.017) with adherence indicate that the likelihood of adherence to HIV/AIDS treatment regimens increase with age and the level of attachment one has for his/her spouse or partner.

Table 27: Unstandarized OLS Regression of Adherence on Composite Strain, Negative Affect, Coping Resources and Coping Resources/Composite Strain and Negative Affect Interactions Controlling for the Effects of Social and Self-Control (standardized coefficients in parentheses)

Dependent Variables	Independent	Model 1
Adherence		
	Married	-0.272
		(-0.137)
	Age	***0.290****
		(0.290)
	Male	-0.178
		(-0.080)
	Composite Strain	0.004
		(0.058)
	Anger	-0.023
		(-0.055)
	Negative Emotion	-0.048
		(-0.113)
	Self-Efficacy	0.009
		(0.034)
	Self-Esteem	-0.032
		(-0.111)
	Social Support	0.163
		(0.163)
	Deviant Opportunity	0.053
		(0.093)
	Low-Self Control	***-0.023****
		(-0.270)
	Partner Attachment	***0.119****
		(0.316)
	Self-Efficacy X Comp. Strain	0.002
		(0.113)
	Social Support X Anger	***0.120****
		(0.347)
	Adj. R^2 =	0.270

†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

The positive association between treatment adherence and the interaction term of social support X anger (b=.120, p=.005) indicates that for individuals with low levels of perceived social support, the tendency to respond to difficult situations with anger is associated with decreased adherence to HIV/AIDS medical treatment regimens. The positive association also suggests that the effect of anger on treatment adherence is less negative for those with higher levels of social support. This moderated relationship demonstrates the role, predicted by Agnew, of personal coping resources in diminishing the effect of negative affective states on deviance. As would be predicted from a low Self-Control theoretical perspective, the relationship between low self-control (b=-.023, p= .049) and adherence is negative. This finding suggests that as levels of low self-control increase the level of adherence to HIV/AIDS treatment regimens decrease.

Although the relationship between adherence and the negative affective states of anger and negative emotion were in the predicted direction, they failed to attain statistical significance. With the addition of measures of social and self-control to the analysis, the relationship between the cross-product term of self-efficacy by composite strain was no longer statistically significant either. This finding fails to support the contention that strain will remain an important predictor of adherence when controlling for measures of social and self-control.

As seen in Table 28, the predictors of involvement in risk-behavior were very different from those for adherence. Once again, being male (b=6.866, p=.015) and negative emotion (b=2.053, p. = .000) were positively related to involvement in HIV/AIDS risk-behaviors. The two interactions terms representing the moderated relationship between negative emotion and risk-behavior remained statistically significant

Table 28: Unstandarized OLS Regression of Risk-Behavior on Composite Strain, Negative Affect, Coping Resources and Coping Resources/Composite Strain and Negative Affect Interactions Controlling for the Effects of Social and Self-Control (standardized coefficients in parentheses)

Dependent Variables	Independent	Model 1
Risk Behavior		
	Married	1.055
		(0.056)
	Age	-0.363
		(-0.038)
	Male	***6.866****
		(.323)
	Composite Strain	-0.098
		(-0.144)
	Anger	-0.069
		(-0.018)
	Negative Emotion	***2.053******
		(0.502)
	Self-Efficacy	0.403
		(0.155)
	Self-Esteem	0.668
		(0.242)
	Social Support	0.045
		(0.005)
	Deviant Opportunity	-0.013
		(-0.002)
	Low-Self Control	-0.049
		(-0.061)
	Partner Attachment	0.292
		(0.081)
	Self-Efficacy X Comp. Strain	***-0.052****
		(-0.263)
	Social Support X Negative Emotion	***1.115*** †
		0.254
	Self-Efficacy X Negative Emotion	***0.427****
		0.375
	Adj. R^2 =	0.304

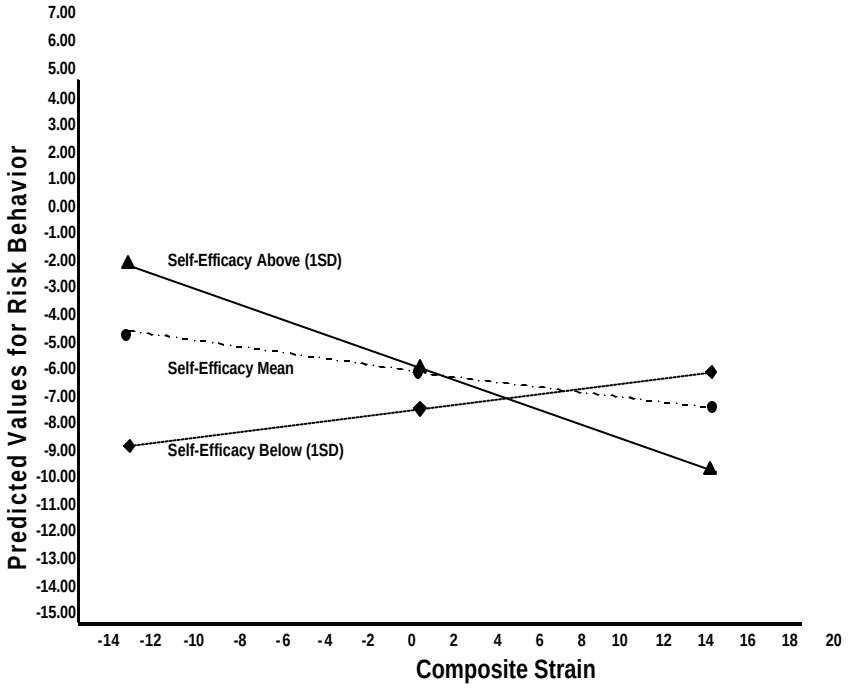
†p= .10, *p=.05, **p=.01, ***p=.001, ****p=.0001

at the .05 level. However, the positive nature of these relationships indicate that for individuals with high levels of social support (b=1.115, p=.051) and self-efficacy (b=.427, p=.005), increased levels of negative emotion were associated with increased

involvement in risk-behavior. As discussed earlier this is contrary to the relationship suggested by Agnew (1992) in that high levels of self-efficacy and social support are expected to reduce an individual's use of deviant adaptations to negative affective states.

An interesting finding is the significant negative relationship between involvement in HIV/AIDS risk-behaviors and the cross-product term of self-efficacy X composite strain (b=-.052, p.034) which indicates that for persons with low self-efficacy, increased levels of strain are associated with increased involvement in HIV/AIDS risk-behavior. This finding is especially important because the relationship between the cross-product term of self-efficacy X composite strain and risk-behavior did not achieve statistical significance before the addition of the controls for social and self-control. This finding suggests that social or self-control may influence the effect of strain on risk-behavior. It is also important to note that none of measures for social and self-control were significantly associated with involvement in high-risk behavior.

Figure 5: Regression Analysis for Risk-Behavior: Self-Efficacy X Composite Strain Interaction



Even though there are some findings that provide support for Agnew's predictions regarding the moderating affects of personal coping resources, overall the findings in this study do not provide direct support GST as an explanatory model of non-adherence to HIV/AIDS treatment regimens or involvement in high-risk behavior. However, the findings do not rule out GST as a possible explanatory model either.

CHAPTER VI

Discussion and Conclusions

The purpose of this study was to test the applicability of criminological theories to explain a broader realm of deviant and unhealthy behaviors in general and more specifically of GST as an explanation of non-adherence to HIV/AIDS treatment regimens and involvement in HIV/AIDS risk-behaviors specifically. Given the limitations of this study, the results from the analysis will be used to inform future investigations of this nature and to provide a preliminary indication of the usefulness of this line of research for explaining the occurrence of medical non-adherence and involvement in potentially lethal risk-behaviors. Ultimately it is hoped that findings from studies such as this will lead to the development of more effective behavioral interventions and treatment plans. Overall, findings from this study suggest that the use of criminological theories as a theoretical framework for investigations of non-adherence to HIV/AIDS treatment regimens and involvement in HIV/AIDS related risk-behaviors provide a fertile avenue of investigation.

The overall theoretical postulate of GST (Agnew 1992) is that deviance is one possible mechanism that individuals may use to reduce the discomfort caused by negative affective states caused by strain. There are three major types of strain that increase the likelihood individuals will experience heightened levels of negative affect. These include the prevention of positively-valued goal achievement, the removal or threatened removal of positively-valued stimuli and the presentation of noxious stimuli. The likelihood that

an individual will have a negative response to strain is moderated by the availability of personal coping resources such as self-esteem, self-efficacy, and social support. Agnew (2001) argues that persons who have access to prosocial coping mechanisms and resources such as those listed above are less likely to experience heightened levels of negative affect and therefore less likely to respond with deviant or criminal action. Or if they do experience increased levels of negative affect, these same coping resources operate to provide alternatives to a deviant response. Ultimately, the key ingredient to the GST argument is the direct or moderated relationship between strain and negative affect (Sharp et al. 2005). Even if strain was found to have a direct and significant association with adherence or risk-behavior, the GST argument as proposed in this study would not be supported.

Overall the findings from this study fail to provide support for the proposed GST model using a composite measure of strain. Composite strain was used in this study to test Agnew's contention that the strain producing affects of negative stimuli are cumulative and may be measured through a composite score of overall strain (Agnew 1992). The lack of a direct or moderated relationship between the composite measure of strain used in this study and anger or negative emotion dictated early in the analysis that the hypothesized application of the theory would not be supported (see also Eitle and Turner 2003; Hoffmann and Miller 1998; Piquero and Sealock 2000). It may be that the measures of negative affective states fail to capture anger or other negative emotions. Conversely, it may be that the measures of strain used in this study do not result in negative affective states, unlike measures used in other studies (Agnew 1985; Agnew and Brezina 1997; Agnew and White 1992; Aseltine et al. 2000; Broidy 2001; Capowich et

al. 2001; Hay 2003; Mirowsky and Ross 1995; and Sharp et al. 2001, 2005). In the final regression for risk-behavior, the interactive term of self-efficacy and composite strain was found to have a significant relationship with involvement in risk-behavior which indicates that strain is an important addition to explanatory models of HIV/AIDS risk-behaviors. This finding suggests that high levels of self-efficacy act to reduce the impact of strain on involvement in HIV/AIDS risk-behaviors which is supportive of the role of coping resources described by Agnew (see also Agnew and White, 1992). The relationship between strain and risk-behavior was not mediated by negative affect, and therefore does not provide support for GST, at least as operationalized in this study.

Recall that two other measures of strain were found to have a significant or near significant association with anger and negative emotion. Stigma was negatively associated with anger at the .05 level and the relationship between goal failure and negative emotion approached statistical significance and was in the predicted direction. As stated earlier the small sample size used in this study limits the researchers' ability to detect subtle or indirect relationships due to a reduction in power. Therefore, these two sources of strain need further investigation given the moderated link between anger and adherence and the direct and moderated links between negative emotion and involvement in risk-behaviors. Taken together these findings also suggest that different forms of strain may lead to different types of negative affect and the use of a composite measure could mask these differences. In the future, it may prove more productive to include individual measures for each type of strain, although I was unable to do so in this study due to sample size.

Another unexpected finding was the limited role anger played in explaining either form of deviant outcome in this study. Agnew (1992) assigns a prominent position to anger as one of the most important forms of negative affect that could pressure a deviant response. However, anger was not found to be related to involvement in HIV/AIDS risk-behaviors, which is more closely related to traditional measures of deviance than adherence (see also Hoffman and Miller 1998). Anger did have a moderated effect on adherence to HIV/AIDS treatment regimens, suggesting that for persons with low levels of social support, heightened levels of anger may be associated with decreased adherence. Conversely, the moderated affect of anger on adherence was so reduced that for persons with high levels of social support, increased levels of anger resulted in improved adherence. The limited, as well as counterintuitive, role of anger in explaining both forms of deviance may be due to the use of a trait measure of anger instead of a more proximate situational measure. Capowich and his associates (2001) argue that the anger response described in GST is a situational response to aversive stimuli as opposed to a personality trait (see also Mazerolle et al. 2000). Future test of this model with adherence and HIV/AIDS risk-behaviors should incorporate both situational and trait measures of anger, as well as other forms of negative affect to provide a fuller test of the theory (Sharp et al. 2005). Situational anger and other negative emotions could be measured through the use of vignettes specific to situations associated with non-adherence and involvement in risk-behaviors such as scenarios of losing a job, intimates or friends as a result either directly or indirectly of the disease, daily intake of antiretroviral medications, disclosure of HIV/AIDS status to others, and social pressures regarding sexual intimacy and substance use. It should be noted however, that an individual's perception of how

they will respond to a situation could be significantly different from their actual actions if placed in a similar situation.

The contraindicated positive relationships between involvement in risk-behavior and the two interaction terms of social support by negative emotion and self-efficacy by negative emotion suggest that the moderated relationships posited by Agnew (1992) are more complex than originally presented. The positive relationship between these two terms and risk-behavior suggest that for individuals with high levels of self-efficacy and social support, heightened levels of negative emotions similar to depression are associated with increased involvement in risk-behaviors by study participants. This suggests that under certain conditions, high levels of self-efficacy and social support may operate to enable or provide the necessary resources or freedom for individuals to engage in HIV/AIDS risk-behaviors (see also Sharp et al. 2005). While not significant, a review of the direct associations between self-efficacy, social support, adherence and risk-behavior indicates that self-efficacy and social support are positively associated with both adherence and risk-behavior. Thus, these resources may act to encourage compliance to HIV/AIDS medications while at the same time supporting participation in HIV/AIDS risk-behavior. Conversely, self-efficacy was found to dampen the effect of strain on risk-behaviors resulting in a reduction of involvement. Taken together, these seemingly contradictory findings require further investigation with an adequate sample size to sufficiently test moderated effects.

When comparing the final regression analysis for both treatment adherence and involvement in risk-behavior, the resulting predictive models appear to be quite different. The main predictors of treatment adherence included elements from both strain and

control theories while components mainly associated with the GST model were predictive of risk-behavior. In the full adherence model, age remained a strong predictor of adherence indicating that older PLWH/As tended to report higher levels of adherence than younger participants. This finding is in line with previous research in the field of criminology regarding the stable role of age in predicting deviant behavior (Gottfredson and Hirschi, 1990). Furthermore, self-esteem had a significant negative association with both negative emotion and anger. Combined with the significant moderated association between anger and adherence, these findings suggest that participants with low self-esteem are more likely to respond to difficult situations with anger which is associated with reduced levels of adherence especially for individuals with low levels of social support.

Along with the moderated relationship between anger and adherence discussed earlier, both low self-control and partner attachment were significantly associated with treatment adherence. Overall the results indicate that increased levels of low self-control are associated with decreased adherence to HIV/AIDS treatment regimens while increased levels of attachment are associated with increased adherence. Recent work studying criminal desistance and life-course theory have found similar effects associated with partner attachment and commitment (Sampson and Laub, 1993). These findings do not preclude the applicability of GST to the study of adherence. In a recent work by Agnew and his associates (2002), it is argued that the personality traits of low constraint and negative emotionality may be more important moderators of the relationships between strain, negative affect and deviance than personal coping resources (see also Colder and Stice, 1998). In fact, Agnew (1992) argues that strain is complimentary to

existing explanatory models of deviance and encourages the use of both. Therefore future investigations of the link between strain, low constraint and deviance may prove more successful with the inclusion of specific forms of strain such as stigma. It is possible that the counterintuitive negative relationship between stigma and anger may be moderated by low constraint, where PLWH/A's with low levels of constraint are more likely to respond to increased stigmatization than persons with high levels of personal constraint. The relationship between stigma and anger may also be moderated by levels of self-esteem.

The finding in this study that males are more likely to be involved in risk-behaviors and less likely to respond to respond with negative emotion is supported by the literature (Sharp et al. 2005, Broidy and Agnew 2001, Hay 2003). However, the strong positive relationship between negative emotions and involvement in HIV/AIDS risk-behavior is counter to recent tests of GST with college students which found that the tendency to respond with "other negative emotions reduced the likelihood of a criminal or delinquent response." (Sharp et al, 2005: 153). Findings in this study indicate that PLWH/A's with higher levels of depressive emotions are more likely to engage in HIV/AIDS risk-behavior. There were also several indirect pathways through negative emotion to risk-behavior. These findings suggest that the relationship between depressive forms of response and deviance are very complex. Self-esteem is negatively associated with negative emotion suggesting that individuals with high levels of self-esteem are less likely to respond to negative events with negative emotions such as depression. Overall, the strong direct and moderating effects of negative emotion on involvement in risk-behavior support the contentions made by numerous other

researchers that the explanatory power of GST is limited by such a heavy focus on anger (Capowich, Mazerolle and Piquero 2001; Mazerolle and Piquero 1997, 1998; Mazerolle et al. 2000; Sharp et al. 2001). Indeed, there is reason to believe that many types of deviance are more strongly linked to depression and guilt than to anger (Hay 2003; Sharp et al. 2005).

Besides the main effect of negative emotion on risk-behavior, the effect of negative emotion on risk-behavior was moderated by social support and self-efficacy suggesting that for persons with high levels of social support and self-efficacy, the tendency to respond with negative emotion increased the likelihood of involvement in risk-behavior. Taken together these results seem to suggest that in addition to the pressure negative emotions like depression exert on involvement in risk-behavior, high levels of social support and self-efficacy can magnify this effect. As suggested by Sharp and her associates (2005) this may be a function of support from and involvement with deviant friends who encourage unsafe sexual practices and drug use. Another possibility is the continued use of unsafe sexual practices among committed partners. For example, results from an unpublished qualitative analysis, conducted by the author with Border Health SPNS participants, indicate that it was not uncommon for committed seroconcordant and discordant couples to continue having sexual relations without the use of condoms. On the other hand, high levels of self-efficacy were found to dampen the effect composite strain had on involvement in risk-behavior. All in all, these findings indicate that further investigation of the relationship between depression and involvement in risk-behavior is needed.

All in all, I contend that this study has demonstrated that criminological theory can add significant insight to the study of medical treatment adherence and involvement in HIV/AIDS risk-behaviors. If reliable, the predictive models developed in this study for adherence and risk-behavior attained adjusted R^2 values of .27 and .30 respectively. This level of performance is similar to levels found in classic strain and control related studies of delinquency and crime. I am hesitant to report adjusted R^2 values for the models as they may be inflated and unreliable estimates due to the small sample and skewness in the distribution of risk-behaviors. Values of skewness and kurtosis for all variables used in this analysis were below the cutoffs established for identifying moderately nonnormal distributions of 2.0 and 7.0 respectively (Curran, West and Finch 1996). Further, I argue that the estimates are strong enough to support continued research in this area. Although not supported directly in this study, GST may also still prove to be an effective theoretical model given a data set large enough to explore specific forms of strain and the numerous predicted moderated relationships. In addition, these data suggest that the exploration of a moderated relationship between strain, negative affect and deviance by low self-control may be productive (Agnew et al. 2002).

Finally, it needs to be noted that the sample limitations created some issues in the analyses. The number of variables used in the analyses was dictated by sample size. Futhermore, the sample used in this study prevented a sufficient test of the cross-cultural construct validity of the instruments. However, there were no unusual findings in the factor and reliability analyses of measures included in this study which suggests that continued research in the use of these measures with predominantly Spanish-speaking populations who reside along the U.S.-Mexico Border is justified. The Spanish

translations of instruments used in this study may contain Spanish terms or phrases that are unique to the Lower Rio Grande Valley of Texas and should be back-translated prior to use with Hispanic populations located elsewhere.

CHAPTER VII

Implications and Policy Recommendations

Although preliminary in nature, the findings from this research provide some support for the use of criminological theory in the study of HIV/AIDS treatment adherence and involvement in risk-behaviors. Up to this point much of the research in this area, especially adherence, has been atheoretical and comprised of correlational studies. The development of effective behavioral interventions require not only the identification of factors associated with the occurrence of a targeted behavior but an understanding of how these factors relate with each other as well as to the behavior. Unintended negative consequences can result from an incomplete understanding of the problem. For example, the use of peer counselors and mentors is a common practice in clinics providing HIV/AIDS medical services to PLWH/A's. However, the link between involvement in deviance and association with deviant peers has proven to be fairly consistent and suggests that this may not be a good approach if you are also concerned about involvement in risk-behavior. In support of this, the risk-behavior model that emerged in this study suggests that high levels of social support increase the likelihood that depressive individuals will engage in risk-behavior. It was suggested that one possible explanation for this finding is that the social support networks for PLWH/A's may be comprised of individuals that encourage or support involvement in HIV/AIDS related risk-behavior. This it not so say that these programs are not effective, but that

individuals used as peers counselors or mentors should be monitored to ensure that they are modeling the desired behavior in all areas and not just medication adherence.

Low self-control as defined by Gottfredson and Hirschi (1990) is a unidimensional personality trait that is established by the age of six and remains stable across the life course of the individual. They describe low self-control individuals as being impulsive, risk seeking, self-centered with a tendency to respond to situations with anger and a preference for physicality and simple tasks. Given this definition, the finding that low self-control was significantly associated with reduced medication adherence is important. Since low self-control is believed be a stable personality trait, this finding indicates that health care professionals may need to tailor medication schedules to the needs of the individual including key elements of their personality such as self-control. Low self-control individuals as defined by Gottfredson and Hirschi would find it extremely difficult if not impossible to adhere to many of the complex and often physically taxing antiretroviral treatment regimens. Tailoring medical treatment regimens to the individual may require the use of less aggressive medications with individuals who are not likely to follow through with treatments that are too complicated and physically demanding. This is not to suggest the prescription of less effective medications for these individuals, but it may result in slower acting treatments. Increased monitoring in the form of peer counselors, medication watches, home visits and clinic-based medication programs significantly increase the cost of providing care. The development of a tool that would allow medical service providers to identify persons at-risk for non-adherence and provide differing levels of monitoring and management based on individual profiles could significantly improve adherence rates and reduce associated

costs. Currently, clinics are often forced to apply an "all or nothing" strategy in which every patient at a clinic receives the same level of management; or specialized services are provided only after a patient has been identified as non-adherent based declines in their medical condition or lack of improvement.

Findings from this study also suggest that case managers need to be aware of changes in the individual personal relations as well. The strong relationship between partner attachment and increased adherence is important because it suggest that the loss of such relationships could be detrimental to patient adherence (see also Sharp 1998). If an individual's motivation for adherence to antiretroviral medication is based on the need to extend the time they have with their partner or to satisfy their partner's wishes, the loss of such a relationship may reduce their motivation to continue treatment. In addition, the moderated relationship between composite strain and involvement in risk-behavior suggest that increases in negative events such as the loss of a close partner could lead to increased involvement in risk-behavior for persons with low levels of self-efficacy. These findings indicate the need for increased integration of mental health and medical care for PLWH/As.

Finally, the preliminary findings from this study suggest that this line of investigation could be productive. Results from studies of this nature can help stimulate development of devises capable of administering prescribed medications based on the needs of the physical body and not the memory of the individual. They may also indicate the importance of individual medical treatment regimens that are more in tune with the psychological and social profile of the individual. Finally, they may help identify practices that may have latent consequences that have not been identified. Therefore,

more funding for research of this nature should be made available. Furthermore, researchers should be encouraged to step outside of disciplinary boxes and consider the application of social and psychological theories to issues that are traditionally viewed as being in the domain of the medical science and public health.

BIBLIOGRAPHY

Aber, V. and J. P. Aboulker. 1996. "Delta: A Randomised Double-Blind Controlled Trial Comparing Combinations of Zidovudine Plus." *Lancet* 348:283-292.

Agnew, Robert. 1985. "A Revised Strain Theory of Delinquency." *Social Forces* 64:151-167.

------. 1989. "A Longitudinal Test of the Revised Strain Theory." *Journal of Quantitative Criminology* 5:373-387.

------. 1992. "Foundation for a General Strain Theory of Crime and Delinquency." *Criminology* 30:47-87.

------. 1995. "The Contribution of Social-Psychological Strain Theory to the Explanation of Crime and Delinquency." Pp. 113-137 in *The Legacy of Anomie Theory*, vol. 6, *Advances in Criminology*, edited by F. Adler and W. S. Laufer. New Brunswick, NJ: Transaction Publishers.

------. 2001. "Building on the Foundation of General Strain Theory: Specifying the Types of Strain Most Likely to Lead to Crime and Delinqency." *Journal of Research in Crime and Delinquency* 38:319-361.

Agnew, Robert and Timothy Brezina. 1997. "Relational Problems with Peers, Gender, and Delinquency." *Youth & Society* 29:84-112.

Agnew, Robert, Timothy Brezina, John Paul Wright, and Francis T. Cullen. 2002. "Strain, Personality Traits, and Delinquency: Extending General Strain Theory." *Criminology* 40:43-73.

Agnew, Robert, Francis T. Cullen, Velmer S. Burton Jr., T. David Evans, and R. Gregory Dunaway. 1996. "A New Test of Classic Strain Theory." *Justice Quarterly* 13:681-704.

Agnew, Robert, Cesar Rebellon, and Sherod Thaxton. 2000. "A General Strain Theory Approach to Families and Delinquency." in *Families, Crime and Criminal Justice*, vol. 2, *Contemporary Perspectives in Family Research*, edited by G. L. Fox and M. L. Benson. New York: Elsevier Science Inc.

Agnew, Robert and Helene Raskin White. 1992. "An Empirical Test of General Strain Theory." *Criminology* 30:475-499.

Agronick, Gail, Lydia O'Donnell, Ann Stueve, Alexi San Doval, Richard Duran, and Sue Vargo. 2004. "Sexual Behaviors and Risks Among Bisexually-and Gay-Identified Young Latino Men." *AIDS and Behavior* 8:185-197.

Aiken, Leona S. and Stephen G. West. 1991. *Multiple Regression: Testing and Interpreting Interactions*. Thousand Oaks, CA: SAGE Publications.

Altice, Frederick L., Farzad Mostashari, and Gerald H. Friedland. 2001. "Trust and the Acceptance of and Adherence to Antiretroviral Therapy." *Journal of Acquired Immune Deficiency Syndromes* 28:47-58.

Ammassari, Adriana, Rita Murri, Patrizio Pezzotti, Maria Paola Trotta, Laura Ravasio, Patrizio DeLongis, Sergio Lo Caputo, Pasquale Narciso, Sergio Pauluzzi, Giampiero Carosi, Salvatore Nappa, Paola Piano, Crescenzo M. Izzo, Miriam Lechtner, Giovannie Rezza, Antonella d'Arminio Monforte, Giuseppe Ippolito, Mauro Moroni, Albert W. Wu, Andrea Antinori, and AdICONA Study Group. 2001. "Self-Reported Symptoms and Medication Side Effects Influence Adherence to Highly Active Antiretroviral Therapy in Persons With HIV Infection." *Journal of Acquired Immune Deficiency Syndromes* 28:445-449.

Ammassari, Adriana, Maria Paola Trotta, Rita Murri, Francesco Castelli, Pasquale Narciso, Pasquale Noto, Jacopo Vecchiet, Antonella D'Arminio Monforte, Albert W. Wu, and Andrea Antinori for the AdICoNA Study Group. 2002. "Correlates and Predictors of Adherence to Highly Active Retroviral Therapy: Overview of Published Literature." *Journal of Acquired Immune Deficiency Syndromes* 31:S123-S127.

Arguelles, Lourdes and Anne M. Rivero. 1988. "HIV Infection/AIDS and Latinas in Los Angeles County: Considerations for Prevention, Treatment and Research Practice." *California Sociologist* 11:69-89.

Arneklev, Bruce J., Harold G. Grasmick, and Robert J. Bursik. 1999. "Evaluating the Dimensionality and Invariance of "Low Self-Control"." *Journal of Quantitative Criminology* 15:307-331.

Arneklev, Bruce J., Harold G. Grasmick, Charles R. Tittle, and Robert J. Bursik. 1993. "Low Self-Control and Imprudent Behavior." *Journal of Quantitative Criminology* 9:225-247.

Aseltine, Robert H. Jr., Susan Gore, and Jennifer Gordon. 2000. "Life Stress, Anger and Anxiety, and Delinquency: An Empirical Test of General Strain Theory." *Journal of Health and Social Behavior* 41:256-275.

Bakken, Suzanne, William L. Holzemer, Marie-Annette Brown, Gail M. Powell-Cope, Joan G. Turner, Jillian Inouye, Kathleen M. Nokes, and Inge B. Corless. 2000. "Relationships Between Perception of Engagement with Health Care Provider and Demographic Characteristics, Health Status, and Adherence to Therapeutic Regimen in Persons with HIV/AIDS." *AIDS Patient Care and STDs* 14:189-197.

Bamberger, Joshua, David Bangsberg, Don Chambers, Daniel Ciccarone, Grant Colfax, Steve Deeks, Maria Ekstrand, Robert Grant, Frederick Hecht, James O. Kahn, Melinda Swanson, Joey Taylor, and Kartina Thomas. 2000. "Adherence to HIV

Therapies: Critical Issues (Clinical #1)." University of California, AIDS Research Institute, San Francisco, CA.

Bangsberg, D., E. Charlebois, M. Robertson, D. Osmond, and A. Moss. 2000. "Highly Active Antiretroviral Therapy (HAART) Improves Survival in Urban Indigent Adults in the USA." in *XIII International AIDS Conference*, vol. ThPeB5185. Durban, South Africa: United States National Library of Medicine.

Bangsberg, D., Frederick M. Hecht, Edwin D. Charlebois, Margaret A. Chesney, and Andrew Moss. 2001. "Comparing Objective Measures of Adherence to HIV Antiretroviral Therapy: Electronic Medication Monitors and Unannounced Pill Counts." *AIDS and Behavior* 5:275-281.

Bangsberg, David R., Edwin D. Charlebois, Robert M. Grant, Mark Holodniy, Steven G. Deeks, Sharon Perry, Kathleen Nugen, Richard Clark, David Guzman, Andrew Zolopa, and Andrew Moss. 2003. "High Levels of Adherence Do Not Prevent Accumulation of HIV Drug Resistance." *AIDS* 17:1925-1932.

Barnett, Tony and Alan Whiteside. 2002. *AIDS in the Twenty-First Century: Disease and Globalization.* New York: Palgrave Macmillan.

Baron, Rueben M. and David A. Kenny. 1986. "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51:1173-1182.

Bartlett, J. G. and J.E. Gallant. 2001. *Medical Management of HIV Infection.* Baltimore, Maryland: Johns Hopkins University School of Medicine.

Bartlett, John A. 2002. "Addressing the Challenges of Adherence." *Journal of Acquired Immune Deficiency Syndromes* 29:S2-S10.

Blower, S.M, A.N. Aschenbach, H.B. Gershengorn, and J.O. Kahn. 2001. "Predicting the Unpredictable: Transmission of Drug-Resistant HIV." *Nature Medicine* 7:1016-1020.

Bouhnik, Anne-Déborah, Margaret Chesney, Patrizia Carrieri, Hervé Gallais, Jacques Moreau, Jean-Paul Moatti, Yolande Obadia, Bruno Spire, and the MANIF 2000 Study Group. 2002. "Nonadherence Among HIV-Infected Injecting Drug Users: The Impact of Social Instability." *Journal of Acquired Immune Deficiency Syndromes* 31:S149-S153.

Brenner, Bluma G., Jean-Pierre Routy, Marco Petrella, Daniela Moisi, Maureen Oliveira, Mervi Detorio, Bonnie Spira, Vidal Essabag, Brian Conway, Richard Lalonde, Rafick-Pierre Sekaly, and Mark A. Wainberg. 2002. "Persistance and Fitness of Multidrug-Resistant Human Immunodeficiency Virus Type 1 Acquired in Primary Infection." *Journal of Virology* 76:1753-1761.

Brezina, Timothy. 1999. "Teenage Violence Toward Parents as an Adaptation to Family Strain: Evidence From a National Survey of Male Adolescents." *Youth & Society* 30:416-444.

Broidy, Lisa and Robert Agnew. 1997. "Gender and Crime: A General Strain Theory Perspective." *Journal of Research in Crime and Delinquency* 34:275-306.

Broidy, Lisa M. 2001. "A Test of General Strain Theory." *Criminology* 39:9-36.

Brook, Judith S., David W. Brook, Pe Shein Wynn, Martin Whiteman, Joseph R. Masci, Jacques De Catalogne, Josephine Roberto, and Frances Amundsen. 2001. "Coping with AIDS and the Threat of AIDS in Intravenous Drug Abusers." *The Journal of Genetic Psychology* 155:147-159.

Brower, Jennifer and Peter Chalk. 2003. *The Global Threat of New and Reemerging Infectious Diseases: Reconciling U.S. National Security and Public Health Policy.* Santa Monica, CA: RAND.

Capowich, George E., Paul Mazerolle, and Alex Piquero. 2001. "General Strain Theory, Situational Anger, and Social Networks: An Assessment of Conditioning Influences." *Journal of Criminal Justice* 29:445-461.

Carrieri, Patrizia, Valérie Cailleton, Vincent Le Moing, Bruno Spire, Pierre Dellamonica, Elisabeth Bouvet, Francois Raffi, Valérie Journot, Jean-Paul Moatti, and APROCO Study Group. 2001. "The Dynamic of Adherence to Highly Active Antiretroviral Therapy: Results From the French National APROCO Cohort." *Journal of Acquired Immune Deficiency Syndromes* 28:232-239.

Catz, S. L., T. G. Heckman, A. Kochman, and M. DiMarco. 2001. "Rates and correlates of HIV Treatment Adherence Among Late Middle-Aged and Older Adults Living with HIV Disease." *Psychology, Health & Medicine* 6:47-58.

Catz, Sheryl L., Jeffrey A. Kelly, Laura M. Bogart, Eric G. Benotsch, and Timothy L. McAuliffe. 2000. "Patterns, Correlates, and Barriers to Medication Adherence Among Persons Prescribed New Treatments for HIV Disease." *Health Psychology* 19:124-133.

CDC. 1981. "Follow-up on Kaposi's Sarcoma and Pneumocystis Pneumonia." *Morbidity and Mortality Weekly Report* 30:409-410.

------. 1982a. "A Cluster of Kaposi's Sarcoma and Pneumocystis Carinii Pneumonia among Homosexual Male Residents of Los Angeles and range Counties, California." *Morbidity and Mortality Weekly Report* 31:305-307.

------. 1982b. "Epidemiologic Notes and Reports Update on Kaposi's Sarcoma and Opportunistic Infections in Previously Healthy Persons -- United States." *Morbidity and Mortality Weekly Report* 31:294, 300-301.

------. 2000. "HIV/AIDS Surveillance Report, December 2000 Year End Edition, Vol. 12., No. 2." U.S. Department of Health and Human Services, Atlanta, GA.

------. 2001. "HIV Incidence Among Young Men Who Have Sex With Men --- Seven U.S. Cities, 1994-2000." *Morbidity and Mortality Weekly Report* 50:440-444.

------. 2002a. "Cases of HIV Infection and AIDS in the United States, 2002." DHHS, PHS, CDC, Atlanta, Georgia.

------. 2002b. "Cases of HIV Infection and AIDS in the United States, 2002 -- Addendum." Atlanta, Georga.

------. 2002c. "HIV/AIDS Among Hispanics in the United States." U.S. Department of Health and Human Services, Rockville, MD.

------. 2003. "Advancing HIV Prevention: New Strategies for a Changing Epidemic --- United States, 2003." *Morbidity and Mortality Weekly Report* 52:329-332.

Cederfjäll, Claes, Ann Langius-Eklöf, Lidman Knut, and Regina Wredling. 2002. "Self-Reported Adherence to Antiretroviral Treatment and Degree of Sense of Coherence in a Group of HIV-Infected Patients." *AIDS Patient Care and STD's* 16:609-616.

Chen, James L., Kathryn A. Phillips, David E. Kanouse, Rebecca L. Collins, and Angela Miu. 2001. "Fertility Desires and Intentions of HIV-Positive Men and Women." *Family Planning Perspectives* 33:144-152 & 165.

Chesney, M. A., J. R. Ickovics, D. B. Chambers, A. L. Gifford, J. Neidig, B. Zwickl, and A. W. Wu. 2000. "Self-Reported Adherence to Antiretrovial Medication Among Participants in HIV Clinical Trials: The AACTG Adherence Instruments." *AIDS CARE* 12:225-266.

Chesney, Margaret. 2003. "Adherence to HAART Regimens." *AIDS Patient Care and STD's* 27:169-177.

Chibnall, John T., Susan D. Videen, Paul N. Duckro, and Douglas K Miller. 2002. "Psychosocial-Spiritual Correlates of Death Distress in Patients with Life-Threatening Medical Conditions." *Palliative Medicine* 16:331-338.

Chitwood, Dale D. 2002. "United States." Pp. 253-271 in *HIV and AIDS: A Global View, A World View of Social Issues*, edited by K. McElrath. Westport, CT: Greenwood Press.

Choi, Kyung-Hee, Eugene Kumekawa, Quang Dang, Susan M. Degeles, Robert B. Hays, and Ronald Stall. 1999. "Risk and Protective Factors Affecting Sexual Behavior Among Young Asian and Pacific Islander Men Who have Sex with Men: Implications for HIV Prevention." *Journal of Sex Education and Sexual Behavior* 24:47-55.

Clark, J.P. and E.P. Wenninger. 1963. "Goal Orientations and Illegal Behavior Among Juveniles." *Social Forces* 42:49-59.

Cloward, Richard A. 1959. "Illegitimate Means, Anomie, and Deviant Behavior." *American Sociological Review* 24:164-176.

Cloward, Richard A. and Lloyd E. Ohlin. 1960. *Delinquency and Opportunity.* New York: NY: Free Press.

Cohen, Albert K. 1955. *Delinquent Boys.* New York: NY: Free Press.

------. 1965. "The Sociology of the Deviant Act: Anomie Theory and Beyond." *American Sociological Review* 30:5-15.

Cohen, Oren J. and Anthony S. Fauci. 1998. "Transmission of Multidrug-Resistant Human Immunodeficiency Virus -- The Wake-up Call." *New England Journal of Medicine* 339:341.

Colder, Craig R. and Eric Stice. 1998. "A Longitudinal Study of the Interactive Effects of Impulsivity and Anger on Adolescent Problem Behavior." *Journal of Youth and Adolescence* 27:255-274.

Collaborative Group on Monitoring the Transmission of HIV Drug Resistance. 2001. "Analysis of Prevalence of HIV-1 Drug Resistance in Primary Infections in the United Kingdom." *British Medical Journal* 322:1087-1088.

Cook, Robert L., Susan M. Sereika, Susan C. Hunt, William C. Woodward, Judith A. Erlen, and Joseph Conigliaro. 2001. "Problem Drinking and Medication Adherence Among Persons with HIV Infection." *Journal of General Internal Medicine* 16:83-88.

Creese, Andrew, Katherine Floyd, Anita Alban, and Lorna Guinness. 2002. "Cost-Effectiveness of HIV/AIDS Interventions in Africa: a Systematic Review of the Evidence." *Lancet* 259:1635-1641.

Crosby, Richard A., William L. Yarber, Stephanie A. Sanders, and Cynthia A. Graham. 2004. "Condom Use as a Dependent Variable: A Brief Commentary About Classification of Inconsistent Users." *AIDS and Behavior* 8:99-103.

Curran, Patrick J., Stephen G. West, and John F. Finch. 1996. "The Robustness of Tests Statistics to Nonnormality and Specification Error in Confirmatory Factor Analysis." *Psychological Methods* 1.

Darrow, William W., Robert D. Webster, Steven P. Kurtz, Abraham K. Buckley, Kesuri I. Patel, and Robert R. Stempel. 1998. "Impact of HIV Counseling and Testing on HIV-Infected Men Who Have Sex with Men: The South Beach Health Survey." *AIDS and Behavior* 2:115-126.

de Cosío, F.G. and A. Boadella. 1999. "Demographic Factors Affecting the U.S. Mexico Border Health Status." Pp. 1-22 in *Life, Death and In-between on the U.S.-Mexico Border: Así es la vida*, edited by M. O. Loustaunau and M. Sánchez-Bane. Westport, CT: Bergin & Garvey.

DeMarco, Frank J., D.G. Ostrow, and Wayne DiFranceisco. 1999. "General and AIDS-Specific Stress, Coping and Psychological Distress in the Biracial Coping and Change Study Cohort of Gay Men." *AIDS and Behavior* 3: 177-186.

Delahanty, D.L., L.M. Bogart, and J.L. Figler. 2004. "Posttraumatic Stress Disorder Symptoms, Salivary Cortisol, Medication Adherence and CD4 levels in HIV-Positive Individuals." *AIDS Care* 16:247-260.

Díaz, R.D., G. Ayala, and E. Bein. 1999. "Social Oppression, Resiliency and Sexual Risk: Findings from the National Latino Gay Men's Study (Abstract 287)." in *National HIV Prevention Conference*, edited by Division of HIV/AIDS Prevention CDC. Atlanta, GA.

Díaz, R.M. 1998. *Latino Gay Men and HIV: Culture, Sexuality, and Risk Behavior*. London, UK: Routledge.

Diaz, T., J.W. Buehler, K.G. Castro, and J.W. Ward. 1993. "AIDS Trends Among Hispanics in the United States." *American Journal of Public Health* 83:594-509.

Donovan, Jenny L. and David R. Blake. 1992. "Patient Non-Compliance: Deviance or Reasoned Decision-Making?" *Social Science and Medicine* 34:507-513.

Duran, B., M. Bulterys, J. Iralu, A.E. Graham, A. Edwards, and M. Harrison. 2000. "American Indians with HIV/AIDS: Health and Social Services Needs, Barriers to Care, and Satisfaction with Services Among a Western Tribe." *American Indian and Alaskan Native Mental Health Research* 9:22-35.

Eberstadt, Nicholas. 2002. "The Future of AIDS." *Foreign Affairs* 81:22-46.

Eitle, David and R. Jay Turner. 2003. "Stress Exposure, Race, and Young Adult Male Crime." *Sociological Quarterly* 44:243-269.

Eldred, Lois J., Albert W. Wu, Richard E. Chaisson, and Richard D. Moore. 1998. "Adherence to Antiretroviral and Pneumocystis Prophylaxis in HIV disease." *Journal of Acquired Immune Deficiency Syndromes* 18:117-125.

Elliott, D. S. 1962. "Delinquency and Perceived Opportunity." *Sociological Inquiry* 32:216-227.

Elliott, Delbert S., David Huizinga, and Suzanne S. Ageton. 1985. *Explaining Delinquency and Drug Use*. Beverly Hills: Sage Publications.

Empey, L.T. 1956. "Social Class and Occupational Aspirations: A Comparison of Absolute and Relative Measurement." *American Sociological Review* 21:703-709.

Escaffre, N., M. Morin, A. D. Bouhnik, J. G. Fuzibet, J. A. Gastaut, Y. Obadia, J. P. Moatti, and the MANIF 2000 Study Group. 2000. "Injecting drug Users' Adherence to HIV Antiretroviral Treatments: Physicians' Beliefs." *AIDS CARE* 12:723-730.

Fairbanks, J. 1997. "Health Care Access and Utilization on the U.S.-Mexico Border." Pp. 73-86 in *Border Health: Challenges for the United States and Mexico.*, edited by J. G. Bruhn and J. E. Brandon. New York, NY: Garland.

Fernández, M. Isabel, Jose B. Collazo, Nilda Herández, G. Stephen Bowen, Leah M. Varga, Christie Kibort Vila, Kristopher L. Arheart, and Tatiana Perrino. 2004. "Predictors of HIV Risk Among Hispanic Farm Workers in South Florida: Women Are at Higher Risk Than Men." *AIDS and Behavior* 8:165-174.

Fisher, Jeffrey D., Diane L. Kimble Willcutts, Stephen J. Misovich, and Beth Weinstein. 1998. "Dynamics of Sexual Risk Behavior in HIV-Infected Men Who Have Sex with Men." *AIDS and Behavior* 2:101-113.

Flores, Glenn. 2000. "Culture and the Patient-Physician Relationship: Achieving Cultural Competency in Health Care." *The Journal of Pediatrics* 136:14-23.

Foreman, M. 1999a. "Introduction: Are Men to Blame?" Pp. viii-xii in *AIDS and men: Taking risks or taking responsibility?* edited by M. Foreman. London, UK: Zed Books Ltd.

Frazier, Patricia A., Andrew P. Tix, and Kenneth E. Barron. 2004. "Testing Moderator and Mediator Effects in Counseling Psychology." *Journal of Counseling Psychology* 51:115-134.

Frevert, Vada S. and Alexis O. Miranda. 1998. "A Conceptual Formulation of the Latin Culture and the Treatment of Latinos from an Adlerian Psychology Perspective." *The Journal of Individual Psychology* 54:292-309.

Gallant, Joel E. and David S. Block. 1998. "Adherence to Antiretroviral Regimens in HIV-Infected Patients: Results of a Survey among Physicians and Patients." *Journal of the International Association of Physicians in AIDS Care* May:32-35.

Gao, X., D. P. Nau, S. A. Rosenbluth, V. Scott, and C. Woodward. 2000. "The Relationship of Disease Severity, Health Beliefs and Medication Adherence Among HIV Patients." *AIDS CARE* 12:387-398.

Gauthier, DeAnn K. and Craig J. Forsyth. 1999. "Bareback Sex, Bug Chasers, and the Gift of Death." *Deviant Behavior: An Interdisciplinary Journal* 20:85-100.

Gifford, Allen L., Jill E. Bormann, Martha J. Shively, Brian C. Wright, Douglas D. Richman, and Samuel A. Bozzette. 2000. "Predictors of Self-Reported Adherence and Plasma HIV Concentrations in Patients and Multidrug Antiretroviral Regimens." *Journal of Acquired Immune Deficiency Syndromes* 23:386-395.

Godwin, Deborah D. and John Scanzoni. 1989. "Couple Consensus during Marital Joint Decision-Making: A Context, Process Outcome Model." *Journal of Marriage and the Family* 51:943-956.

Gordillo, Victoria, Julia del Amo, Vicente Soriano, and Juan Gonzales-Lahoz. 1999. "Sociodemographic and Psychological Variables Influencing Adherence to Antiretroviral Therapy." *AIDS* 13:1763-1769.

Gottfredson, Michael and Travis Hirschi. 1990. *A General Theory of Crime.* Palo Alto, CA: Stanford University Press.

Grant, R.M., Frederick Hecht, Maria Warmerdam, Lea Liu, Teri Liegler, Christos J. Petropoulos, Nicholas S. Hellmann, M. Chesney, Michael P. Busch, and James Kahn. 2002. "Time Trends in Primary HIV-1 Drug Resistance Among Recently Infected Persons." *Journal of the American Medical Association* 288:181-188.

Grasmick, Harold G., Charles R. Tittle, Robert J. Bursik, and Bruce J. Arneklev. 1993. "Testing the Core Empirical Implications of Gottfredson and Hirschi's General Theory of Crime." *Journal of Research in Crime and Delinquency* 30:5-30.

Grassi, Luigi, Roberto Righi, Laura Sighinolfi, Shariar Makoui, and Florio Ghinelli. 1998. "Coping Styles and Psychosocial Related Variables in HIV-Infected Patients." *Psychosomatics* 39:350-359.

Green, Samuel B. 1991. "How Many Subjects Does It Take To Do A Regression Analysis?" *Multivariate Behavioral Research* 26:499-510.

Greenburg, D.F. 1977. "Delinquency and the Age Structure of Society." Pp. 189-223 in *Contemporary Crises 1*. Amsterdam: Elsevier Scientific Publishing Company.

Halkitis, P.N. and J. T. Parsons. 2003. "Intentional Unsafe Sex (Barebacking) among HIV-Positive Gay Men Who See Sexual Partners on the Internet." *AIDS Care* 15:367-378.

Halkitis, Perry N. and Jeffrey T. Parsons. 2002. "Recreational Drug Use and HIV-Risk Sexual Behavior Among Men Frequenting Gay Social Venues." *Journal of Gay & Lesbian Social Services* 14:19-38.

Halkitis, Perry N., Jeffrey T. Parsons, and Leo Wilton. 2003. "Barebacking Among Gay and Bisexual Men in New York City: Explanations for the Emergence of Intentional Unsafe Behavior." *Archives of Sexual Behavior* 32:351-357.

Hammer, S.M., D.A. Katzenstein, M.D. Hughes, H. Gundacker, R.T. Schooley, R. H. Haubrich, W. Keith Henry, M. M. Lederman, J. P. Phair, M. Niu, M.S. Hirsch, and T.C. Merigan. 1996. "A Trial Comparing Nucleoside Monotherapy with Combination Therapy in HIV-Infected Adults with CD4 Cell Counts from 200 - 500 per Cubic Millimeter." *The New England Journal of Medicine* 335:1081-1090.

Harrington, Mark and Charles C.J. Carpenter. 2000. "Hit HIV-1 Hard, But Only When Necessary." *Lancet* 355:2147-2153.

Harvey, E., S.A. Strathdee, D.M. Patrick, M. Ofner, C.P. Archibald, G. Eades, and M.V. O'Shaughnessy. 1998. "A Qualitative Investigation into an HIV Outbreak Among Injection Drug Users in Vancouver, British Columbia." *AIDS Care* 10:313-322.

Haubrich, Richard H., Susan J. Little, Judith S. Currier, Donald N. Forthal, Carol A. Kemper, Gildon N. Beall, Debra Johnson, Michael P. Dubé, Jimmy Y. Hwang, J. Allen McCutchan, and the California Collaborative Treatment Group. 1999. "The Value of Patient-Reported Adherence to Antiretroviral Therapy in Predicting Virologic and Immunologic Response." *AIDS* 13:1099-1107.

Hay, Carter. 2003. "Family Strain, Gender, and Delinquency." *Sociological Perspectives* 46:107-135.

Hecht, Frederick, R.M. Grant, Christos J. Petropoulos, Beth Dillon, M.A. Chesney, N. Hellman, N.I. Bandrapalli, Laura Digilio, Bernard Branson, and J.O. Kahn. 1998. "Sexual Transmission of an HIV-1 Variant Resistant to Multiple Reverse-Transciptase and Protease Inhibitors." *Massachusetts Medical Society* 339:307-311.

Heckman, B.D., S.L. Catz, T.G. Heckman, J.G. Miller, and S.C. Kalichman. 2004. "Adherence to Antiretroviral Therapy in Rural Persons Living with HIV Disease in the United States." *AIDS Care* 16:219-230.

Heckman, Timothy G., Jeffrey A. Kelly, and Anton M. Somlai. 1998. "Predictors of Continued High-Risk Sexual Behavior in a Community Sample of Persons Living with HIV/AIDS." *AIDS and Behavior* 2:127-135.

Hirsch, Jennifer S. 1999. "En el Norte la Mujer Manda: Gender, Generation, and Geography in a Mexican Transnational Community." *American Behavioral Scientist* 42:1332-1349.

Hirschi, Travis. 1969. *Causes of Delinquency.* Berkley, CA: University of California Press.

Hirschi, Travis and Michael R. Gottfredson. 1994. *The Generality of Deviance*, Edited by T. Hirschi and M. R. Gottfredson. New Brunswick, NJ: Transaction Publishers.

HIV/AIDS Treatment Information Service. 2002. "Guidelines for the Use of Antiretroviral Agents in HIV-Infected Adults and Adolescents." HIV/AIDS Treatment Information Service - ATIS, Rockville, MD.

Hoffmann, John P. and Felicia Gray Cerbone. 1999. "Stressful Life Events and Delinquency Escalation in Early Adolescence." *Criminology* 37:343-373.

Hoffmann, John P. and Alan S. Miller. 1998. "A Latent Variable Analysis of General Strain Theory." *Journal of Quantitative Criminology* 14:83-110.

Hoffmann, John P. and S. Susan Su. 1997. "The Conditional Effects of Stress on Delinquency and Drug Use: A Strain Theory Assessment of Sex Differences." *Journal of Research in Crime and Delinquency* 34:46-78.

Hogg, Robert S., Katherine V. Heath, Benita Yip, Kevin J.P. Craib, M.V. O'Shaughnessy, Martin T. Schechter, and Julio S.G. Montaner. 1998. "Improved Survival Among HIV-Infected Individuals Following Initiation of Antiretroviral Therapy." *Journal of American Medical Association* 279:450-454.

Holme, Molly. 2001. "The Challenge of HIV Drug Resistance." *Harvard AIDS Review* Winter/Spring 2001:13-16.

Holzemer, William L., Inge B. Corless, Kathleen M. Nokes, Joan G. Turner, Marie-Annette Brown, Gail M. Powell-Cope, Jillian Inouye, Suzanne B. Henry, Patrice K. Nicholas, and Carmen J. Portillo. 1999. "Predictors of Self-Reported Adherence in Persons Living with HIV Disease." *AIDS Patient Care and STDs* 13:185-197.

Hoyle, Rick H. and David A. Kenny. 1999. "Sample Size, Reliability, and Tests of Statistical Mediation." in *Statistical Strategies for Small Sample Research*, edited by R. H. Hoyle. Thousand Oaks, CA: SAGE.

Ickovics, Jeannette R., Susan E. Beren, Elena L. Grigorenko, Allison C. Morrill, Jennifer A. Druley, and Judith Rodin. 2002. "Pathways of Risk: Race, Social Class, Stress and Coping as Factors Predicting Heterosexual Risk Behaviors for HIV among Women." *AIDS and Behavior* 6:339-350.

Ickovics, Jeannette R. and Andew W. Meisler. 1997. "Adherence in AIDS Clinical Trials: A Framework for Clinical Research and Clinical Care." *Journal of Clinical Epidemiology* 50:385-391.

Ingersoll, K. 2004. "The Impact of Psychiatric Symptoms, Drug Use, and Medication Regimen on Non-Adherence to HIV Treatment." *AIDS Care* 16:199-211.

Institute of Medicine. 2001. "No Time to Lose: Getting More from HIV Prevention." Pp. 227, edited by M. S. Ruiz, A. R. Gable, E. H. Kaplan, M. A. Stoto, H. V. Fineberg, and J. Trussell. Washington D.C.: National Academy Press.

Institute of Medicine/National Academy of Sciences. 1988. *Confronting AIDS: Update 1988*. Washington, D.C.: National Academy Press.

Irwin, Alexander, Joyce Millen, and Dorothy Fallows. 2003. *Global AIDS: Myths and Facts.* Cambridge, MA: South End Press.

Jani, Asim A., William R. Bishai, Susan E. Cohn, Inge B. Corless, Sheila Davis, William L. Holzemer, Andre Maiorana, and S. Anne Steward. 2002. "Adherence to HIV Treatment Regimens: Recommendations for Best Practices." American Public Health Association. Available at http://www.apha.org/ppp/hiv/Best_Practices.pdf., Washington, DC.

Jones, Jeffrey L., Debra L. Hanson, Mark S. Dworkin, David L. Alderton, Patricia L. Fleming, Jon E. Kaplan, John Ward, Division of HIV/AIDS Prevention-Surveillance and Epidemiology, STD National Center for HIV, and TB Prevention Division of AIDS, STD, and TB Laboratory Research National Center for Infectious Diseases. 1999. "Surveillance for AIDS-Defining Opportunistic Illnesses, 1992 - 1997." *Morbidity and Mortality Weekly Report* 48:1-22.

Judd, Fiona K., Alex M. Cockram, Angela Komiti, Anne M. Mijch, Jennifer Hoy, and Richard Bell. 2000. "Depressive Symptoms Reduced in Individuals with HIV/AIDS Treated with Highly Active Antiretroviral Therapy: A Longitudinal Study." *Australian and New Zealand Journal of Psychiatry* 34:1015-1021.

Kaiser Family Foundation. 2001. "Key Facts: Latinos and HIV/AIDS." The Henry J. Kaiser Family Foundation, Menlo Park, CA.

Kalichman, S. C., Bineetha Ramachandran, and Sheryl Catz. 1999. "Adherence to Combination Antiretroviral Therapies in HIV Patients of Low Health Literacy." *Journal of General Internal Medicine* 14:267-273.

Katz, Michael H., Sandra K. Schwarcz, Timothy A. Kellogg, Jeffrey D. Klausner, James W. Dilley, Steven Gibson, and William McFarland. 2002. "Impact of Highly Active Antiretroviral Treatment on HIV Seroincidence Among Men Who Have Sex with Men: San Francisco." *American Journal of Public Health* 92:388-394.

Katz, Rebecca S. 2000. "Explaining Girls' and Women's Crime and Desistance in the Context of Their Victimization Experiences: A Developmental Test of Revised Strain Theory and the Life Course Perspective." *Violence Against Women* 6:633-660.

------. 2002. "Re-Examining the Integrative Social Capital Theory of Crime." *Western Criminology Review* 4:30-54.

Keesee, Marguerite, Ahmad Saleem G. Ahmad, Wendy Nelson, David D. Barney, and Betty Duran. 2005. "An Application of Borrayo's Cultural Health Belief Model to HIV/AIDS Seropositive Hispanics Living Along the US/Mexico Border." *Journal of HIV/AIDS and Social Services* 3:9-34.

Keesee, Marguerite S. 1989. "Remarriage and Delinquency: An Empirical Study." MA Thesis, Department of Sociology, University of Oklahoma, Norman.

Keller, S. and M. Zavalloni. 1964. "Ambition and Social Class: A Respecification." *Social Forces* 43:58-69.

Kelly, J.A., Y.A. Amirkhanian, T.L. McAuliffe, J.V. Granskaya, O.I. Borodkina, R.V. Dyatlov, A. Kukharsky, and A.P. Kozlov. 2002. "HIV Risk Characteristics and Prevention Needs in a Community Sample of Bisexual Men in St. Petersburg, Russia." *AIDS Care* 14:63-76.

Kelly, Jeffrey A. and Seth C. Kalichman. 2002. "Behavioral Research in HIV/AIDS Primary and Secondary Prevention: Recent Advances and Future Directions." *Journal of Consulting and Clinical Psychology* 70:626-639.

Kleeberger, Cynthia A., Jennifer Buechner, Frank Palella, Roger Detels, Sharon Riddler, Rebecca Godfrey, and Lisa P. Jacobson. 2004. "Changes in Adherence to Highly Active Antiretroviral Therapy Medications in the Multicenter AIDS Cohort Study." *AIDS* 18:683-688.

Kleeberger, Cynthia A., John P. Phair, Steffanie A. Strathdee, Roger Detels, Lawrence Kingsley, and Lisa P. Jacobson. 2001. "Determinants of Heterogeneous Adherence to HIV-Antiretroviral Therapies in the Multicenter AIDS Cohort Study." *Journal of Acquired Immune Deficiency Syndromes* 26:82-92.

Koblin, Beryl A., Margaret A. Chesney, Maria J. Husnik, Sam Bozemen, Connie L. Celum, Susan Buchbinder, Kenneth H. Mayer, David McKirnan, Franklyn N. Judson, Yijian Huang, Thomas J. Coates, and EXPLORE Study Team. 2003. "High-Risk Behaviors Among Men Who Have Sex With Men in 6 US Cities: Baseline Data From the EXPLORE Study." *American Journal of Public Health* 93:926-932.

Kornhauser, Ruth R. 1978. *Social Sources of Delinquency: An Appraisal of Analytic Models*. Chicago: University of Chicago Press.

Kraemer, Helena Chmura and Sue Thiemann. 1987. *How Many Subjects? Statistical Power Analysis in Research*. Newbury Park, CA: SAGE Publications, Inc.

Kramer, Sharon H. and Robert Rosenthal. 1999. "Effect Sizes and Significance Levels in Small-Sample Research." in *Statistical Strategies for Small Sample Research*, edited by R. H. Hoyle. Thousand Oaks, CA: SAGE.

Kumarasamy, N. 2004. "Generic Antiretroviral drugs -- Will They be the Answer to HIV in the Developing World?" *Lancet* 364:3-4.

Kwiatkowski, Carol F. and Robert E. Booth. 1998. "HIV-Seropositive Drug Users and Unprotected Sex." *AIDS and Behavior* 2:151-159.

Landon, B.E., I. Wilson, M.D. Wong, S.E. Cohn, C.J. Fichtenbaum, N.S. Wenger, S.A. Bozzette, M.F. Shapiro, and P.D. Cleary. 2002. "Physician Specialization and Antiretroviral Therapy for HIV: Adoption, Use, and Adherence in a National Probability Sample of Persons Infected With HIV." *Journal of General Internal Medicine* 17:201.

Laurence, Jeffrey. 2003. "Drug Resistance Among HIV and Its "Friends"." *AIDS Reader* 13:103-107.

Legal, Lambda. 2002. "State Criminal Statutes on HIV Transmission." New York, NY: Lambda Legal Defense and Education Fund.

Leigh Brown, Andrew J., Simon D.W. Frost, W. Christopher Mathews, Keith Dawson, Nicholas S. Hellmann, Eric S. Daar, Douglas D. Richman, and S. J. Little. 2003. "Transmission Fitness of Drug-Resistant Human Immunodeficiency Virus and the Prevalence of Resistance in the Antiretroviral-Treated Population." *The Journal of Infectious Diseases* 187:683-686.

Leserman, J., D.O. Perkins, and D.L. Evans. 1992. "Coping with the Threat of AIDS: the Role of Social Support." *The American Journal of Psychiatry* 149:1514-1520.

Lesser, Janna, Jerry Tello, Deborah Koniak-Griffin, Barbara Kappos, and Moore Rhys. 2000. "Young Latino Fathers' Perceptions of Paternal Role and Risk for HIV/AIDS." *Hispanic Journal of Behavioral Sciences* 327-343.

Lewis, Sarah J. and Neil Abell. 2002. "Development and Evaluation of the Adherence Attitude Inventory." *Research on Social Work Practice* 12:107-123.

Lewis, Stephen. 2004. "Keynote Lecture by Ambassador Stephen H. Lewis. United Nations Special Envoy on HIV/AIDS in Africa." in *11th Conference on Retroviruses and Opportunistic Infections*. San Francisco, CA: Foundation for Retrovirology and Human Health.

Little, S. J., Eric S. Daar, Richard T. D'Aquila, Philip H. Keiser, Elizabeth Connick, Jeannette M. Whitcomb, Nicholas S. Hellmann, Christos J. Petropoulous, Lorraine Sutton, Jacqui A. Pitt, Eric S. Rosenberg, Richard A. Koup, Bruce D. Walker, and Douglas D. Richman. 1999. "Reduced Antiretroviral Drug Susceptibility Among Patients with Primary HIV Infection." *Journal of American Medical Association* 282:1142-1149.

Little, S. J., K. Dawson, N.S. Helmann, D.D. Richman, and S.D.W. Frost. 2003. "Persistence of Transmitted Drug Resistant Virus among Subjects with Primary HIV Infection Deferring Antiretroviral Therapy." Pp. 2 in *XII International HIV Drug Resistance Workshop*, edited by R. Baker and B. Boyle. Los Cabos, Mexico: HIV and Hepatitis.com. Retrieved November, 2004 (http://www.hivandhepatitis.com).

Little, S.J. 2001. "Is Transmitted Drug Resistance in HIV on the Rise?" *British Medical Journal* 322:1074-1075.

Longshore, Douglas, Judith A Stein, and Susan Turner. 1998. "Reliability and Validty of a Self-Control Measure: Rejoinder." *Criminology* 36:175-182.

Longshore, Douglas, Susan Turner, and Judith A Stein. 1996. "Self-Control in a Criminal Sample: An Examination of Construct Validity." *Criminiology* 34:209-228.

Lucas, Gregory M., Kelly A. Gebo, Richard E. Chaisson, and Richard D. Moore. 2002. "Longitudinal Assessment of the Effects of Drug and Alcohol Abuse on HIV-1 Treatment Outcomes in an Urban Clinic." *AIDS* 16:767-774.

Marcus, Bernd. 2003. "An Empirical Examination of the Construct Validity of Two Alternative Self-Control Measures." *Educational and Psychological Measurement* 63:674-706.

Marks, Gary, Cherilyn R. Bingham, and T. Shelley Duval. 1998. "Negative Affect and Unsafe Sex in HIV-Positive Men." *AIDS and Behavior* 2:89-99.

Marseille, Elliot, Paul B. Hofmann, and James G. Kahn. 2002. "HIV Prevention Before HAART in Sub-Saharan Africa." *Lancet* 359:1851-1856.

Martini, M., F. Parazzini, and V. Agnoletto. 2001. "Characteristics of Doctor-Patient Relationship and Implication on Adherence to Antiretroviral Treatments." *HIV Medicine* 2:62-63.

Mazerolle, Paul. 1998. "Gender, General Strain, and Delinquency: An Empirical Examination." *Justice Quarterly* 15:65-87.

Mazerolle, Paul and Jeff Maahs. 2000. "General Strain and Delinquency: An Alternative Examination of Conditioning Influences." *Justice Quarterly* 17:753-778.

Mazerolle, Paul and Alex Piquero. 1997. "Violent Responses to Strain: An Examination of Conditioning Influences." *Violence and Victims* 12:323-343.

------. 1998. "Linking Exposure to Strain with Anger: An Investigation of Deviant Adaptations." *Journal of Criminal Justice* 26:195-211.

Mazerolle, Paul, Alex R. Piquero, and George W. Capowich. 2003. "Examining the Links Between Strain, Situational and Dispositional Anger, and Crime: Further Specifying and Testing General Strain Theory." *Youth & Society* 35:131-157.

Mazerolle, Paul, Velmer S. Burton Jr., Francis T. Cullen, T. David Evans, and Gary L. Payne. 2000. "Strain, Anger, and Delinquent Adaptations: Specifying General Strain Theory." *Journal of Criminal Justice* 28:89-101.

McElrath, Karen. 2002. "HIV and AIDS: A Global View." Pp. 290 in *A World View of Social Issues*, edited by A. L. Cherry. Westport: Greenwood Press.

Mendez, Roque V., Timothy L. Hulsey, and Richard L. Archer. 2001-02. "Multiple Partners in the Age of AIDS: Self-consciousness Theory and HIV Risk Behavior." *Current Psychology: Development, Learning, Personality, Social* 20:349-362.

Menting, Ann. 2001. "Responding to the Changing Conditions of Life: The Molecular Evolution of HIV." *Harvard AIDS Review* Winter/Spring 2001:2-8.

Merton, Robert. 1938. "Social Structure and Anomie." *American Sociological Review* 3:672-682.

Meystre-Agustoni, G., F. Dubois-Arber, P. Cochand, and A. Telenti. 2000. "Antiretroviral Therapies from the Patient's Perspective." *AIDS CARE* 12:717-721.

Miller, L., J.A. McCutchan, P. Keiser, C. Kemper, M. Witt, J. Leedom, D. Forthal, N. Hellman, D. Richman, E. Seefried, A. Rigby, R. Haubrich, and CCTG. 2003. "The Impact of Medication Adherence." Pp. 2 in *XII International HIV Drug Resistance Workshop*, edited by R. Baker and B. Boyle. Los Cabos, Mexico: HIV and Hepatitis.com Retrieved November, 2004 (http://www.hivandhepatitis.com).

Mirandé, Alfredo. 1997. *Hombres y Machos: Masculinity and Latino Culture*. Boulder, CO: Westview Press.

Mirken, Bruce. 1997. "How Much Does it Really Matter if You Take Your Pills on Time?" Bulletin of Experimental Treatments for AIDS (Sept. 1997): San Francisco AIDS Foundation.

Mirowsky, John and Catherine E. Ross. 1995. "Sex Differences in Distress: Real or Artifact?" *American Sociological Review* 60: 449-468.

Mitchell, Christopher G. and Nathan L. Linsk. 2004. "A Multidimensional Conceptual Framework for Understanding HIV/AIDS as a Chronic Long-Term Illness." *Social Work* 49:469-477.

Moatti, J.P., M.P. Carrieri, B. Spire, J.A. Gastaut, J.P. Cassuto, J. Moreau, and the Manif 2000 study group. 2000. "Adherence to HAART in French HIV-Infected Injecting Drug Users: The Contribution of Buprenorphine Drug Maintenance Treatment." *AIDS* 14:151-155.

Montgomery, J.P., E.D. Mokotoff, A.C. Gentry, and J.M. Blair. 2003. "The Extent of Bisexual Behaviour in HIV-infected Men and Implications for Transmission to their Female Sex Partners." *AIDS Care* 15:829-837.

Montgomery, Jolynn P., Brenda W. Gillespie, Anne C. Gentry, Eve D Mokotoff, Lawrence R. Crane, and Sherman A. James. 2002. "Does Access to Health Care Impact Survival Time After Diagnsis of AIDS?" *AIDS Patient Care and STD's* 16:223-231.

Morin, Stephen F. 2000. "Early Detection of HIV: Assessing the Legislative Context." *Journal of Acquired Immune Deficiency Syndromes* 25:S144-S150.

Morin, Stephen F., Karen Vernon, John (Jay) Harcourt, Wayne T. Steward, Jonathan Volk, Thomas H. Riess, Torsten B. Neilands, Marisa McLaughlin, and Thomas J. Coates. 2003. "Why HIV Infections Have Increased Among Men Who Have Sex with Men and What to Do About It: Findings from California Focus Groups." *AIDS and Behavior* 7:353-362.

Mundfrom, Daniel J., Dale G. Shaw, and Tian Lu Ke. 2005. "Minimum Sample Size Recommendations for Conducting Factor Analyses." *International Journal of Testing* 5:159-168.

Murphy, Debra A., W.D. Marelich, M.E. Dello Stritto, D. Swendeman, and A. Witkin. 2002. "Mothers Living with HIV/AIDS: Mental, Physical, and Family Functioning." *AIDS Care* 14:633-644.

Murphy, Debra A., Kathleen Jonhston Roberts, David J. Martin, William Marelich, and Dannie Hoffman. 2000. "Barriers to Antiretroviral Adherence among HIV-Infected Adults." *AIDS Patient Care and STDs* 14:47-58.

Murri, Rita, Adriana Ammassari, Keith Gallicano, Andrea DeLuca, Antonella Cingolani, Denise Jacobson, Albert W. Wu, and Andrea Antinori. 2000. "Patient-Reported Nonadherence to HAART Is Related to Protease Inhibitor Levels." *Journal of Acquired Immune Deficiency Syndromes* 24:123-128.

Museveni, Yoweri. 2004. "Behavioral Change is the Only Way to Fight AIDS." in *Wall Street Journal, July 14 Commentary*. Chicopee, MA.

Nagelkerke, Nico J.D., Prabhat Jha, Sake J. de Vlas, Eline L. Korenromp, Stephen Moses, James F. Blanchard, and Frank A. Plummer. 2002. "Modelling HIV/AIDS Epidemics in Botswana and India: Impact of Interventions to Prevent Transmission." *Bulletin of the World Health Organization* 80:89-96.

Nieuwkerk, Pythia T., Mirjam A. G. Sprangers, David M. Burger, Richard M.W. Hoetelmans, Patricia W. H. Hugen, Sven A. Danner, Marchina E. van der Ende, Margriet M. E. Schneider, Gerrit Schrey, Pieter L. Meenhorst, Herman G. Sprenger, Robert H. Kauffmann, Marielle Jambroes, Margaret A. Chesney, Frank de Wolf, and Joep Lang. 2001. "Limited Patient Adherence to Highly Active Antiretroviral Therapy for HIV-1 Infection in an Observational Cohort Study." *Archives of Internal Medicine* 161:1962-1968.

Oette, Mark, Petra Juretzko, Arne Kroidl, Abdurrahman Sagir, Matthias Wettstein, Johannes Siegrist, and Dieter Haussinger. 2002. "Lipodystrophy Syndrome and Self-Assessment of Well-Being and Physical Appearance in HIV-Positive Patients." *AIDS Patient Care and STD's* 16:413-417.

Ostrow, David E., Kelly J. Fox, Joan S. Chmiel, Antho ny Silvestre, Barbara R. Visscher, Peter A. Vanable, Lisa P. Jacobson, and Steffanie A. Strathdee. 2002. "Attitudes Towards Highly Active Antiretroviral Therapy are Associated with Sexual Risk Taking Among HIV-Infected and Uninfected Homosexual Men." *AIDS* 16:775-780.

Panel on Clinical Practices for Treatment of HIV Infections. 2002. "Guidelines for the Use of Antiretroviral Agents in HIV-Infected Adults and Adolescents." Department of Health and Human Services (DHHS) and the Henry J. Kaiser Family Foundatio n, Washington, DC.

------. 2003. "Guidelines for the Use of Antiretroviral Agents in HIV-Infected Aduls and Adolescents." Department of Health and Human Services (DHHS) and the Henry J. Kaiser Family Foundation, Washington, DC.

Paternoster, Raymond and Paul Mazerolle. 1994. "General Strain Theory and Delinquency: A Replication and Extension." *Journal of Research in Crime and Delinquency* 31:235-263.

Paterson, D., S. Swindells, J. Mohr, M. Brester, E. Vergis, C. Squier, M. Wagener, N. Singh, Pittsburgh VA Medical Center, PA, and University Nebraska Medical Center -- Omaha. 1999. "How Much Adherence is Enough? A Prospective Study of Adherence to Protease Inhibitor Therapy Using MEMSCaps." in *6th Conference on Retroviruses and Opportunistic Infections (Abstract 92)*. Chicago, IL: Foundation for Retrovirology and Human Health.

Paterson, David L., Susan Swindells, Jeffrey Mohr, Michelle Brester, Emanuel Vergis, Cheryl Squier, Marilyn M. Wagener, and Nina Singh. 2000. "Adherence to Protease Inhibitor Therapy and Outcomes in Patients with HIV Infection." *Annals of Internal Medicine* 133:21-30.

Pearlin, Leonard J. and Carmi Schooler. 1978. "The Structure of Coping." *Journal of Health and Social Behavior* 19:2-21.

Perdue, Thomas, Holly Hagan, Hanne Thiede, and Linda Valleroy. 2003. "Depression and HIV Risk Behavior Among Seattle-Area Injection Drug Users and Young Men Who Have Sex with Men." *AIDS Education and Prevention* 15:81-92.

Peter, Tracey, Teresa C. LaGrange, and Robert A. Silverman. 2003. "Investigating the Interdependence of Strain and Self-Control." *Canadian Journal of Criminology and Criminal Justice*:431-464.

Pfohl, S.J. 1985. *Images of Deviance and Social Control: A Sociological History*. New York: McGraw-Hill Book Company.

Piquero, Alex and Andre B Rosay. 1998. "The Reliability and Validity of Grasmick et al.'s Self-Control Scale: A Comment On Longshore et.al." *Criminology* 36:157-173.

Piquero, Nicole Leeper and Miriam D. Sealock. 2000. "Generalizing General Strain Theory: An Examination of an Offending Population." *Justice Quarterly* 17:449-484.

Polk, K. 1969. "Class, Strain, and Rebellion Among Adolescents." *Social Problems* 17:214-217.

Quicker, J. 1974. "The Effect of Goal Discrepancy on Delinquency." *Social Problems* 22:76-86.

Reilly, Thom and Grace Woo. 2004. "Social Support and Maintenance of Safer Sex Practices among People Living with HIV/AIDS." *Health and Social Work* 29:97-105.

Reiss, A. and A. Rhodes. 1963. "Status Deprivation and Delinquent Behavior." *Sociological Quarterly* 4:135-149.

Remien, Robert H. and Raymond A. Smith. 2000. "HIV Prevention in the Era of HAART: Implications for Providers." *AIDS Reader* 10:247-251.

Reynolds, Nancy R., Marcia A. Testa, Linda G. Marc, Margaret A. Chesney, Judith L. Neidig, Scott R. Smith, Stefano Vella, and Gregory K. Robbins for the Protocol Teams of ACTG 384 ACTG 731 and A5031s. 2004. "Factors Influencing Medication Adherence Beliefs and Self-Efficacy in Persons Naive to Antiretroviral Therapy: A Multicenter, Cross-Sectional Study." *AIDS and Behavior* 8:141-150.

Rhodes, F., S. Deren, M.M. Wood, M.G. Shedlin, R.G. Carlson, E.Y. Lambert, L.M. Kochems, M.J. Stark, R.S. Falck, L. Wright-DeAgüero, B. Weir, L. Cottler, K.M. Rourke, and R.T. Trotter II. 1999. "Understanding HIV Risks of Chronic Drug-Using Men Who Have Sex With Men." *AIDS Care* 11:629-648.

Rhodes, Tim, Marina Barnard, Jane Fountain, Fabienne Hariga, Nuria Romo Avilés, Julian Vicente, and Urban Weber. 2001. *Injecting drug use, risk behavior and qualitative research in the time of AIDS.*, vol. 4, Edited by T. Rhodes, G. Greenwood, and K. Robertson. Luxembourg: European Monitoring Centre for Drugs and Alcohol Addiction (EMCDDA).

Riley, Diane and Pat O'Hare. 2002. "Harm Reduction: History, Definition and Practice." Pp. 20-55 in *AIDS, Drugs and Society,* edited by A. Alexandrova. New York, NY: International Debate Education Association.

Roberts, K. Johnston and T. Mann. 2000. "Barriers to Antiretroviral Medication Adherence in HIV-Infected Women." *AIDS Care* 12:377-386.

Roberts, Kathleen Johnston. 2000a. "Barriers to and Facilitators of HIV-Positive Patients' Adherence to Antiretroviral Treatment Regimens." *AIDS Patient Care and STDs* 14:155-168.

------. 2000b. "Physician Beliefs about Antiretroviral Adherence Communication." *AIDS Patient Care and STDs* 14:477-484.

Roberts, Kathleen Johnston and Traci Mann. 2003. "Adherence to Antiretroviral Medications in HIV/AIDS Care: A Narrative Exploration of One Woman's Foray into Intentional Nonadherence." *Health Care for Women International* 24:552-564.

Rosenberg, Morris. 1965. *Society and Adolescent Self-Image*. Princeton, NJ: Princeton University Press.

Ruiz, J.D. 2002. "HIV Prevalence, Risk Behaviors and Access to Care among Young Latino MSM in San Diego, California and Tijuana, Mexico." *Paper presented at UARP Conference*.

Sampson, Robert J. and John H. Laub. 1993. *Crime in the Making: Pathways and Turning Points Through Life.* Cambridge, MA: Harvard University Press.

Schuman, Paula, Suzanne E. Ohmit, Mardge Cohen, Henry S. Sacks, Jean Richardson, Mary Young, Ellie Schoenbaum, Anne Rompalo, and Lytt Gardner. 2001. "Prescription of and Adherence to Antiretroviral Therapy Among Women with AIDS." *AIDS and Behavior* 5:371-378.

Sharp, Susan F. 1998. "Relationships with Children and AIDS-Risk Behaviors Among Female IDUs." *Deviant Behavior: An Interdisciplinary Journal* 19:5-27.

Sharp, Susan F., Dennis Brewster, and Sharon Red-Hawk Love. 2005. "Disentangling Strain, Personal Attributes, Affective Response and Deviance: A Gendered Analysis." *Deviant Behavior: An Interdisciplinary Journal* 26:133-157.

Sharp, Susan F., Toni L. Terling-Watt, Leslie A. Atkins, Jay Trace Gilliam, and Anna Sanders. 2001. "Purging Behavior in a Sample of College Females: a Research Note on General Strain Theory and Female Deviance." *Deviant Behavior: An Interdisciplinary Journal* 22:171-188.

Shernoff, Michael and Raymond A. Smith. 2000. *HIV Treatment: Mental Health Aspects of Antiviral Therapy (Monograph Series Number Four)*. San Francisco, CA: UCSF AIDS Health Project.

Sherr, L. 2000. "Adherence--Sticking to the Evidence." *AIDS CARE* 12:373-375.

Simoni, Jane M., Pamela A. Frick, David W. Pantalone, and Barbara J. Turner. 2003. "Antiretrovial Adherence Interventions: A Review of Current Literature and Ongoing Studies." *Topics in HIV Medicine* 11:185-198.

Singh, N., Stephen M. Berman, Susan Swindells, Janice C. Justice, Jeffrey A. Mohr, Cheryl Squier, and and Marilyn M. Wagener. 1999. "Adherence of Human Innumodeficiency Virus-Infected Patients to Antiretroviral Therapy." *Clinical Infectious Diseases* 29:824-30.

Singh, N., C. Squier, C. Sivek, M. Wagener, M. Hong Nguyen, and V. L. Yu. 1996. "Determinants of Compliance with Antiretroviral Therapy in Patients with Human Immuodeficiency Virus: Prospective Assessment with Implications for Enhancing Compliance." *AIDS Care* 8:261-269.

Siplon, Patricia D. 2002. *AIDS and the Policy Struggle in the United States*. Washington, D.C.: Georgetown University Press.

Somlai, Anton M., Jeffrey A. Kelly, Timothy L. McAuliffe, Kate Ksobiech, and Kristin L. Hackl. 2003. "Predictors of HIV Sexual Risk Behaviors in a Community Sample of Injection Drug-Using Men and Women." *AIDS and Behavior* 7:383-393.

Sorensen, J. L., A. Mascovich, Tamara L. Wall, D. DePhilippis, S. L. Batki, and M. Chesney. 1998. "Medication Adherence Strategies for Drug Abusers with HIV/AIDS." *AIDS CARE* 10:297-313.

Sowell, Richard L., Linda Moneyham, and Barbara Aranda-Naranjo. 1999. "The Care of Women with AIDS: Special Needs and Considerations." *Nursing Clinics of North America* 34:179-199.

Stine, Gerald J. 2003. "AIDS Update 2003: An Annual Overview of Acquired Immune Deficiency Syndrome." Upper Saddle River: Prentice Hall.

Stone, Valerie E., Jennifer Clarke, Joan Lovell, Kathleen A. Steger, Lisa R. Hirschhorn, Stephen Boswell, Alicia D. Monroe, Michael D. Stein, Tamra J. Tyree, and Kenneth H. Mayer. 1998. "HIV/AIDS Patients' Perspective on Adhering to Regimens Containing Protease Inhibitors." *Journal of General Internal Medicine* 13:386-593.

Stone, Valerie E., Joseph W. Hogan, Paula Schuman, Anne M. Rompalo, Andrea A. Howard, Christina Korkontzelou, and Dawn K. Smith. 2001. "Antiretroviral Regimen Comlexity, Self-Reported Adherence, and HIV Patients' Understanding of Their Regimens: Survey of Women in the HER Study." *Journal of Acquired Immune Deficiency Syndromes* 28:124-131.

Stone, Valerie E., Jamie Jordan, Jerry Tolson, Robert Miller, and Tom Pelon. 2004. "Perspectives on Adherence and Simplicity for HIV-Infected Patients on Antiretroviral Therapy: Self-Report of the Relative Importance of Multiple

Attributes of Highly Active Antiretroviral Therapy (HAART) Regimens in Predicting Adherence." *Journal of Acquired Immune Deficiency Syndromes* 36:808-816.

Sykes, G.M. and D. Matza. 1957. "Techniques of Neutralization: A Theory of Delinquency." *American Journal of Sociology* 22:664-670.

Tabachnick, Barbara G. and Linda S. Fidell. 2001. *Using Multivariate Statistics*. Needham Heights, MA: Allyn and Bacon.

Teplin, Linda A., Amy A. Mericle, Gary M. McClelland, and Karen M. Abram. 2003. "HIV and AIDS Risk Behaviors in Juvenile Detainees: Implications for Public Health Policy." *American Journal of Public Health* 93:906-912.

Terling-Watt, Toni and Susan F. Sharp. 2001. "Gender Differences in Strains Associated with Suicidal Behavior Among Adolescents." *Journal of Youth and Adolescence* 30:333-348.

Thompson, S.C., C. Nanni, and A. Levine. 1996. "The Stressors and Stress of Being HIV-positive." *AIDS Care* 8:5-16.

Tittle, Charles R. 1995. *Control Balance: Toward A General Theory of Deviance*. Boulder: Westview Press.

Tortu, S., M. Beardsley, S. Deren, M. Williams, H. V. McCoy, M. Goldstein, M. Stark, and A. Estrada. 2000. "HIV Infection and Patterns of Risk Among Women Drug Injectors and Crack Users in Low and High Sero-Prevalence Sites." *AIDS Care* 12:65-77.

Trochim, William M.K. 2001. *The Research Methods Knowledge Base*. Cincinnati, OH: Atomic Dog Publishing.

U.S.-Mexico Border HIV/AIDS Collaborative. 2003. "National SPNS Multi-Site Evaluation for HIV/AIDS-Care Programs on the U.S./Mexico Border: Codebook." Norman, OK: Centro de Evaluación U.S./Mexico Border Health Evaluation & Technical Assistance Center. Retrieved September 21, 2004 (http://www.ou.edu/border/pdf/codebook.pdf).

U.S. Census Bureau. 2001a. "The Black Population: 2000." Washington, DC.

------. 2001b. "The Hispanic Population." Washington, DC.

UNAIDS. 2002. "Report on the Global HIV/AIDS Epidemic." in *XIV International Conference on AIDS*, edited by UNAIDS. Barcelona: Joint United Nations Programme on HIV/AIDS.

------. 2003. "AIDS Epidemic Update: 2003." Joint United Nations Programme on HIV/AIDS (UNAIDS) World Health Organization (WHO), Geneva.

Valdez, Maria del Rosario. 2001. "A Metaphor for HIV-Positive Mexican and Puerto Rican Women." *Western Journal of Nursing Research* 23:517-535.

Valdiserri, Ronald O. 2003. "HIV/AIDS in Historical Profile." Pp. 3-32 in *Dawning Answers: How the HIV/AIDS Epidemic Has Helped to Strengthen Public Health*, edited by R. O. Valdiserri. New York, NY: Oxford University Press.

Velasco-Hernandez, J. X., H. B. Gershengorn, and S. M. Blower. 2002. "Could Widespread Use of Combination Antiretroviral Therapy Eradicate HIV Epidemics?" *Lancet Infectious Diseases* 2:487-493.

Vosvick, Mark, Cheryl Koopman, Cheryl Gore-Felton, Carl Thoresen, John Krumboltz, and David Spiegle. 2003. "Relationship of Functional Quality of Life to Strategies for Coping with Stress of Living with HIV/AIDS." *Psychosomatics* 44:51-58.

Wagner, G. J. 2002. "Predictors of Antiretroviral Adherence as Measured by Self-Report, Electronic Monitoring and Medication Diaries." *AIDS Patient Care and STD's* 16:599-608.

Wagner, G. J. and J. G. Rabkin. 2000. "Measuring Medication Adherence: Are Missed Doses Reported More Accurately Then Perfect Adherence?" *AIDS CARE* 12:405-408.

Walsh, J. C., R. Horne, M. Dalton, A. P. Burgess, and B. G. Gazzard. 2001. "Reasons for Non-Adherence to Antiretroviral Therapy: Patients' Perspectives Provide Evidence of Multiple Causes." *AIDS CARE* 13:709-720.

Weaver, Kathryn E., Michael H. Antoni, Suzanne C. Lechner, Ron E.E. Durán, Frank Penedo, M. Isabel Fernández, Gail Ironson, and Neil Schneiderman. 2004. "Perceived Stress Mediates the Effects of Coping on the Quality of Life of HIV-Positive Women on Highly Active Antiretroviral Therapy." *AIDS and Behavior* 8:175-183.

Weidle, Paul J, Timothy D. Mastro, Alison D. Grant, John Nkengason, and Doris Macharia. 2002. "HIV/AIDS Treatment and HIV Vaccines for Africa." *Lancet* 359:2261-67.

Weinhardt, Lance S., Jeffrey A. Kelly, Michael J. Brondino, Mary Jane Rotheram-Borus, Sheri B. Kirshenbaum, Margaret A. Chesney, Robert H. Remien, Stephen F. Morin, Marguerita Lightfoot, Anke A. Ehrhardt, Mallory O. Johnson, Sheryl L. Catz, Steven D. Pinkerton, Eric G. Benotsch, Daniel Hong, Cheryl Gore-Felton, and the National Institute of Mental Health Healthy Living Project Team. 2004. "HIV Transmission Risk Behavior Among Men and Women Living With HIV in 4 Cities in the United States." *Journal of Acquired Immune Deficiency Syndromes* 36:1057-1066.

Wenger, N.S., F.S. Kusseling, K. Beck, and M.F. Shapiro. 1994. "Sexual Behavior of Individuals Infected with the Human Immunodeficiency Virus. The Need for Intervention." *Archives of Internal Medicine* 154:1849-1854.

Westerfelt, Alex. 2004. "A Qualitative Investigation of Adherence Issues for Men Who Are HIV Positive." *Social Work* 49:231-239.

Wilson, Tracey E., Mary Elizabeth Gore, Ruth Greenblatt, Mardge Cohen, Howard Minkoff, Sylvia Liver, Esterh Robison, Alexandra Levine, and Stephen J. Gange. 2004. "Changes in Sexual Behavior Among HIV-Infected Women After Initiation of HAART." *American Journal of Public Health* 94:1141-1146.

Wolitski, Richard J., Ronald O. Valdiserri, Paul H. Denning, and William C. Levine. 2001. "Are We Headed for a Resurgence of the HIV Epidemic Among Men Who Have Sex With Men?" *American Jounal of Public Health* 91:883-888.

Yerly, S., L. Kaiser, E. Race, J-P. Bru, F. Clavel, and L. Perrin. 1999. "Transmission of Antiretroviral-Drug-Resistant HIV-1 Variants." *Lancet* 354:729-733.

APPENDIX A

Table 2: 1993 AIDS Surveillance Case Definitions

1993 AIDS Surveillance Case Definition of the U.S. Centers for Disease Control and Prevention*

A diagnosis of AIDS is made whenever a person is HIV-positive and:

- he/she has a CD4+ cell count below 200 cells per microliter OR
- his/her CD4+ cells account for fewer than 14 percent of all lymphocytes OR
- that person has been diagnosed with one or more of the AIDS-defining illnesses listed below.

AIDS – Defining Illnesses

- Candidiasis of bronchi, trachea, or lungs (see Fungal Infections)
- Candidiasis, esophageal (see Fungal Infections)
- Cervical cancer, invasive‡
- Coccidioidomycosis, disseminated (see Fungal Infections)
- Cryptococcosis, extrapulmonary (see Fungal Infections)
- Cryptosporidiosis, chronic intestinal (>1 month duration) (see Enteric Diseases)
- Cytomegalovirus disease (other than liver, spleen, or lymph nodes)
- Cytomegalovirus retinitis (with loss of vision)
- Encephalopathy, HIV-related† (see Dementia)
- Herpes simplex: chronic ulcer(s) (>1 month duration) or bronchitis, pneumonitis, or esophagitis
- Histoplasmosis, disseminated (see Fungal Infections)
- Isosporiasis, chronic intestinal (>1 month duration) (see Enteric Diseases)
- Kaposi's sarcoma
- Lymphoma, Burkitt's
- Lymphoma, immunoblastic
- Lymphoma, primary, of brain (primary central nervous system lymphoma)
- *Mycobacterium avium* complex or disease caused by *M. Kansasii*, disseminated
- Disease caused by *Mycobacterium tuberculosis*, any site (pulmonary‡ or extrapulmonary†) (see Tuberculosis)
- Disease caused by *Mycobacterium*, other species or unidentified species, disseminated
- *Pneumocystis carinii* pneumonia
- Pneumonia, recurrent‡ (see Bacterial Infections)
- Progressive multifocal leukoencephalopathy
- *Salmonella* septicemia, recurrent (see Bacterial Infections)
- Toxoplasmosis of brain (encephalitis)
- Wasting syndrome caused by HIV infection†

Additional illnesses that are AIDS-defining in children, but not adults.

- Multiple, recurrent bacterial infections† (see Bacterial Infections)
- Lymphoid interstitial pneumonia/pulmonary lymphoid hyperplasia

SOURCE: (McGovern and Smith 1998); (Smith 1998)

* Entries on AIDS-defining illnesses can in the Encyclopedia of AIDS (Smith, 1998) under the name given, unless otherwise noted in parentheses. Terminology may vary.

† Added in the 1987 expansion.

‡ Added in the 1993 expansion.

APPENDIX B

HRSA number:

Page 2

Patient:

Please answer the following questions, on these two pages, as they relate to you.

A. Please indicate your physical activity level since your last visit here:
○ much better ○ better ○ about the same ○ worse ○ much worse

B. Overall, how would you rate your health since your last visit?
○ excellent ○ very good ○ good ○ fair/poor

C. Have you been treated by any other doctor since your last visit here?
○ yes ○ no

D. Are you currently taking prescribed HIV medications?
○ yes ○ no

E. Approximately how many pills do you take in a day? ☐☐☐

1. I believe in medications	○ no	○ somewhat	○ yes
2. Agency staff discuss my treatment at every visit	○ no	○ somewhat	○ yes
3. I am taking extra non-HIV medications	○ no	○ somewhat	○ yes
4. I regularly use alcohol (3 or more drinks a day)	○ no	○ somewhat	○ yes
5. I use drugs	○ no	○ somewhat	○ yes
6. I use marijuana	○ no	○ somewhat	○ yes
7. I believe in doctors	○ no	○ somewhat	○ yes
8. I use a pill box to remind me when to take my medications	○ no	○ somewhat	○ yes
9. I believe VAC will maintain my confidentiality	○ no	○ somewhat	○ yes
10. I use the grocery pantry at VAC	○ no	○ somewhat	○ yes
11. I am presently upset with a VAC staff member and/or doctor	○ no	○ somewhat	○ yes
12. I am informed about community resources as I need them	○ no	○ somewhat	○ yes
13. I sometimes miss doses of prescribed medications	○ no	○ somewhat	○ yes
14. I take my medications even when I feel well	○ no	○ somewhat	○ yes
15. Even though I want to take my medications, I just forget to take them	○ no	○ somewhat	○ yes

sample

1742478261

HRSA number:

Page 3

16. Side effects prevent me from taking HIV medications	O no	O somewhat	O yes
17. I am satisfied with my health	O no	O somewhat	O yes
18. I need special help because I have HIV	O no	O somewhat	O yes
19. I have family support (from my spouse/partner/immediate family)	O no	O somewhat	O yes
20. I work (am employed)	O no	O somewhat	O yes
21. My family knows my HIV status	O no	O somewhat	O yes
22. I have read about HIV or HIV medications in the last 3 months *(internet, media, magazines, conferences, etc.)*	O no	O somewhat	O yes
23. I have difficulty reading the medicine labels in English	O no	O somewhat	O yes
24. I understand the risks of not taking my medications	O no	O somewhat	O yes
25. My religion/faith helps me to cope with HIV	O no	O somewhat	O yes
26. There is little I can do to improve my HIV health status	O no	O somewhat	O yes
27. If needed, I would have access to childcare	O no	O somewhat	O yes
28. I believe in my case manager	O no	O somewhat	O yes
29. I exercise	O no	O somewhat	O yes
30. I have easy access to transportation to go to VAC	O no	O somewhat	O yes
31. I can be reached by telephone	O no	O somewhat	O yes
32. I use traditional/alternative treatments	O no	O somewhat	O yes
33. I have trouble keeping medical appt's because I take care of other people	O no	O somewhat	O yes

sample

2555478264

Valley AIDS Council Medical Adherence: 2

I would like to ask you some questions about your relationship with your family, friends and partner.

The questions on this form are written in: ○ English ○ Spanish

HRSA number:

Fill in the bubble that best represents how strongly you agree or disagree with the following statements:	Strongly Agree	Agree	Disagree	Strongly Disagree
One of my primary concerns is my spouse/partners welfare.	○	○	○	○
I feel concerned for my spouse/partners well-being.	○	○	○	○
I want to feel that my spouse/partner is a part of me.	○	○	○	○
If I were lonely, my first thought would be to seek my spouse/partner out.	○	○	○	○
I would do almost anything for my spouse/partner.	○	○	○	○
If I could never be with my spouse/partner, I would really miss him/her.	○	○	○	○
If my spouse/partner were feeling bad, I would really want to make him/her feel better.	○	○	○	○
I feel I can confide in my spouse/partner about virtually anything.	○	○	○	○
I feel I can tell my spouse/partner my innermost thoughts and fantasies.	○	○	○	○
I would not worry if my spouse/partner knew [illegible] my nature.	○	○	○	○
It would be hard for me to get along without my spouse/partner.	○	○	○	○
One of my primary concerns is the welfare of my children.	○	○	○	○
I feel concerned for the well-being of my children.	○	○	○	○
My children are a part of me.	○	○	○	○
I am closer to my children than a lot of people my age are to theirs.	○	○	○	○
I would do almost anything for my children.	○	○	○	○
I would greatly enjoy being confided in by my children.	○	○	○	○
If I could never be with my children, I would really miss them.	○	○	○	○
If one of my children were feeling bad, I would really want to make him/her feel better.	○	○	○	○
It would be hard for me to get along without my children.	○	○	○	○
I don't feel that I fit in very well with my friends.	○	○	○	○
My friends don't take much interest in my problems.	○	○	○	○
I feel close to my friends.	○	○	○	○
My friends are willing to listen if I have a problem.	○	○	○	○
Sometimes I feel lonely when I am with my friends.	○	○	○	○
I like my family.	○	○	○	○
I get along well with my family.	○	○	○	○
My family understands me.	○	○	○	○
I feel I can confide in my family about virtually anything.	○	○	○	○
It would be hard for me to get along without my family.	○	○	○	○

sample

8094229565

From the statements below, please fill in the bubble next to the one that best describes how you feel about your relationship with your spouse/partner.

○	I want desperately for my relationship with my spouse/partner to succeed and would go to almost any lengths to see that it does.
○	I want very much for my relationship with my spouse/partner to succeed and I will do all I can to see that it does.
○	I want very much for my relationship with my spouse/partner to succeed and will do my fair share to see that it does.
○	It would be nice if my relationship with my spouse/partner succeeded but I can't do much more than I am doing now to help it succeed.
○	It would be nice if my relationship with my spouse/partner succeeded but I refuse to do any more than I am doing now to keep the relationship going.
○	My relationship with my spouse/partner can never succeed and there is no more that I can do to keep the relationship going.
○	No spouse/partner.

Next I am going to ask you some questions about how you like to do things.

Fill in the bubble that best represents how strongly you agree or disagree with the following statements:	Strongly Agree	Agree	Disagree	Strongly Disagree
I often act on the spur of the moment without stopping to think.	○	○	○	○
I don't devote much thought and effort to preparing for the future.	○	○	○	○
I often do whatever brings me pleasure here and now, even at the cost of some distant goal.	○	○	○	○
I'm more concerned with what happens to me in the short run than in the long run.	○	○	○	○
I frequently try to avoid projects that I know will be difficult.	○	○	○	○
When things get complicated, I tend to quit or withdraw.	○	○	○	○
The things in life that are easiest to do bring me the most pleasure.	○	○	○	○
I dislike really hard tasks that stretch my abilities to the limit.	○	○	○	○
I like to test myself every now and then by doing something a little risky.	○	○	○	○
Sometimes I will take a risk just for the fun of it.	○	○	○	○
I sometimes find it exciting to do things for which I might get in trouble.	○	○	○	○
Excitement and adventure are more important to me than security.	○	○	○	○
If I had a choice, I would always do something physical than mental.	○	○	○	○
I almost always feel better when I am on the move than when I am sitting and thinking.	○	○	○	○
I like to get out and do things more than I like to read or contemplate ideas.	○	○	○	○
I seem to have more energy and a greater need for activity than most other people at my age.	○	○	○	○
I try to look out for myself first, even if it means making things difficult for other people.	○	○	○	○
I'm not very sympathetic to other people when they are having problems.	○	○	○	○
If things upset people, it's their problem, not mine.	○	○	○	○

sample

Fill in the bubble that best represents how strongly you agree or disagree with the following statements:	Strongly Agree	Agree	Disagree	Strongly Disagree
I will try to get things I want even when I know it's causing problems for other people.	O	O	O	O
I lose my temper pretty easily.	O	O	O	O
Often when I am angry at people I feel more like hurting them than talking to them about why I am angry.	O	O	O	O
When I'm angry, other people better stay away from me.	O	O	O	O
When I have a serious disagreement with someone, it's usually hard for me to talk calmly about it without getting upset.	O	O	O	O

Now, I would like to ask you about things you've done in your life.

Fill in the bubble that best represents how successful you have been at the following:	Very Successful	Successful	Somewhat Successful	Not At All Successful	No Goals in this Area
Making good grades in school.	O	O	O	O	O
Graduating from college.	O	O	O	O	O
Getting the job I wanted after finishing school.	O	O	O	O	O
Graduating from High School.	O	O	O	O	O
Marrying the person I wanted to marry.	O	O	O	O	O
Making the amount of money I deserve.	O	O	O	O	O
Looking the way I want to look.	O	O	O	O	O
Having the social life that I want.	O	O	O	O	O
Being in a committed relationship with the person I wanted to be with.	O	O	O	O	O
Buying the car I want.	O	O	O	O	O
Buying the house that I want.	O	O	O	O	O

sample

How fair do you believe your opportunities are to achieve the following goals:

Fill in the bubble that best represents how fair your opportunities have been to achieve the following:	Very Fair	Fair	Somewhat Fair	Not At All Fair	No Goals in This Area
Graduating from high school.	O	O	O	O	O
Graduating from college.	O	O	O	O	O
Getting the job that I want.	O	O	O	O	O
Marrying the person I want to marry.	O	O	O	O	O
Making the amount of money I deserve.	O	O	O	O	O
Looking the way I want to look.	O	O	O	O	O
Having the social life that I want.	O	O	O	O	O
Being in a committed relationship with the person I want to be with.	O	O	O	O	O
Buying the car I want.	O	O	O	O	O
Buying the house that I want.	O	O	O	O	O

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Next, I am going to ask you some questions about things that may have concerned you about getting medical care.

Fill in the bubble that best represents how strongly you agree or disagree with the following statements:	Strongly Agree	Agree	Disagree	Strongly Disagree
I was concerned that others might think I was gay or lesbian if I sought HIV medical care.	O	O	O	O
I was concerned that somebody might find out that I have HIV if I went to a medical provider.	O	O	O	O
I was concerned that my family might think badly of me because I am HIV+.	O	O	O	O
I was concerned that my friends would think badly of me because I am HIV+.	O	O	O	O
I was concerned that other people would think badly of me because I am HIV+.	O	O	O	O
I was concerned that my spouse/partner would think badly of me because I am HIV+.	O	O	O	O

Things happen in life to everyone. I would like for you to tell me if any of the following events ever happened to you and how much they bothered you:

Fill in the bubble that best represents how much the following bothered you:	Not at all	Did not bother me very much	Somewhat bothered me	Bothered me quite a lot	Did not occur
Loss of family member through death.	O	O	O	O	O
Personal Divorce/Partner Separation.	O	O	O	O	O
Parents Divorce.	O	O	O	O	O
Loss of friends through death.	O	O	O	O	O
Family members moved away.	O	O	O	O	O
I was physically abused.	O	O	O	O	O
I was sexually abused.	O	O	O	O	O
I moved away from family members and friends.	O	O	O	O	O
Close friend/partner moved away.	O	O	O	O	O

sample

Please fill in the bubble that best indicates how often in the past year have you had the opportunity to do any of the following things:

	Never	Rarely	Sometimes	Almost Always
Have sex with someone other than your spouse/partner?	O	O	O	O
Have sex with a prostitute or paid sex worker?	O	O	O	O
Share a rig with someone to shoot up?	O	O	O	O
Get something you wanted by threatening to use force against another person?	O	O	O	O
Exchange sex for drugs or money?	O	O	O	O

Now I would like to know a little about how you typically respond when bad things happen in your life.

Please fill in the bubble that best represents how often you do the following:	Never	Rarely	Sometimes	Almost Always
Blow up (i.e., yell, scream, make idle threats, say harsh things to others).	○	○	○	○
Take it out on others (i.e., punching, hitting, throwing things at them).	○	○	○	○
Take it out on other things (i.e., key a car, trash a room/apt., break something).	○	○	○	○
Withdraw (i.e., become quiet, withdrawn, don't talk much, feel bad inside).	○	○	○	○
Shutdown (i.e., stop regular routines with friends and family, spend most my time alone).	○	○	○	○
Work it out (i.e., go running, play a sport to relieve tension, walk, clean house, take a drive, clean my car).	○	○	○	○
Talk it out (i.e., talk with my partner, friends or parents until I feel better).	○	○	○	○
Cry (either alone or with other(s)).	○	○	○	○
Drink alcohol or use some other drug.	○	○	○	○

Please fill in the bubble that best indicates how strongly you agree or disagree with the following statement.

	Strongly Agree	Agree	Disagree	Strongly Disagree
There is no way I can solve some of the problems I have.	○	○	○	○
I can do just about anything I really set my mind to.	○	○	○	○
What happens to me in the future depe[illegible]	○	○	○	○
I feel that I am a person of worth, at lea[illegible]	○	○	○	○
All in all, I'm inclined to feel that I am a failure.	○	○	○	○
I am able to do things as well as most other people.	○	○	○	○
I take a positive attitude toward myself.	○	○	○	○
I certainly feel useless at times.	○	○	○	○
There is no sense in planning a lot. If something good is going to happen, it will.	○	○	○	○
I am responsible for my own successes.	○	○	○	○
My misfortunes are the result of mistakes I have made.	○	○	○	○
I am responsible for my failures.	○	○	○	○
Most of my problems are due to bad breaks.	○	○	○	○

sample

Please fill in the bubble that best indicates how often in the PAST YEAR you have done any of the following things:

	Never	Sometimes	Frequently	Always
Had unprotected sex with males.	○	○	○	○
Had unprotected sex with females.	○	○	○	○
Had unprotected sex with someone that is intravenous drug user or shoots up.	○	○	○	○
Exchanged sex for money or drugs.	○	○	○	○
Threatened or forced another person to have sex with you.	○	○	○	○
Were threatened or forced by someone else to have sex with them.	○	○	○	○
Had unprotected sex with a person who has HIV/AIDS.	○	○	○	○
Shared a rig with someone to shoot up.	○	○	○	○
Received a blood transfusion in Mexico.	○	○	○	○
Used alcoholic beverages.	○	○	○	○
Used Heroin.	○	○	○	○
Used Cocaine and/or Crack.	○	○	○	○
Used other illegal drugs.	○	○	○	○

Please fill in the bubble that best indicates how much time in the PAST YEAR you have spent in...

	None	Less Than 1 Month	1 to 3 Months	4 to 6 Months	7 to 9 Months	More than 9 Months
a Mexican prison or jail?	○	○	○	○	○	○
a US prison or jail?	○	○	○	○	○	○

Thank you for participating in this survey.

Medical Adherence in HIV/AIDS Patient Care Plans: Part 3

Valley AIDS Council

Date (MM/DD/YY): ☐☐ / ☐☐ / ☐☐

We know it is hard to take medication for a HIV infection according to all specific instructions. We would like to learn to what extent people are actually able to adhere to the specific instructions.

There are no consequences for your treatment if you tell us that you don't take all your pills, don't take your pills at all, or don't take your pills on time. We need to know what is really happening, not what you think we want to hear.

Program: V A C Sub-site: ☐☐☐

HRSA number: ☐☐☐☐☐☐☐☐☐☐☐

1.

	Step 1: *Could you please write the names of your anti-HIV drugs in the column below? (if you don't know the names of your drugs, please describe how they look like).*	Step 2: *How many times per day do you need to take each anti-HIV drug?*	Step 3: *How many capsules or tablets do you need to take each time?*	Step 4: *Please fill in the number of capsules or tablets that you have skipped? (mark '0' if you took all)*	
				Skipped yesterday	*Skipped the day before yesterday*
	Example: ZERIT (d4T)	2	1	0	2
D1					
D2					
D3					
D4					
D5					
D6					

sample

0763493776

2. **When did you take all pills that were prescribed?**

- O yesterday
- O the day before yesterday
- O yesterday and the day before yesterday
- O none of those days

3. **People may sometimes skip their medication for a variety of reasons. Such reasons are listed below. If you have skipped (some of) your medication, please indicate what the reason(s) was/were. More than one answer is possible.**

- O I live too irregularly
- O I simply forgot
- O sometimes it is impossible to combine it with my activities of that particular moment
- O sometimes I do not have my medication with me
- O I felt sick /ill
- O not applicable, I never skip my medication
- O other, please specifiy

TIME POINTS

Your medication must be taken according to a strict time schedule. Some people have difficulty taking their medication **on time**. The following questions are concerned with taking your medication on time.

sample

4. **How many days during *the past week* have you been *off schedule* by more than one hour?**

- O yesterday
- O the day before yesterday
- O yesterday and the day before yesterday
- O none of those days

5. **With which medicine(s) did it happen that you were off schedule by *more than one hour during the past week*?**

1.
2.
3.
4.
5.

O not applicable, I always take my medication on time

6. How many days during *the past week* did you take *didanosine (Videx, ddI)* half an hour before, two hours after a meal?

O not one day
O 1 or 2 days
O 3 or 4 days
O 5 or 6 days
O all 7 days
O not applicable, didanosine (Videx, ddI) was not prescribed.

7. How many days during *the past week* did you take *indinavir (Crixivan)* one hour before or two hours after a meal, or together with a low-in-fat meal?

O not one day
O 1 or 2 days
O 3 or 4 days
O 5 or 6 days
O all 7 days
O not applicable, indinavir (Crixivan) was not prescribed, or indinavir (Crixivan) was prescribed in combination with ritonavir (Norvir).

8. How many days during *the past week* did you take *saquinavir (Invirase/Fortovase)* together with a high-in-fat meal or within two hours after a meal?

O not one day
O 1 or 2 days
O 3 or 4 days
O 5 or 6 days
O all 7 days
O not applicable, saquinavir (Invirase/Fortovase) was not prescribed.

9. How many days during *the past week* did you take *ritonavir (Norvir)* together with a meal, or within two hours after a meal?

O not one day
O 1 or 2 days
O 3 or 4 days
O 5 or 6 days
O all 7 days
O not applicable, ritonavir (Norvir) was not prescribed.

sample

10. Please indicate below, the extent to which you have adhered to the prescribed treatment *during the past week.* In your overall judgement, you may consider the number of pills you have taken, the timing of the pills, and the mealtime instructions you have adhered to.

Please circle the number that best describes your overall rating, from 1 (very poor) to 10 (excellent).

O	O	O	O	O	O	O	O	O	O
1	2	3	4	5	6	7	8	9	10

very poor *excellent*

7417493779

TIME BETWEEN THE LAST BLOODTEST AND THE PAST WEEK

The previous questions were related to **the past week**. The next three questions are related to the **time prior to the past week**. We would like to learn to what extent the past week is similar to, or different from the time between the last bloodtest and the past week.

11. To what extent were you able to adhere to your prescribed treatment *during the time between the last bloodtest and the past week?*

- O better than the past week
- O comparable to the past week
- O less well than the past week

12. Please indicate below, the extent to which you have adhered to the prescribed treatment *during the time between the last bloodtest and the past week.* In your overall judgement, you may consider the number of pills you have taken, the timing of the pills, and the mealtime instructions you have adhered to.

Please circle the number that best describes your overall rating, from 1 (very poor) to 10 (excellent).

sample

1	2	3	4	5	6	7	8	9	10
O	O	O	O	O	O	O	O	O	O
very poor									*excellent*

13. *During the time between the last bloodtest and the past week,* was there a period (one or more days or weeks) that you were less adherent to your treatment than is usual for you?

- O no
- O yes

if yes, please specify

2381493774

APPENDIX C

PROJECT CONDUCTED UNDER THE AUSPICIES OF
THE UNIVERSITY OF OKLAHOMA

Measuring Adherence in HIV/AIDS Patient Care Plans

Consent Statement

Hello. We are asking people questions about issues facing them in their HIV/AIDS medical care. We are doing this research for the Valley AIDS Council that provides social services and we would like to use this information to improve its programs.

You must be 18 years of age or older to participate in this study. All personal information will be held in strict confidentiality. Participation in this survey is voluntary. If there are any questions you don't want to answer, you can skip those. You can also stop answering questions at any time.

If you agree to participate in this study and complete this survey, you will receive a $5 gift card from a major store in this area. We will give you the gift card after you have completed this survey. You will only receive a gift card one time.

The answers that you will give in this questionnaire will help us to evaluate this project and to better understand the problems of antiretroviral treatment for people with HIV. If you have any questions or concerns, we can talk about them before you compete this survey.

Dr. Morris Foster at the University of Oklahoma is organizing this survey. If you have any questions, you can contact Dr. Foster at (405) 325-2491 at the University of Oklahoma or Dr. Fernando Garcia at the Valley AIDS Council at (956) 428-2653. Dr. Foster or Dr. Garcia can answer your questions.

This survey has been approved by the Institutional Review Board at the University of Oklahoma. This is a group that safeguards the welfare of people who participate in surveys and studies. If you have any questions about the Institutional Review Board review of this survey at the University of Oklahoma, or if you have questions regarding your rights as a research participant, you may call the University of Oklahoma – Norman Campus Institutional Review Board at (405) 325-8110.

It should take about 20 to 30 minutes to answer all of the questions in this survey.

Your signature below acknowledges your voluntary participation in this research project. Such participation does not release the investigator, institution(s), sponsor(s), doctor(s) or granting agency from their professional and ethical responsibility to you. A copy of this consent will be given to you.

Participant's signature:_____Date:_____

Printed name of individual obtaining consent:_____

Signature of individual obtaining consent:_____

1217 CHICAGO
MCALLEN, TX 78507
TELEPHONE (956) 668-1155
FAX (956) 668-1150

418 E. TYLER, SUITE B
HARLINGEN, TX 78550
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1210 E 12TH ST.
BROWNSVILLE, TX 78520
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INFORMED CONSENT FORM FOR RESEARCH CONDUCTED UNDER THE AUSPICIES OF
THE UNIVERSITY OF OKLAHOMA NORMAN CAMPUS

Hi, I am a graduate student in the Sociology Department at the University of Oklahoma-Norman Campus and my adviser is Professor Susan F. Sharp. I invite you to participate in a research study being conducted under the auspices of the University of Oklahoma-Norman Campus and supported by the Valley AIDS Council. The study is entitled ***Assessing the Effects of Social Strain and Control on Adherence to HIV/AIDS Treatment Regimes***. This letter describes important things you should know before agreeing to be in this study.

I am asking people questions about their relationships, stressful life events and other issues related to their HIV/AIDS medical care. Your participation will involve completing a confidential survey, which should only take about 20 to 30 minutes of your time. A Valley AIDS Council employee will provide you with the survey and a private place to sit and fill it out. Failure to complete or participate in the survey will not in any way affect the benefits and services you receive from the Valley AIDS Council. The completed survey will be collected by the Valley AIDS Council employee and sent it to me at the University of Oklahoma, Research and Evaluation Center. As a way of thanking you for your participation in this study, the Valley AIDS Council will provide a $10.00 gift certificate once the survey is completed and returned to the VAC employee. In order to receive the $10.00 gift certificate, you must complete the entire survey.

In addition, I am asking to use some of the information you have provided to the Valley AIDS Council in the past such as: demographics, lifestyle, quality of life, social support, barriers to care, risk behavior and medical treatment, adherence and outcomes. The Valley AIDS Council would provide this data to me without any personal information that would allow me or anyone else to identify you.

The Information from this study will help the Valley AIDS Council improve the programs and services they provide with no cost to you other than the time it takes to complete the survey. It will also help other programs across the country provide better and more effective medical treatment to their clients. No known risks, beyond those present in your routine daily life, are anticipated in this study. However, the personal nature of the questions may leave you feeling a little anxious or frustrated. If this happens, please talk to Valley AIDS Council staff during or following the survey about your concerns so that they can help you.

You must be 18 years of age or younger than 65 to participate in this study. Your involvement in this study is voluntary, and you may choose not to participate or stop at any time. The results of the research study may be published, but your name will not be linked to responses in publications that are released from the project. All information provided will remain strictly confidential. In fact, findings and published results will be presented in aggregate form with no identifying information to ensure confidentiality.

If you have any questions you may contact me, Marguerite Keesee (405) 325-8154 or Dr. Susan Sharp (405) 325-1751, at the University of Oklahoma, or Dr. Fernando Garcia at the Valley AIDS Council at (956) 428-2653. The Institutional Review Board at the University of Oklahoma has approved this survey. This is a group that safeguards the welfare of people who participate in surveys and studies. If you have any questions about the rights of research participants or the Institutional Review Board's review of this survey, contact the University of Oklahoma-Norman Campus Institutional Review Board (OU-NC IRB) at (405) 325-8110 or irb@ou.edu.

Your signature below acknowledges that you have read and understand the terms and conditions of this study and that you agree to participate in the above-described research study. You understand that your participation is voluntary and that you may withdraw from the study at anytime without penalty. Your participation does not release the investigator, institution(s), sponsor(s), doctor(s), or granting agency from their professional and ethical responsibility. A copy of this consent will be given to you.

Signature of Participant	Date
Printed Name of Participant	Signature of Individual Obtaining Consent

FORMA DE CONSENTIMIENTO Y AUTORIZACION PARA PARTICIPAR EN TRABAJOS DE INVESTIGACION AUSPICIADO POR LA UNIVERSIDAD DE OKLAHOMA, CAMPUS EN NORMAN

Hola, mi nombre es Marguerite Keesee, estudiante graduada del Departamento de Sociologia en la Universidad de Oklahoma , Campus en Norman. Mi consejera es la Profesora Susan F. Sharp. Les invito a participar en un estudio auspiciado por la Universidad de Oklahoma y apoyado por el "Valley AIDs Council". El titulo de este estudio es: "**Evaluacion de los efectos del desgaste social y el control en la adherencia al tratamiento en pacientes con VIH/SIDA.**" Esta forma contiene informacion importante que debe saber antes de decidir participar en este estudio.

El estudio contiene preguntas para los participantes sobre sus relaciones personales, eventos de apuro en la vida, y otras preguntas relacionadas con el cuido medico de su enfermedad. Su participacion requiere que complete un cuestionario que le tomara mas o menos de 20 a 30 minutos. Un empleado de Valley AIDS Council le proveera el cuestionario y un lugar privado para completarlo. El no participar en este estudio de ningun modo le afectara los servicios o beneficios que recibe de Valley AIDS Council. El cuestionario completado sera recogido por un empleado de Valley AIDS Council y sera enviado a la Universidad de Oklahoma, Centro de Evaluacion e Investigacion. En agradecimiento por su participation en este estudio, el Valley AIDS Council le provera un certificado de $10.00 cuando termine el cuestionario y sea recogido por el empleado. Para recibir el certificado de $10.00 tiene que completar todo el cuestionario.

En adicion le solicito autorización para usar la información que usted a proveido a Valley AIDS Council para llevar a cabo este trabajo de investigación. Esto incluye: informacion demografica, tales como: datos de su estado civil, estilo de vida, calidad de vida, apoyo social, barreras para atencion medica, comportamiento de riesgo y tratamiento medico, adherencia y resultados. Valley AIDS Council no me proporcionara ninguna informacion personal que lo pueda identifar.

La informacion de este estudio ayudara a mejorar los programas y servicios de Valley AIDS Council sin ningun costo a usted, solo el tiempo que le tomara completar este cuestionario. Tamb ien ayudara a otros programas a traves del pais para que puedan proveer mejor y mas efectivo tratamiento medico a sus pacientes. Ningunos riesgos conocidos, fuera de los presentes en su rutina diaria, se preguntaran en este estudio. EL modo personal de las preguntas lo(a) puede dejar un poco confundido(a) o frustrado(a). Si esto pasa, por favor hable con el personal de VAC, durante o despues de cumpletar el cuestionario--.

Necesita estar entre las edades de 18 a 65 anos para participar en este estudio. Su participacion es voluntaria, y usted puede elegir no participar en cualquier momento durante el estudio. Los resultados de este estudio pueden ser publicados, pero su nombre no sera revelado o publicado. Toda informacion proporcionada sera estrictamente confidencial. En realidad, resultados y publicaciones de resultados se presentaran en forma agregada, sin ninguna informacion o identificación, para asegurar confidencialidad.

Si tiene alguna pregunta, comunicarse conmigo, Marguerite Keesee (405) 325-8154 o la Dra. Susan Sharp (405) 325-1751 en la Universidad de Oklahoma o el Dr. Fernando Garcia en Valley AIDS Council (956) 428-2653. El Consejo de Revision Institucional (IRB) en la Universidad de Oklahoma, Campus de Norman, a aprovado este estudio. Este es un grupo de represantes de la Universidad que tienen la responsabilidad de controlar y revisar estudios de investigacion para proteger a las personas que participan en estudios de investigacion. Si usted tiene preguntas sobre los derechos de participantes en estudios o del Consejo de Revision Institucional (Institutional Review Board), llame a la Universidad de Oklahoma, Campus de Norman, Institutional Review Board (OU-NC) al telefono (405) 325-8110 o el correo electronico irb@ou.edu.

Su firma abajo confirma: (1) que usted a leido este documento, (2) que usted autoriza a que se utilize su información en este proyecto unicamernte, (3) que entiende los terminos y condiciones de este estudio, y (4) que esta de acuerdo en participar en este estudio arriba mencionado. Usted entiende que su participacion es voluntaria y que usted puede cancelar o retirarse del estudio sin ser penalizado(a). Su participacion no elimina al investigador, la institucion, los patrocinadores, los medicos o la agencia de su responsablidad profesional y etica. Se le proveera una copia de este documento.

_____ _____

Firma del participante Fecha

_____ _____

Nombre de Participante Firma de la persona que obtuvo el consentimiento

IRB No.: FY2003-309

AUTHORIZATION TO USE or DISCLOSE
PROTECTED HEALTH INFORMATION FOR RESEARCH

An additional Informed Consent Document for Research Participation may also be required.
A different form must be used for research involving psychotherapy notes.

Title of Research Project: **Assessing the Effects of Social Strain and Control on Adherence to HIV/AIDS Treatment Regimes.**

Leader of Research Team: **Marguerite S. Keesee, MA**

Address: **University of Oklahoma, Research & Evaluation Center, 3200 Marshall Ave., Suite 230, Norman, Oklahoma 73072**

Phone Number: **405-325-8154**

If you decide to join this research project, University of Oklahoma - Norman Campus (OU-NC) researchers may use or share (disclose) information about you for their research that is considered to be protected health information. Protected health information will be called private information in this authorization.

Private Information To Be Used or Shared. Government rules require that the researchers get your permission (authorization) to use or share your private information. If you give permission, the researchers could use or share with the people identified in this authorization, any private information related to this research from your medical records and from any test results. This includes: all information relating to demographics, lifestyle, quality of life, social support, barriers to care, risk behavior, tests or diagnostic procedures, medical treatment, adherence to medical treatment and medical outcomes as outlined in the informed consent document. Information used or shared will be or might be all personal information such as your name, address, telephone number, date of birth, race, government-issued identification number, medical records and charts relating to any tests or procedures outlined in the informed consent form.

Purposes for Using or Sharing Private Information. If you give permission, the researchers would use your private information to: expand the existing knowledge base about the social and behavioral factors, and the medical treatment issues which affect HIV/AIDS patients and their adherence to medical treatment; identify ways in which current medical practices may be improved; and ultimately reduce the likelihood that resistance to current medications will occur as a result of poor medical adherence.

Other Use and Sharing of Private Information. If you give permission, the researchers could also use your private information to develop new procedures or commercial products. They could share your private information with the research sponsor, the OU-NC Institutional Review Board, inspectors who check the research, and government agencies like the Food and Drug Administration (FDA) and the Department of Health and Human Services (HHS). The researchers would also share your private information with: **IRB approved Principal Investigator, Co-Investigator, and Faculty Sponsor.**

Confidentiality. Although the researchers will report their findings in scientific journals or meetings, they will not identify you in their reports. The researchers will try to keep your information confidential, but this cannot be guaranteed. The government does not require everyone who might see your information to keep it confidential, so it might not remain private.

Voluntary Choice. The choice to give OU-NC researchers permission to use or share your private information for their research is voluntary. It is completely up to you. No one can force you to give permission. However, you must give permission for OU-NC researchers to use or share your private health information if you want to participate in the research.

Refusing to give permission will not affect your ability to get usual treatment or health care from OU-NC.

Canceling Permission. If you give the OU-NC researchers permission to use or share your private information, you have a right to cancel your permission whenever you want. However, canceling your permission will not apply to information that the researchers have already used or shared.

End of Permission. Unless you cancel it, permission for OU-NC researchers to use or share your private information for their research will **end on 05/05/05**

Contacting OU-NC. You may find out if your private information has been shared, or cancel your permission at any time by writing to:

Privacy Official
University of Oklahoma
PO Box 26901, Oklahoma City, OK 73190
If you have questions call: (405) 271-2511 or e-mail: ou-privacy@OUHSC.edu

Giving Permission. By signing this form, you give University of Oklahoma - Norman Campus (OU-NC) and OU-NC's researchers led by **Marguerite S. Keesee, M.A.** , permission (authorization) to use or disclose (share) your private information (protected health information) for the research project called **Assessing the Effects of Social Strain and Control on Adherence to HIV/AIDS Treatment Regimes**.

Patient/Subject Name: _____

_____ _____
Signature of Patient-Subject Date
or Parent if subject is a child

Or

_____ _____
Signature of Legal Representative** Date

**If signed by a Legal Representative of the Patient-Subject, provide a description of the relationship to the Patient-Subject and the Authority to Act as Legal Representative:

_____
OU-NC may ask you to produce evidence of your relationship.

A signed copy of this form must be given to the Patient-Subject or the Legal Representative.

IRB No.: FY2003-309

University of Oklahoma – Norman Campus

Research Privacy Form 1
PHI Research Authorization

IRB No.: FY2003-309

AUTORIZACION PARA USO O PARA DIVULGAR
INFORMACION DE SALUD PROTEGIDA PARA INVESTIGACION

Un documento adicional de Consentimiento Informado se puede necesitar para investigaciones con participantes
Una forma diferente se necesita usar para investigaciones con notas de psicoterapia

Titulo del Proyecto de Investigacion: Evaluacion de los efectos del desgaste social y el control en la adherencia al tratamiento en pacientes con VIH/SIDA.

Lider del equipo de Investigacion: Marguerite S. Keesee, MA

Direccion: **University of Oklahoma, Research & Evaluation Center, 3200 Marshall Ave, Suite 230, Norman, Oklahoma 73072**
Numero de telefono: **405-325-8154**

Si usted decide tomar parte en este estudio, los investigadores de la Universidad de Oklahoma, Campus de Norman (OU-NC) pueden usar o compartir (revelar) informacion de su salud personal que se considera protegida Informacion de salud protegida sera identificada en esta autorizacion como informacion privada.

Informacion que sera usada o Compartida. Bajo los reglamentos federales los investigadores necesitan obtener su autorizacion para usar o compartir su informacion personal privada. Si usted da autorizacion, los investigadores pueden usar o compartir con personas identificadas en esta autorizacion qualquier informacion privada relacionada a esta investigacion de sus anotaciones de medico y resultas de examenes. Esto incluye: toda informacion relacionada a demograficas, tales como: estilo de vida, calidad de vida, barreras social para atencion medica, compartamiento de riesgo, modo de transmicion, examenes o procedimientos, diagnosticos y historia medica, tratamiento, adherencia al tratamiento y resultados como perfilados en el documento de consentimiento informado. Informacion usada o compartida sera o puede ser informacion personal como su fecha de nacimiento, raza, numero de identificacion unica, documentos medicos y graficas relacionadas ha examenes o procedimientos perfilidados en la forma de consentimiento. Datum obtenidas y mantenidas en la Universidad de Oklahoma (OU) no incluyeran identificaciones personales como nombre, direccion, numero de identificacion unica, telefono o direccion electronica.

Proposito para usar o compartir informacion privada: Si usted nos da permiso, los investigadores usaran su informacion privada para : extender la base de conocimiento sobre los factores social y de compartamiento tales como los tratamientos medico que afectan pacientes con VIH/SIDA y su adherencia al tratamiento medico; identificar modos de poder mejorar el presente tratamiento medico, y fundamental, reducir la probabilidad que la resistencia a medicamentos corrientes ocurra por resultado de mal adherencia medica.

Otro Uso y Compartamiento de Informacion Privada. Si usted da permiso, los investigadores tambien podran usar su informacion privada para el desarroyo de nuevos procedimientos o productos comerciales. Ellos podran compartir su informacion privada con los patrocinadores de este estudio, el Consejo/Individuo de OU-NC (IRB) que controla los datos y seguridad de estudio y agencias del gobierno como el FDA (US Food & Drug Administration) y Departamento de Salud y Servicios Humanos (HHS). Los investigadores tambien podran compartir su informacion privada con: **los aprobados del Consejo de Reviso Institucional (IRB) como: el Investigador Principal, Co-Investigador, Facultad de auspicial, y el Valley AIDS Council.**

Confidencialidad. Aunque los investigadores reportaran sus resultados en revistas cientificas o en juntas, ellos no indificaran su identidad personal en sus reportes. Los investigadores trataran de mantener su informacion en confidencia, pero esto no se puede garantizar. El gobierno no requiere que todos que puedan ver su informacion que la mantengan en confidencia, asi es que pueda que no se mantega privada.

University of Oklahoma – Norman Campus

Research Privacy Form 1
PHI Research Authorization

Opcion Voluntaria. La opcion de dar permiso a los investigadores de OU-NC para usar o compartir su informacion privada para sus investigacions es voluntario. Es completamente su opcion. Nadie le puede forzar que de permiso. Sin embargo, necita usted dar permiso a los investigadores de OU-NC para uso o compartimiento de informacion de salud privada si quiere participar en este estudio. Negar a dar permiso no le afectara su abilidad de obtener su tratamiento corriente o cuidado de salud en Valley AIDS Coucil (OU-NC).

Cancelo de Permiso. Si usted da permiso a los investigadores de OU-NC para usar o compartir su informacion privada, usted tiene el derecho de cancelar su autorizacion cuando usted quiera. Sin embargo, el cancelar su permiso no sera aplicada para informacion que los investigadores ya han usado o compartido.

Termino de Permiso. Solo que usted cancele, permiso para los investigadores de OU-NC para uso o compartimiento de informacion privada para estudio se **terminara en 05/05/05.**

Contacto con OU-NC. Usted puede saber si su informacion privada ha sido compartida, o puede cancelar su permiso en cualquier momento con escribiendo a: Privacy Official, University of Oklahoma, P.O. Box 26901, Oklahoma City, OK 7319. Si tiene preguntas llame: (405) 271-2511 o escriba por correo electronico: ou-privacy@ouhsc.edu.

Dando Permiso. Con su firma en esta forma, usted da autorizacion a la University of Oklahoma - Norman Campus (OU-NC) y a los investigadores de OU-NC dirigidos por **Marguerite S. Keesee, MA.** para uso o compartamiento de su informacion privada (informacion protegida de salud) para el proyecto de investigacion llamado: **Avaluacion de los efectos del desgaste y control social en la adherencia a los regimientos del tratamiento de VIH/SIDA.**

Paciente/Individuo Nombre: _____

_____ _____
Firma de Paciente/Individuo, Fecha
O padre si el individuo es menor de edad/nino

O

_____ _____
Firma de Representante Legal ** Fecha

** Si es firma por Representante Legal del paciente-individuo, proporcione una descripcion de su relacion con el paciente-individuo y su autoridad para actuar como Representante Legal:

_____
OU-NC puede pedirle que usted renda evidencia de su relacion

Una copia con firma de esta forma se debe dar al Paciente-Individuo o al Represente Legal.

IRB No.: FY2003-309

The University of Oklahoma

OFFICE OF HUMAN RESEARCH PARTICIPANT PROTECTION

May 10, 2004

Ms. Marguerite S. Keesee
Research & Evaluation Center
RHYN 112B
CAMPUS MAIL

SUBJECT: "Assessing the Effects of Strain and Control on Adherence to HIV/AIDS Treatment Regimes"

Dear Ms. Keesee:

Thank you for returning your completed progress report for research conducted with human subjects under the above-referenced protocol. The Board has reviewed and approved your report. Since you indicate the study is continuing, they have extended your approval to continue this research for an additional twelve-month period ending 5/5/2005.

Please note that this approval is for the protocol and informed consent form reviewed by the Board. If you wish to make any changes, you will need to submit a request for change to this office for review.

Sixty days before the expiration of this approval you will receive notice from the IRB secretary that your approval anniversary is approaching along with information you can use to complete your progress report and request an extension of the approval date.

If you have any questions about the approval given your protocol, please contact me at 325-8110.

Cordially,

E. Laurette Taylor, Ph.D.
Chair
Institutional Review Board-Norman Campus (FWA #00003191)

FY2003-309

cc: Dr. Morris Foster, Anthropology
Dr. Susan Sharp, Sociology

660 Parrington Oval, Suite 316, Norman, Oklahoma 73019-3085 PHONE: (405) 325-8110 FAX: (405) 325-2373