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Suicidal Ideation, Suicidality, and HIV/AIDS Infection or Diagnosis Among Asian American Sexual Minorities

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2020

Abstract

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by

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MBA/HCM, University of Phoenix, 2007

BS, Howard University, 2000

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

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Abstract

Asian American men who have sex with men (MSM) are an understudied minority. They are particularly affected by HIV/AIDS and are also impacted by psychosocial and mental health factors of depression, substance use, drug use, and alcohol use/abuse, any of which may lead to suicidal ideation and suicidality. These associations have not been widely studied in this population. The purpose of this quantitative study was to use the 2015 National Survey on Drug Use and Health data to examine these psychosocial and mental health issues and their association with suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM. Due to small sample size and no responses to HIV/AIDS questions in the data set, one of the three RQs was dropped and a gender variable was introduced to increase the sample size and expand the study to include Asian American gays, lesbians and bisexuals. Syndemic theory guided the study. Out of a sample of 2,541 Asian American adults, only 91 self-identified as gay, lesbian, or bisexual. Findings from hierarchical multiple logistic regression analysis showed that depression was significantly associated with suicidal ideation (OR: 11.08, 95% CI: 1.00–3.19) and suicidality (OR: .09, 95% CI: 0.83–52.45). Positive social change implication of this study may result in increased public health awareness and knowledge, as well as increased interventions for suicidal ideation and suicidality, and increased access to mental health services for Asian American GLB and their families. It may also lead to the development of clinical and public health policies at the community level to reduce health disparities and prevent suicidal ideation/suicidality among this population.

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Dedication

Dedicated to my late mother, Mrs. Catherine Nnennaya Azih (Adaugo Nwanyi Obioma) Meaning (A woman with a good heart or a woman with a heart of gold) for her untiring support and prayers from the start of this journey towards the end, but wasn't there to see me cross the finish line. Mum, I know our Lord has granted you eternal rest in his vineyard, but no matter where you are, this is for you. I dedicate this work to you, my dear mother, a woman of substance, a woman who really loved her children and cherished all their life's work and endeavors. I would not be who I am today without your support, love, prayers, and encouragement. Your inspiration helped me to face my challenges, trials, and tribulations, and taught me how to become a man and have lots of love for humanity. Your philanthropy and care for the poor and the sick knew no bound wherever you served, and had promoted positive social change in our rural communities.

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Section 1: Foundation of the Study and Literature Review

The purpose of this study was to examine whether the psychosocial and mental health factors of depression, substance use, drug use, and alcohol use/abuse predict suicidal ideation, suicidality, and HIV infection or diagnosis among Asian American men who have sex with men (MSM). I also examined the association of these correlates when controlled for age, income, and employment. Previous studies on this population has always focused on Asian American women, college students, and lesbian, gay, bisexual and transgender (LGBT) or sexual minorities; but none has specifically addressed these psychosocial and mental health issues among Asian American MSM. The National Survey on Drug Use and Health (NSDUH) 2015 cross-sectional dataset, which was collected by the Center for Behavioral Health Statistics and Quality (CBHSQ, 2016) for the Substance Abuse and Mental Health Administration (SAMHSA), was used for secondary data analysis.

HIV/AIDS (human immune deficiency virus and acquired immune deficiency syndrome) is a global public health pandemic that has caused adverse health consequences throughout the world, with more than 20 million deaths since its inception few decades ago (Niak, 2017). It is estimated that 34–46 million people are currently living with HIV/AIDS (Niak, 2017). We tend to realize the impact of HIV/AIDS on the global community without realizing its impact on other serious health issues affecting the society at the individual level (Niak, 2017). A direct psychological reaction to HIV infection may lead to suicidality, due to the impact of the disease on the brain or due to a reaction to chronic pain, an emotional reaction to being infected with a chronic and life-

threatening condition such as depression or mental illness. It may also be triggered by physical illness or psychiatric side effects from medications used for treating HIV and its comorbidities (Niak, 2017). There are many events that can initiate suicidal ideation among people living with HIV (Niak, 2017). There is a relationship between HIV/AIDS and suicidal behavior or suicidality in people with HIV, and according to Wang et al. (2018), HIV/AIDS may be a direct risk factor for suicidal ideation or suicidality in people infected with or diagnosed with HIV/AIDS. HIV/AIDS and suicidal ideation or suicidality have adverse health consequences or implications for public health and have created major public health challenges worldwide. Also, HIV/AIDS and suicidal ideation or suicidality have generated a heavy burden on society (Wang et al., 2018).

HIV/AIDS is also a major public health issue in the United States, where about 40,000 people receive HIV diagnoses annually, and more than 1 million people are living with the HIV virus (Singh, Song, Johnson, McCray, & Hall, 2018). Even with the advent of highly active antiretroviral therapy (HAART) and pre-exposure prophylaxis (PrEP), which have helped to reduce and control HIV/AIDS infections and transmissions, the incidence and prevalence of HIV infection and transmission is still a persistent public health dilemma in the United States, and MSM continue to be the most disproportionately affected (Singh et al., 2018). MSM, more than heterosexual men, also experience poor or adverse mental health outcomes, such as depression, anxiety or mood disorders, as well as substance use, drugs, and alcohol use, which can lead to suicidal ideation, suicidality, HIV infection and suicide (American Psychiatric Association [APA], 2018). These adverse mental health outcomes may be a result of perceived and systemic discrimination

or social victimization, family rejection, stigma, and internalized homophobia experienced due to their sexual orientation or sexual minority status (APA, 2018). MSM also experience barriers to health care utilization and mental health treatment services as a result of prior negative engagement or encounter with clinicians and health care workers about their identity or sexual orientation status, socioeconomic status, and marginalization status (APA, 2018).

According to the Centers for Disease Control and Prevention (2015), suicide is the 10th leading cause of mortality in the United States. Suicides results in an estimated $51 billion in medical and work-loss costs (CDC, 2015). Suicidal ideation was highest among adults aged 18–25 years at 7.4%; for those aged 26–49 years, it was at 4.0%, and for those aged 50 years and above, it was at 2.7% (CDC, 2015). Among racial-ethnic groups, the percentage of adults 18 years or older with suicidal ideation was 2.9% among African Americans, 3.3% among Asian Americans, 3.6% among Hispanics, 4.1 among Whites, 4.6% among Native Hawaiians/Pacific Islanders, 4.8% among Native Americans/Alaskan Natives, and 7.9% among adults with two or more racial or /ethnic identities (CDC, 2015). Among genders, males commit suicide at four times the rate of females and represent 77.9% of all completed suicides. Females are more likely to have suicidal ideation than males (CDC, 2015). The most commonly used method of committing suicides among males is firearms at 56.9%, while poisoning is the preferred method among females at 34.8% (CDC, 2015).

In 2016, suicide rates increased and became the second leading cause of mortality for individuals aged 10 -34 years, and the fourth leading cause of mortality for

individuals aged 34–54 years (Hedegaard, Curtin, & Warner, 2018). According to data from the National Vital Statistics System on mortality, the age-adjusted suicide rate from 1999 to 2017 increased 33% from 10.5 to 14.0 per 100,000 in the U. S. population. Suicide rates were also significantly higher in 2017, compared with 1999, among females and males of all ages (10–74) years, but lower than the rate in 1999 among females and males aged 75 years and older. The age-adjusted suicide rates in 2017 for most rural counties was 1.8 times the rate for most large urban metro counties, at 20.0 and 11.1 per 100,000, respectively (Hedegaard, Curtin, & Warner., 2018).

Suicidal ideation and suicidality or suicidal behavior is a global public health dilemma leading to death and disability. According to Klonsky, May, and Saffer (2016), suicide is the fifteenth leading cause of mortality in the world, leading to about 1.4% of all deaths. The global prevalence rates for suicidal ideation and suicide attempts is approximately 9.2% and 2.7%, respectively (Nock et al., 2008; Klonsky et al., 2016). Suicide is also the leading cause of death among MSM, and suicidal ideation or suicidality may predispose the MSM population to higher risk of suicides (Luo, Feng, Fu, & Yang, 2017). This is because the risk for suicide is significantly higher in people with suicidal ideation than in those without it (Luo et al., 2017).

According to Wilton et al. (2018), suicide as the second leading cause of mortality among young adults between the ages of 15 and 24 years. Similarly, the World Health Organization WHO (2014) in its annual executive summary report, *preventing suicide: A global imperative,* stated that 800,000 lives are lost globally due to suicide, with majority of the deaths occurring in developing countries. The WHO report ranked suicide as the

second leading cause of death for adolescents aged 15 to 29 years. The WHO had come under intense criticism for its lackluster attitude towards mental illness, by not including mental illness in the list of noncommunicable diseases that require global attention. This WHO report will help to increase global awareness of suicide as one of the world's major killers.

Some researchers have identified other factors, known as socio-structural factors (e.g., unstable or lack of affordable housing), which are known to influence greater risk for suicidal ideation and suicidality among MSM and LGBT adolescents (Storholm et al., 2013 ; Wilton et al., 2018). Also, stigma and discrimination related to sexual orientation, race, or gender/ethnicity have been linked to an elevated risk of suicidal ideation and suicidality among LGBT and sexual minority populations (Wilton et al., 2018). Asian American MSM, the target population for this study, are an underresearched sexual minority population that is heavily impacted by these sociodemographic and socioeconomic factors, societal stressors, or by social victimization, including acculturative stress and the Asian American image as the "model minority status." For Asian American adolescents or college students who are gay or MSM, these factors and designated status as model minorities tend to create undue stress to achieve academic excellence and to avoid family dishonor by acknowledging any academic challenges; Start a new sentence here>> This is a situation that may lead to psychosocial vulnerabilities and mental health issues, such as depression, substance use, drug and alcohol use, suicidal ideation, suicidality and HIV risk behaviors, in this population (Yasgur, 2017).

Analyzing the association or relationship between these factors that create undue stress on Asian American gays or MSM; identifying how the correlates of these factors interact to produce a syndrome of these negative health outcomes; and analyzing their impact on Asian American MSM could help clinicians and public health practitioners create effective interventions and public health programs. Preventing and reducing the impact of these psychosocial conditions among Asian American MSM could improve their lifestyles and could reduce suicides, suicidal ideation, suicidality, and HIV infection or diagnosis, and create a positive social change in this underserved minority population.

In this section, I cover the following topics: problem statement, purpose of the study, research questions and hypotheses, theoretical foundation or framework, nature of the study, literature search strategy, literature review related to key variables and/or concepts, definitions, assumptions, scope and delimitations, significance, summary, and conclusions.

Problem Statement

MSM in the United States are disproportionately affected by HIV/AIDS and by psychosocial factors and mental health problems, such as depression and substance abuse, which increase HIV sexual risk behavior (Dyer, Regan, Pacek, Acheampong, & Khan, 2015). Sexual and gender minorities, such as Asian American MSM, experience an increased burden of suicidal ideation and suicidality compared to the general population (Kohlbrenner, Deuba, Karki, & Marrone, 2016). Minority populations also experience health disparities with respect to HIV, sexually transmitted infections (STI), depression, suicidality, anxiety disorders, stigma, violence, and discrimination. Although these

disparities are well known, there are still gaps in knowledge of the factors that influence them among these minority populations (Kohlbrenner et al., 2016). Psychosocial and mental health factors such as depression, substance use, drug and alcohol use, as well as sexual orientation, have been found to be associated with suicidal ideations in sexual minorities such as Asian American MSM (McAndrew & Warne; Kelly et al.; in Li et al., 2016).

The Asian/Pacific Islander community in the United States make up about 16.6 million people, which is about 5.4 % of the total population (U.S Census Bureau News, as cited in Nehl et al., 2015). In this Asian American population, nativity and acculturation play a major role in influencing health outcomes, substance use, and mental health (Eitle et al.; Ojeda et al.; Patterson & Strathdee; Turner et al.; Wahl & Eitle; Cho et al.; Uretsky & Mathiesen; Takeuchi et al. as cited in Nehl et al., 2015). These Asian minority populations are underresearched and constitute one of the most poorly understood minority populations in regard to their health needs, health status, and health behaviors (Islam et al. as cited in Nehl et al., 2015). Prior research on suicidal ideation and suicidality among this population has been limited (Lane, Cheref, & Miranda, 2016) and focused mainly on sexually abused women or intimate partner violence (IPV), and LGBT youths or sexual minority youth and college students. I found no study that specifically addressed suicidal ideation and suicidality among Asian American MSM. This study addressed this gap by focusing on the psychosocial vulnerabilities and mental health factors associated with suicidal ideation or suicidality among members of this underresearched minority population. Lastly, I applied the syndemic theory to determine

how the correlates of these factors and related co-occurring factors lead to HIV/AIDS infection or diagnosis among Asian American MSM.

Purpose of the Study

The purpose of this quantitative and cross-sectional study was to examine the psychosocial and mental health factors of depression, substance use, drug use, and alcohol use/abuse, and their association with suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American men who have sex with men MSM.

Research Question and Hypotheses

RQ1: What is the relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American MSM, controlling for age, employment, and income?

H_{01}There is no relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American MSM, controlling for age, employment, and income.

H_{A1} There is a relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American MSM, controlling for age, employment, and income.

RQ2: What is the relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and suicidality (plan and attempt) among Asian American MSM, controlling for age, employment, and income?

H_{02}–There is no relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and suicidality among Asian American MSM, controlling for age, employment, and income.

H_{A2}–There is a relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and suicidality among Asian American MSM, controlling for age, employment, and income.

RQ3: What is the relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and HIV/AIDS infection or diagnosis among Asian American MSM, controlling for age, employment, and income?

H_{03}–There is no relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and HIV/AIDS infection or diagnosis among Asian American MSM, controlling for age, employment, and income.

H_{A3}–There is a relationship between the factors of depression, substance use, drug use, alcohol use/abuse, and HIV/AIDS infection or diagnosis among Asian American MSM, controlling for age, employment, and income.

Theoretical Foundation for the Study

Syndemic theory was used in this study to represent the unique qualities of sexual minorities and to better understand and explain the excess rates of suicidal ideation and suicidal behaviors among MSM or gay and bisexual men. The theory, developed by Merrill Singer in the 1990s, was used to describe how health problems or risk factors of suicidal ideation tend to accumulate or co-occur and overlap to synergistically create a series of epidemics or negative health outcomes (Ferlatte et al., 2015). These epidemics

or negative outcomes are due to marginalization, social inequity, or unjust societal influence, and to stressors such as discrimination or stigma (Ferlatte, 2015).

Singer in 1994 also used syndemic theory to describe the mutually reinforcing relationship among substance use, abuse, and high risk of HIV/AIDS infections among poor minority populations (Guadamuz et al., as cited in Li et al., 2016). A distinguishing feature of the syndemic theory is that it combines health issues, such as suicidal ideation or suicidality and other chronic health problems, to highlight the synergistic interaction of multiple problems or issues, and how they impact the MSM or gay and bisexual community (Ferlatte et al., 2015). Thus, syndemic theory was used to guide this study since it represents the best foundation for understanding the multiple or co-occurring psychosocial and mental health factors that influence suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among this minority population of Asian American MSM.

Nature of the Study

This quantitative study used a cross-sectional design. The NSDUH (2015), collected by SAMHSA, was employed for secondary data analysis to examine the association between the independent variables of depression, substance use, drug use, alcohol use/abuse, and the dependent variables of suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis. The research design aligned with the problem statement, the purpose of the study, and the research questions/hypotheses to identify the psychosocial and mental health factors that impact suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM. The results may assist

clinicians in crisis management and alert public health practitioners to intervention strategies to reduce or prevent suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among this minority population.

Literature Review

This literature review section presents an overview of the research literature to enable understanding of the impact of suicide, suicidal ideation, and suicidality on the high-risk HIV population of MSM or gays and bisexual men, especially Asian American MSM. It begins with a brief description of the epidemiology of suicide, suicidal ideation, and suicidality, and expands to an historical perspective of HIV/AIDS and its impact on MSM, especially Asian American MSM. Previous studies were used to highlight the problems facing this population and to refine the research questions. Also, the contemporary literature was reviewed for theoretical concepts and constructs of the study to enable understanding of its problem, purpose, and significance.

Literature Search Strategy

To identify prospective, peer-reviewed articles (as well as books and grey literature), the following electronic databases—PubMed, Medline, SAGE, PsycINFO, PsycARTICLES, CINAHL, EBSCO, Social Science Citation Index, Science Direct, Google Scholar, Thoreau, and Expanded Academic ASAP—were searched for the years (2014 – 2019) using the following keywords: *MSM, gays, suicidal ideation, suicide, suicidality, suicide attempts, suicidal behavior, sexual minority, sexual orientation, Asian American, HIV/AIDS, stigma, discrimination, mental health, LGBT, psychosocial, psychiatric, HIV and Asians,* and *HIV risk behaviors*.I also selected more articles from

the bibliographical or reference pages of database articles relevant to the topic under study. The Centers for Disease Control and Prevention (CDC) website, National Institute of Mental Health (NIMH), American Psychological Association, and the National Institute of Health (NIH) were also searched for articles and materials relevant to the topic being studied. The selected articles were published between 2014 and 2019. I used the Boolean operators, AND and OR, to optimize the results. Abstracts were used to judge an article's relevancy to the research questions.

Epidemiology and Historical Perspective of HIV/AIDS and MSM

HIV causes acquired immune-deficiency syndrome (AIDS) by depleting the T-helper cells of the immune system, leaving the body vulnerable to series of deadly infections. HIV remains a global public health burden. According to the UNAIDS, an estimated 77.3 million people worldwide are infected with HIV, and out of this figure, 35.4 million people have lost their lives as a result of AIDS-related illnesses or infections, with about 36.9 million people living with the disease as at the end of the year 2017 (Bosh, Brooks, & Hall, 2019). Since HIV/AIDS disease was first discovered in the United States in 1981, more than 700,000 people have lost their lives as a result of the infections (Fauci, Redfield, Sigounas, Weahkee, & Giroir, 2019). The CDC (2018) estimated that more than 1.1 million people are currently living with HIV in the United States, and 15% of these people do not even know about their HIV serostatus. About 23% of new HIV infections are transmitted by people unaware of their HIV sero-status, and about 69% of new infections are transmitted by people with HIV who are not in HIV care (Fauci et al., 2019). In 2017, more than 38,000 people were diagnosed with HIV in the

United States, with majority being the young African American MSM, followed by Hispanics/Latino MSM, other sexual minorities, high-risk heterosexuals, and injection drug users (IDU), (Fauci et al., 2019).

The HIV/AIDS infection and its transmission burden is a major public health issue in the United States, and MSM continue to be disproportionately impacted by this disease (Brown, Serovich, Laschober, & Kimberly, 2018; Van den Berg et al., 2019). MSM represent only about 2% of the U. S. population, and yet they comprised 67% of diagnoses for HIV in 2015 (Singh et al., 2018; Brown et al., 2018). There are differences in age and ethnic/racial profiles in HIV rates among MSM, as new cases have declined among White MSM, remained steady or stabilized among African American MSM, but have increased among Hispanics/Latino MSM from 2008–2014 (Brown et al., 2018). However, younger MSM continue to bear the incidence of new HIV infections and have higher proportions of new cases when compared to other age groups. In 2014, the majority of the new cases of HIV infections were diagnosed among MSM aged 13–34 years, while 16% were 35–44 years, and 17% older than 45 years (Brown et al., 2018).

Van den Berg et al. (2019) highlighted previous research suggestions that a large proportion of MSM living with HIV engage in sexual risk behaviors such as anal sexual activity without condoms and illicit injection drug use, and they engage in these activities at higher rates than MSMs with HIV negative serostatus or uninfected peers. These HIV risk behaviors of unprotected anal sexual activity and drugs or alcohol use could also increase the transmission of sexually transmitted infections (STIs), which are comorbidities or co-infections for HIV/AIDS (Van den Berg et al., 2019). As a result of

these comorbidities or co-infections, some previous researchers has pointed out the presence of a "syndemic" of HIV infection, illicit injection drug use and alcohol use which creates a combination or synergy of overlapping epidemics that could lead to HIV transmission among the MSM population (Santos et al., 2014; Van den Berg et al., 2019). Researchers in previous studies have documented the relationship or association between substance use or drug and alcohol use and HIV transmission risk behavior, and indicated that MSM living with HIV are more likely to report the use of illicit drugs and alcohol than their uninfected peers (Patterson et al., 2005; Van den Berg et al., 2019). Moreover, Alcohol and substance abuse among MSM have been implicated in poor adherence to antiretroviral therapy (ART), which has significant implications for HIV transmissions among this population, and HIV-related interventions or clinical outcomes (Van den Berg et al., 2019).

MSM or gay and bisexual men are the population most impacted by HIV/AIDS in the United States (CDC, 2018). These men accounted for 67% of the 40,324 new diagnoses for HIV in the United States in 2016 (CDC, 2018). Approximately 82% of the diagnoses are among males aged 13 and older, with African Americans topping the highest number of diagnoses at (38%; 10,226), followed by Hispanics/Latinos at (29%; 7,689), Whites or at (28%; 7,392), and other racial/ethnic minorities such as Asian Americans and native Hawaii/Pacific Islanders coming last at (6%; 1,537) of HIV diagnoses among MSM or gay and bisexual men (CDC, 2018). From 2011 to 2015, HIV diagnoses had remained stable at approximately 26,000 per year among MSM or gay and bisexual men. Trends in diagnoses among this group varied by race and ethnicity with

African Americans remaining stable, while the Hispanics/Latinos increased by 13%, Asian Americans also increased by 35%, while Whites or decreased by 10% (CDC, 2018).

According to the CDC (2019), between 2010 and 2016, the Asian American population in the United States grew steadily at 17%, which was roughly four times as fast as the total U. S. population. At about the same period, the number of Asian Americans diagnosed for HIV increased by 42% in all the 50 states and the District of Columbia. The increased rate of HIV among this population was due to the increased HIV diagnoses among Asian American MSM or gay and bisexual men (CDC, 2019). Moreover, Asian Americans make up of only 6% of the U. S. population and accounted for about 2% of HIV diagnoses in the country in 2017 (CDC, 2019).

History of Theoretical Concepts or Frameworks Applied in Previous Studies

Swannell, Martin, and Page (2016) applied Meyer's (2003) minority stress model to describe the association between sexual orientation and suicidality and nonsuicidal self-injury (NSSI) in a sample of Australian sexual minority population. Meyer's (2003) Minority Stress Model was used to describe and understand the level of minority stressors or stress processes among gays, lesbians, and bisexual people. The model describes the level of chronic and routine stressors experienced by sexual minorities as a result of sexual stigma, internalized homophobia, and perceived discrimination, which predisposes them to greater risks for poor mental health, suicidality, and non-suicidal self-injury (Swannell et al., 2016). Similarly, Carrera and Wei (2017) applied Joiner's (2005) interpersonal-psychological theory of suicide to explain the mediation effect of

interpersonal shame on perceived burdensomeness and thwarted belongingness impact on depression, and also the moderating effect of perfectionist family discrepancy (PFD) on these constructs and their impact on depression among Asian American college students. These theories or models were used to connect, describe and explain the relationship or association between sexual orientation and suicidality or poor mental health, as well as the impact of perceived burdensomeness and thwarted belongingness on depression.

Safren, Reisner, Herrick, Mimiaga, and Stall (2010) used the syndemic theory to explain syndemic conditions, which leads to the co-occurrence of mental health and psychosocial problems such as depression, substance use and violence to disproportionately increase HIV risk behaviors among the MSM. Similarly, Wyatt, Ung, Park, Kwon, and Trinh-Shevrin (2015) used the ecological framework to explain the risk of depression and suicides among Asian Americans and Native Hawaii/Pacific Islanders. The researchers used the ecological framework to explain the risks and protective factors for depression and suicidality, and the important role or impact of acculturation, acculturative stress, enculturation and bicultural identity on depression and suicidality (Wyatt et al., 2015). In a similar way, Klonsky, May, and Saffer (2016) proposed the proliferation of suicide theories known as the ideation-to-action framework, which was designed to advance the knowledge about suicides and its prevention positively. Klonsky et al.'s ideation-to-action-framework was born out of the fact that most individuals who has suicidal ideation do not go on to make suicide attempts, and the most often used risk factors for suicides only predicts suicidal ideation but cannot distinguish or differentiate between suicide attempters from those with suicidal ideation who do not make suicidal

attempts (Klonsky et al., 2016). Similarly, Sveticic and De Leo (2012) in analyzing the hypothesis of a continuum in suicidality, also inferred that the progression of suicidality to attempts or completed suicides does not take the course of a chronic illness or disease, as only a small percentage of suicidal ideators progress to increasing severity. The authors concluded that suicidal ideation or suicidality takes a fluctuating path that may or may not progress to increasing severity, such as suicide attempts or completed suicides. The ideation-to-action framework is totally a different phenomenon from other traditional concepts or constructs of suicidal theory, but most traditional theories of suicide such as Joiner's (2005) interpersonal psychological theory of suicide IPSTS and O'Connor's (2011) integrated motivational-volitional theory of suicide (IMV) are all situated or positioned within the ideation-to-action framework (Klonsky et al., 2016). The ideation-to-action framework, therefore, proposes that the incidence or the development of suicidal ideation and its progression to suicidal attempts do not happen in a continuum, and should be seen as two distinct processes with distinct predictors and explanations designed to guide future understanding, knowledge, and prevention of suicides (Klonsky et al., 2016).

Klonsky and colleagues also proposed the three-step theory (), which is also situated within the ideation-to-action framework and involves the combination of pain and hopelessness, which leads to suicidal ideation. Suicidal ideation is increased or escalated if pain overcomes or exceeds connectedness, and lastly, dispositional, acquired, and practical elements that lead to suicidal means or capacity contributes to the transition from ideation to suicide attempts (Klonsky et al., 2016). These theories or models

described above enables the understanding of phenomena such as "syndemic conditions" which will form the major focus of this study. "Syndemic conditions" are the co-occurrence or combination of epidemics that could synergistically influence and disproportionately increase HIV risk behaviors leading to HIV/AIDS infection or diagnosis among MSM. The "minority stress" by Meyer allows us to understand the experiences of discrimination, stigma, prejudice, and other social stressors that could trigger poor mental health such as depression and suicidality among sexual minority populations. The ecological framework highlights the importance of the environment in influencing behaviors and cultural attitudes or beliefs that could increase HIV risks or protective factors for depression and suicidality. The ideation-to-action framework, which is an approach to suicides different from traditional theories of suicide, is a promising approach to suicide treatment and prevention, and could play an important role in intervention programs that distinguish suicidal ideators from attempters, and could also assist clinicians and public health professionals in preventing progression from suicidal ideation to suicidal attempts.

Depression, Suicide and Suicidal Ideation or Suicidality

Sexual minority groups or populations such as gays, lesbians, bisexuals, and MSM experience greater stigma, prejudice, and discrimination as a result of hostile and social stressors in the environment which may lead to mental health problems such as depression, suicidal ideation or suicidality according to Meyer's (2003) minority stress theory. This theory helps us to broaden our knowledge and understand the unique challenges faced by these minority groups when compared to the heterosexual population

(Taliaferro, Gloppen, Muehlenkamp, & Eisenberg, 2018). According to McConnell, Birkett, and Mustanski (2015) and Mustanski, Andrews, and Puckett (2016), a common risk factor for mental health problems such as depression and loneliness has been linked to the social identification as a sexual minority male, such as gay or MSM (Giano et al., 2019). The long-term impact of depression and loneliness on these sexual minority groups or population has been associated with substance use, risky sexual behavior, and suicidality. Exploring the social environments of these sexual minority groups such as MSM will help us to understand better what might lead to these increased mental health problems like depression and loneliness (Giano et al., 2019). This is where the urban and rural living environments of MSM comes into play. Exploring the urban and rural environments of MSM related to depressive symptoms and loneliness will enable the understanding of mediating effects and protective factors inherent in different geographical locations (Giano et al., 2019). Conditions inherent in a geographical environment or location may affect the mental health status of MSM due to the cultural and socioeconomic differences that may exist between urban and rural areas. The urban areas are more populated and tends to harbor more sexual minority groups like MSM than less populated rural areas (Giano et al., 2019). In a study by Giano et al. using data collected from 156 MSM in a conservative geographical area like Oklahoma, the authors examined loneliness as a mediating factor in the relationship between depression or depressive symptoms and geographical location. The results showed that loneliness played a major role in mediating the differences in depressive symptoms between the urban and rural locations. The authors suggested that urban MSM may have increased

levels of depressive symptoms due to loneliness and that certain elements in the urban environment might increase stress in urban MSM. The authors also suggested that rural MSM may have strong social support networks which buffer against loneliness as a protective factor for depressive symptoms (Giano et al., 2019).

One major critique of this study is that due to the conservative geographical area sampled by the authors, the study may not generalize to other geographical locations throughout the country. Moreover, conditions in different geographical locations or environment determines the level of depressive symptoms that are mediated by loneliness in both urban and rural areas, as these may increase or decrease depending on the prevailing cultural and socioeconomic conditions existing in that environment or location. In other words, urban MSM may have more structural, community or institutional support than rural MSM, but higher depressive symptoms due to loneliness and urban stress, while rural MSM may have more online social support networks and family cohesion that tends to reduce loneliness and depressive symtoms, and acts as a protective factor.

Lee, Oliffe, Kelly, and Ferlatte (2017) addressed depression and suicidality among MSM or gays, and the implication for health care workers. The authors examined the risk factors for depression and suicidality among MSM or gay men and the impact of family acceptance of sexual identities, social cohesion and belonging, stigma, and victimization (Lee et al., 2017). Using BDI and patient questionnaire corresponding to the Diagnostic and Statistical Manual of Mental Disorders (*DSM-IV-TR*) and Step Evaluation and Triage (SAFE-T) for suicidality, the authors analyzed and concluded that

MSM or gay men are vulnerable to depression and suicidality, and healthcare workers can effectively manage gay men's depression and suicidality by understanding the risk factors such as stigma and other vulnerabilities (Lee et al., 2017). The results of the studies described above highlights the significance of depression as a mental health issue and its relationship to suicidal ideation and suicidality, and the essential role of public health professionals and healthcare workers in understanding the risk factors and other vulnerabilities that would help in devising effective interventions.

Fang et al. (2018) also addressed the prevalence, risk factors, and clinical characteristics of suicidal ideation in depressed Chinese patients. The authors posits that suicidal risks or suicidal ideation and suicidality are greatly increased in people with depression, and isolating the independent risk factors for suicidal ideation and its clinical characteristics is clinically important for focused intervention, prevention, and treatment. According to the authors, empirical evidence has supported the notion that depression is the strongest predictor for suicidal ideation (Fang et al., 2018), but the authors warned that not all depressed patients have suicidal ideation or suicidal behaviors, and emphasized the importance of investigating the correlation between depressive symptoms with suicide (Fang et al., 2018). Fang et al. also noted that many studies that examined risk factors among the clinical symptoms for suicidal ideation in people with depression came up with inconsistent results and only looked at few symptoms of the disorder. The authors highlighted the differences between bipolar and unipolar depression, which share a common symptomology and functional impairment but also act on different brain tissues, with different biochemical properties and different suicidal risks. Therefore, the

authors concluded that suicidal ideation is increased in people with major depressive disorder MDD and the risk factors could be predicted with clinical characteristics such as self-harm, hopelessness, sleeplessness, suicidal attempts,crying, psychosis, worthlessness, guilt, male gender, and so on (Fang et al., 2018). The authors classified male gender as a risk factor for suicidal ideation in depressed people, indicating that males are more prone to suicidal ideation than females. But, this classification is inconsistent with previous studies done in both Asian and Western countries, which showed a higher rates of suicidal ideation among females (Fang et al., 2018). In critique of this Chinese study, one of the limiting factors is the use of qualitative analysis, which did not highlight the relationship between severity of the symptoms and suicidal ideation. Another limiting factor is the cross-sectional design of the study, which cannot determine any causative association between the clinical characteristics and suicidal ideation in depressive patients. A quantitative analysis using longitudinal study design would be most preferable in future studies. This study highlights the association between suicidal ideation and depression and the importance of early intervention and identification of risk factors or clinical characteristics for suicidal ideation in depressed people, especially among Asian American MSM.

Similarly, Zeng et al. (2018) examined the association of perceived internalized stigma (PIS) with depression and its impact on people living with HIV/AIDS. People diagnosed and living with HIV/AIDS may experience increased levels of mental illness due to depression and suicidality as a result of perceived internalized stigma related to their HIV status. According to Zeng et al. (2018), people living with HIV/AIDS who are

gay, bisexual, or MSM may even experience more tremendous or increased stress and mental illness such as depression and anxiety because of double stigma associated with their HIV status and sexual orientation. Zeng et al. also highlighted the impact of gender and sexual orientation on the suicidal status of people living with HIV/AIDS and posited that males are more likely than females to have suicidal ideation and attempts (35.7% for males and 24.8% for females). Gays, bisexuals, or MSM living with HIV/AIDS have higher rates or proportions of suicidality than their heterosexuals counterparts (42.0% for Gays, bisexuals or MSM and 27.9% for heterosexuals). The Zeng et al study was cross-sectional in design, and sampled 411 participants living with HIV/AIDS in a Chinese province of Guangzhou. The results of the study analyzed using structural equation model showed a significantly increased direct and indirect pathway of perceived internalized stigma (PIS) on suicidal status, as well as an increased indirect pathway of PIS on suicidality via depression, which indicates a partially mediating effect of depression on the relationship between PIS and suicidality.

The authors concluded that PIS is significantly related or associated with increased depression and suicidality and that depression plays a major role in suicidality and mediates the relationship or association between PIS and suicidality (Zeng et al., 2018). This study has a public health implication of targeted interventions focused on reducing PIS and combating mental illness to reduce suicidality and improve the quality of life of people living with HIV/AIDS. One of the downsides or critique of the study is that all the measurements on depression and suicidal status were based on self-reported information and might be impacted by recall and response biases of certain sensitive

questions and answers. Another limiting factors is the use of cross-sectional design by the authors, which cannot be used to determine causal relationships between the variables; therefore, longitudinal studies may be required for further studies. The cultural context of the study in a Chinese province may help in understanding the impact of Asian culture on mental health issues such as depression, suicidal ideation, or suicidality among Asian American MSM.

Depression, Anxiety, and HIV Risk Behavior

Parker, Lõhmus, Valk, Mangine, and Rüütel (2015) estimated the prevalence of depressive and anxiety symptoms and other related factors among MSM in Estonia and answered the research question by identifying the factors associated with depression and anxiety among MSM in that region. Out of 430 participants sampled by the questionnaire, only 265 of the total sample was selected for analyses. Other participants were excluded due to sampling exclusion and inclusion criteria. The study was a cross-sectional design and used Emotional State Questionnaire (EST-Q) to assess depressive and anxiety symptoms. While alcohol use was assessed using CAGE questionnaire (Parker et al., 2015). Analysis and results using pair-wise correlation test, univariate and multivariate logistic regression showed a correlation between depression and anxiety scores. The results of the study also showed that one-third of the samples met the criteria for problem alcohol drinking and depressive symptoms, and one quarter for anxiety symptoms. Forty-four percent met the criteria for suicidality and lifetime suicidal ideation, while 1% made at least one suicide attempt (Parker et al., 2015). In conclusion,

the study provided evidence of depressive and anxiety symptoms, including drug use and alcohol drinking problems that are prevalent among MSM in Estonia.

Storholm, Satre, Kapadia, and Halkitis (2016) on the other hand, described the relationship between negative mood and compulsive sexual behavior (CSB) and its association with depression to increase HIV risk behavior that leads to HIV/AIDS infection or diagnosis among young MSM. The authors used a cross-sectional cohort study of 18 to 19-year-old young MSM recruited in NewYork using a non-probability sample of 509 participants (Storholm et al., 2016). Using multivariate regression, the authors found a positive correlation between CSB and depression, and between CSB and increased unprotected anal sexual behavior. The authors concluded that there is a relationship between CSB and depression and increased unprotected anal sexual behavior or sexual risk-taking and that depression has a greater influence on the relationship between CSB and increased unprotected anal sexual behavior. This is because sexual risk-taking due to CSB is likely increased among young MSM with a comorbidity of depressive symptoms (Storholm et al., 2016).

Furthermore, the authors suggested that the moderating influence of depression and the combination of CSB and depression to increase sexual risk-taking such as unprotected anal sexual behavior among this group may lead to the production of a syndemic, which is the co-occurrence of multiple factors or combination of epidemics that synergistically increases the transmission of HIV and Sexually transmitted infections STI among this group. Also, the stigma, discrimination, and prejudice suffered by this group of young MSM as a result of their sexual orientation or sexual minority status may

have contributed to their depressive symptoms, consistent with Meyer's (2003) minority stress theory (Storholm et al., 2016). In critique of the study, one of the limiting aspects of the study is the lack of randomization in the sampling technique. Although the authors applied a snowball sampling for passive recruitment, which involved random selection of some participants with incentives for referral, the authors used a convenient non-probability sampling for the majority of young MSM participants, which might affect its generalizability to the MSM population.

Adams, Balbuena, Meng, and Asmundson (2016), in a population study of comorbidity and associated consequences, examined the impact of depression acting together with social anxiety. The authors highlighted the consequences of the impairment associated with the comorbidity between depression and anxiety disorders and identified social anxiety disorder (SAD) as the most common anxiety disorder that frequently occurs in people with depression. The authors reported that people with the comorbidity of major diagnostic depression MDD and SAD have an earlier onset of depression, develops extended depressive episodes, high risk of suicides or suicidality, and high alcohol/substance abuse and dependency, and are hit by worse social and occupational impairment when compared to people with MDD alone (Adams et al., 2016). Using data from the Collaborative Psychiatric Epidemiology Surveys (CPES), the authors also concluded from the results of the study that MDD-SAD comorbidity occurred mostly in younger people, particularly men, and have an earlier onset of MDD with higher social and occupational impairment or consequences (Adams et al., 2016). A limiting factor or critique of the study is the use of cross-sectional data, which did not establish causality

between the comorbidities MDD-SAD and suicidality, including other functional social and occupational impairments. Understanding the impact of these comorbidities of depression on functional limitations and suicidality will help clinicians and public health professionals in early intervention and preventive efforts especially among Asian American MSM.

Similarly, Lin, Lee, and Yang (2017) assessed the psychological impact of depression and suicidal ideation on male subjects being tested for HIV, the risk factors for depression and suicidal ideation, and the impact of behaviors and attitudes related to risky sexual behaviors that increases HIV transmission risks. The authors of the study answered the research question that tends to identify what behaviors and attitudes related to risky sexual behaviors determine the risk factors for depression and suicidal ideation in people being tested for HIV or engaged in voluntary counseling and testing (VCT). The study was cross-sectional in design and involved voluntary participants who completed anonymous surveys yielding a total of 1254 test subjects, about 1140 males and 114 females (Lin et al., 2017). Since the study required a male subject only testing, female subjects were excluded to avoid gender bias and problems of statistical power due to few female data, leaving a total of 850 male participants with a response rate of 74.6% (Lin et al., 2017). However, analysis and results of the study using a self-rating depression scale and logistic regression showed that participants who tested for HIV or engaged in VCT were at risk of having depression and suicidal ideation, but each association comes with different types of risky sexual behaviors (Lin et al., 2017).

The results of these studies also shows the association of depression and anxiety with suicidal ideation and HIV risk behavior and calls for the importance of understanding different risk factors for depression and suicidal ideation among HIV test seekers so that they could be used as a reference point for effective interventions to prevent psychological problems in HIV high-risk populations like MSM. A limiting factor or critique of this study is that the authors were not able to establish a causal linkage between HIV testing and psychological problems due to the cross-sectional nature of the study. So, even though there is a relationship between voluntary HIV testing and counseling (VCT) and psychological profile of depression, and suicidality, the authors did not establish the cause of this relationship, and people who use HIV VCT are more likely to be MSM and other sexual minorities engaged in risky sexual behaviors, substance and drug use, leading to increased depression and suicidality. The Asian American sexual minority population or MSM who tends to avoid help-seeking for mental health or psychological problems due to their cultural beliefs, nativity and acculturation may benefit immensely from this program even though they may tend to avoid it. Therefore, it is essential that public health professionals and clinicians make these services available, and targeted intervention focused on this underserved sexual minorities to encourage more HIV VCT and the provision of more mental health services which will serve as an effective strategy in preventing sexual risk behaviors, depression and suicidality among this population.

Sexual Orientation, Suicidality, and Mental Health

Fergusson, Horwood, and Beautrais (1999) analyzed the relationship between sexual orientation and suicidality and mental illness in young adolescents and used a longitudinal study of birth cohorts, involving 1265 infants born in Christchurch, New Zealand, to reach conclusions that supports evidence of increased risks of mental health issues and suicidality among gays, lesbian and bisexual adolescents or GLB. Cochran and Mays (2000) studied lifetime prevalence of suicidal symptoms and affective disorders among men with the same-sex partners and tried to understand the association of lifetime suicidal behaviors with homosexuality and bisexuality in a population-based sample. Cochran and May used secondary data from NHANES 111 (1988 to 1994) with a total sample of 3648 men aged 17 to 39 years. The authors also tried to answer the question concerning the relationship between homosexuality and bisexuality behaviors and lifetime prevalence of three affective disorders such as major depressive disorder (MDD), mania, and dysthymia (Cochran & Mays, 2000). Analysis and results of the study using chi-square test of independence, odds ratio, 95% confidence intervals, and second stage multiple logistic regression supported the findings and evidence of increased risk of lifetime suicidal symptoms among homosexuals and also indicated a sign of increased risk of depression among this population.

Lian, Zuo, Lou, Gao, and Cheng (2015) also examined sexual orientation and risk factors for suicidal ideation and suicide attempts using a multi-center cross-sectional study in three Asian cities. The authors examined the differences in the prevalence of suicidal ideation and attempts between lesbians, gays, and bisexual (LGB) youths and

heterosexual youths in three Asian cities of China and used chi-square test and multiple logistic regression to evaluate the correlates of these variables. The results of the study using a community-based multi-center cross-sectional approach showed an increased rate of suicidal ideation and attempts among LGB youths when compared to their heterosexual counterparts, and when stratified by the three cities showed significant differences between urbanized and non-urbanized cities. The authors, therefore, concluded that suicidality is a common occurrence among Asian youths, with increased prevalence seen in urbanized cities (Lian et al., 2015).

Similarly, Plöderl et al. (2013), Stone et al. (2014), and Kann et al. (2016) demonstrated the relationship between sexual minority groups and increased risk of depression and suicidal ideation or suicidality when compared to the heterosexual population. Plöderl et al. analyzed the association or relationship between sexual orientation and high-risks of suicides, suicide attempts, and suicidality using meta-analysis and Bayesian methods, as well as Meyer's (2003) minority stress model to elaborate the link between these variables. The authors of the study answered the research question that tended to disprove if sexual minority groups or individuals are not at increased risk for suicides. The authors used evidence from the analysis and results of the study by Meta-analysis and Bayesian methods to conclude that sexual orientation is associated or related to increased risk factors for suicides, and that sexual minority groups or individuals are at increased risk for suicides, suicidal attempts or suicidality. Swannell et al. (2016) also explored the association between sexual orientation and suicidality and non-suicidal self-injury (NSSI) in Australian adults, using Meyer's (2003) Minority

Stress Model to understand the level of minority stress processes among gays, lesbians, and bisexual people. The authors of the study assessed the relationship or association between sexual orientation and suicidal ideation, attempts, and NSSI in a representative dataset or sample of Australian population (Swannell et al., 2016). Data analysis and results using logistic regression models for association between sexual orientation and suicidality and NSSI yielded significant results for suicidal ideation, attempts, and self-injury by homosexual and bisexual groups who have higher risks of suicidal ideation, attempts, and NSSI when compared to heterosexuals. The cause of these higher risk are due to internalized homophobia, sexual stigma, and discrimination suffered by these minority groups (Swannell et al., 2016). The results also showed significant differences in men and women, and in homosexuals and bisexuals when considered separately because bisexual females are at higher risks of suicidality and NSSI, while gay males or MSM are at higher risks of suicidality but not NSSI (Swannell et al., 2016). Also, in exploring the suicide-related characteristics and help-seeking behavior by sexual orientation, Blosnich, Nasuti, Mays, and Cochran (2016) used a population-based data from the California Quality of Life Surveys to show that sexual minority men and women are more likely than their heterosexual counterparts to have disclosed suicide attempts to a clinician or medical professional. The authors also observed that among suicide attempters, sexual minority women at a younger age made more attempts than heterosexual women. This data shows the importance of suicidal risk awareness by clinicians or health care professionals, especially suicidal risk heterogeneity among

sexual minority groups compared with the heterosexual population (Blosnich et al., 2016).

In contrast, Luo et al. (2017) suggested that pooled lifetime prevalence of suicidal ideation may be associated more with discrimination, stigma, and prejudice, and through isolation due to sexual orientation, but differed significantly according to geographical area, sample source, and HIV status. In a meta-analytic update of the estimation of pooled lifetime prevalence of suicidal ideation, Luo et al. obtained data from 19 articles which contained a total of 26,667 subjects, among these subjects or participants, 9374 were identified to have lifetime suicidal ideation (Luo et al., 2017). The authors found that the pooled lifetime prevalence of suicidal ideation among MSM was much higher than the general population and also much higher than LGB and other minority groups found in previous studies. This meta-analytic study is a quantitatively pooled lifetime prevalence of suicidal ideation among MSM, which was stratified or analyzed according to sub-groups, sample source, geographical area, and HIV status. Subgroup stratification by geographical location yielded inconsistent and contradictory results between high-income and low–middle-income countries. Subgroup analyses by sample source showed that MSM samples from community-based surveys has a higher lifetime prevalence of suicidal ideation compared to population-based surveys. By HIV status, the authors found that HIV-positive MSM has a higher lifetime prevalence of suicidal ideation than HIV-negative MSM due to high levels of stigma associated with diagnosis for HIV, which could trigger increased risk of suicidal ideation or suicidality (Luo et al., 2017). From the results of the study, the authors concluded that the high pooled lifetime prevalence of

suicidal ideation among MSM highlights the need for early assessment of suicidal ideation among this group, as well as the importance of strengthening psychological interventions among this high-risk population.

The study also highlights the linkage between the high pooled prevalence of suicidal ideation among the MSM to the experiences of discrimination, stigma, isolation, prejudice and other social stressors or victimizations brought by their sexual orientation, which could lead to poor mental health. In critique of this meta-analysis, the large samples used in the analyses of the subgroups might be impacted by recall bias and could lead to misclassification of suicidal ideation from information pooled from the studies included in the meta-analysis. Also, the high heterogeneity of the sampled subgroups, although good for generalizability of the study to the population, might impact the validity of the results. Understanding the pooled lifetime prevalence of suicidal ideation among MSM in different geographical locations, sample source and by HIV serostatus would enable clinicians and public health officials to focus targeted early assessments of suicidal ideation and psychological interventions among at risk populations such as Asian American MSM.

A more recent population-based study by Nystedt, Rosvall, and Lindström (2019) investigated the relationship or association between sexual orientation and the experience of suicidal ideation and attempts using data from the 2012 public health survey in Scania, Sweden. The authors employed a cross-sectional approach using 28,029 participants between the ages of 18 to 80 years, which is about 51.7% participation (Nystedt et al., 2019). The authors applied multiple logistic regression to analyze the association between

sexual orientation and suicidal ideation and attempts and concluded from the results that sexual minorities have increased odds of suicidal ideation and attempts, with bisexual women being the most vulnerable with higher odds ratios. The authors also concluded that only homosexual men (gay or MSM), and not homosexual women, have higher odds ratios for suicidal ideation and attempts (Nystedt et al., 2019). Similarly, Lyons et al. (2019) also investigated the epidemiology of suicides among lesbian and gay male individuals and sought to explain the characteristics and emerging circumstances of suicide among lesbian and gay male individuals when compared to non-lesbian and non-gay male individuals. As the case in all cross-sectional studies, this study cannot infer any causality between the variables. Any possible direction of causal relationship would move from sexual orientation to suicidal ideation and attempts, and this possible direction is not reversible or vice versa, and becomes a major limiting factor or critique of the study. The results of the study indicated a relationship or association between sexual orientation or sexual minority and suicidal ideation and attempts and could generalize to Asian American MSM population.

Ethno-Cultural Variations in Depressive Symptomology

Chen, Hewitt, and Flett (2017) examined ethnic variations in other-oriented perfectionism's association with depression and suicidality. The authors posit that other-oriented perfectionism (OOP), which is defined as the act of imposing a perfectionistic demand on other people , provides a protective mechanism or function against personal psychological distress such as depression and suicidality (Chen et al., 2017). The authors stated that many previous studies on OOP has been primarily focused on subjects of

European origin without knowledge of how this construct could affect the psychological profile of people or participants from other cultural background other than European origin. The authors applied this construct by examining the association between OOP and psychological profiles such as depressive symptoms and suicidal ideation among undergraduate participants comprising of 120 European participants and 120 Asian Canadian participants (Chen et al., 2017). The results of the study using hierarchical logistic regression analysis showed that OOP was elevated and negatively and uniquely associated with depression and suicidal ideation among European participants. But the results also showed that Asian participants with elevated OOP also has the highest rates of suicidal ideation in the study (Chen et al., 2017). The implication of this study result shows that OOP is correlated or associated with ethnicity and cultural disposition of Asian Canadians to predict higher levels of suicidal ideation among this group. The authors found that OOP was not significantly associated with depression in either ethnic group, but was only negatively associated with depression and suicidality among European samples. The authors also suggested that there are more differences than similarities in the interaction of OOP among different cultural context. The authors then concluded that the negative association between OOP and suicidality that are often common in European or White samples failed to generalize to the Asian Canadian sample, which remarkably shows that OOP may be differentially associated with depression and suicidality depending on the sample or participant's ethnicity (Chen et al., 2017). The association between OOP and ethnicity in predicting high levels of suicidality in Asian Canadian samples may generalize to Asian American MSM population, as they

both share the same collectivistic cultural disposition, which is quite different from the individualistic culture of the European samples. One major critique of this study is the use of a cross-sectional design approach which may hinder the question of causality between the variables.

Zhu (2018) similarly, examined and compared the depressive symptoms, Patterns, and social correlates among three groups of Asian Americans: The foreign-born Chinese Americans and US-born Chinese Americans are compared to non-Hispanic Whites in relation to depression symptomology using data from the Collaborative Psychiatric Epidemiology (CPE). A total of 599 Chinese American participants, 468 foreign-born, and 121 US-born were compared to 4032 non-Hispanic Whites and examined for depressive symptoms and patterns using factor analysis. The author used the study to examine four types of dimensions for depressive symptoms. (1) Negative effect. (2) Somatic symptoms. (3) Cognitive symptoms. (4) Suicidality. Statistical analysis by logistic regression was used to analyze the effects of socio-demographic variables such as age, gender, marital status, and education, as well as health condition and interpersonal social factors such as family and friends support or conflicts with family and friends on specific patterns of depressive symptoms which were examined separately for each sub-group. The results of the analysis showed little differences in depressive symptom patterns but yielded a wide variation in social correlates to the four dimensions of depression across the three ethnocultural groups (Zhu, 2018).

According to Zhu (2018), “depression is a multidimensional condition with symptoms manifested in different aspects. Specifically, measurement for depression

include screening test like the Center for Epidemiologic Studies Depression Scale-Revised (CESD-R) or clinical assessment criteria like the Diagnostic and Statistical Manual of Mental Disorder (DSM)" (p. 19). According to the author, there are few studies that examined depressive symptoms among Asian Americans, particularly Chinese Americans. Most previous studies about depression are commonly focused on comparing the prevalence of depression between Asian Americans and other racial groups, as well as the risk factors for depression among Asian or Chinese Americans. Cultural experts and psychiatrists on Asian or Chinese culture has asserted that the way Chinese or Asian Americans express their impaired mood, or depressive symptoms is very distinct or different from the American General population, and this distinctiveness is due to the cultural differences in depressive symptomology as a result of the collectivistic and philosophical orientation of the Asian or Chinese cultural traditions (Zhu, 2018). The philosophical and collectivistic orientation of the Asian or Chinese culture is rooted in holism between the mind and body, and between the human spirit and its natural environment, which is quite distinct from American cultural experience (Zhu, 2018). This difference between collectivism and individualism orientation is why acculturative stress due to acculturation to western culture impacts the mood, anxiety, and depressive symptomology of the Asian or Chinese Americans not yet accustomed to the individualistic nature of the American culture.

Zhu also used this study to answer the research question that tends to identify the differences in the pattern of depressive symptomology between Asian or Chinese Americans and non-Hispanic Whites, which will throw more light in understanding the

etiology and pathophysiology of depression (Zhu, 2018). According to Zhu (2018), previous research was inconsistent in the differences in pattern of depressive symptoms between Chinese Americans and non-Hispanic Whites, as most studies found higher risks of depression among Asian or Chinese Americans than non-Hispanic Whites, while some studies reported lower risk of depression among Asian or Chinese Americans compared to non-Hispanic Whites. The higher risk of depression in Asian or Chinese Americans compared to non-Hispanic Whites reported in previous studies may be attributed to racial discrimination, acculturative stress, and poor utilization of mental health services by Asian or Chinese Americans. While some studies attributed the lower risk of depression among Asian or Chinese Americans compared to non-Hispanic Whites to strong social support, family cohesion, and other socio-cultural factors prevalent in the Asian American community (Zhu, 2018). As a result of these inconsistencies, other previous studies suggested that these differences in the prevalence of depression between Asian or Chinese Americans and non-Hispanic Whites may be partially due to differences in the pattern of depressive symptomology, and cultural factors play a significant role in the differences in depressive symptomology among these groups. The four dimensions of depressive symptoms examined by the author of this study include negative affect, somatic symptoms, cognitive symptoms, and suicidality. Among these dimensions, somatic symptoms have been identified to be much higher in Asians or Chinese Americans (Zhu, 2018).

Zhu described somatization as the term “used to refer to the reporting of (usually) medically unexplained symptoms by patients with psychiatric disorder” (p. 19). Affective

symptom is another form of depressive symptomology that includes crying, pessimism, dissatisfaction, and irritability, and Asian or Chinese Americans have been found to suppress the expression of this affective symptoms or emotional symptoms of depression, which means that Asian or Chinese Americans have a tendency to express their emotional problems in somatic fashion. Zhu posits that Asian or Chinese cultures values such traits as self-control and endurance, and frowns at, or discourages emotional expression or verbal expression of emotions (Zhu, 2018). Other dimensions of depressive symptoms include cognitive patterns and interpersonal relationships which are also influenced by Asian or Chinese cultural disposition, and psychosocial factors. The expression of cognitive symptoms may be affected by depression for individuals or groups with different cultural norms or disposition. From the analysis results, Zhu found little differences in the depressive pattern of these symptoms, but a wide variation in the social correlates to the four dimensions of depression among the three ethno-cultural groups – Foreign-born Chinese Americans, US-born Chinese Americans, and non-Hispanic Whites.

Zhu (2018) suggested four factors that serve as social precursors of depressive symptomology, and that includes (a). Sociodemographic factors such as (Age, gender, race, and education). (b). Vulnerability factors such as (Chronic medical conditions or physical conditions). (c). Protective factors such as (Social support, family cohesion). (d). Provoking factors such as (Social conflicts, or conflicts with family and friends). According to Zhu, previous studies has highlighted the significance and influence of nativity and acculturation as important factors for the depressive symptomology of Asian

American immigrants. The studies found that there are increased rates of suicidal ideation among US-born Asian Americans than among foreign-born Asian American immigrants. The studies also noted the variation of suicidal ideation between men and women, but this is more pronounced among US-born Asian Americans, and not among foreign-born Asian Americans. The studies also noted the differences or variations in the level of acculturation to the host country (American culture) which is different between foreign-born and native-born Asian American immigrants, as the process of retention between the host culture and native culture creates a complicated psychological impact on Asian American immigrants leading to mental health issues and suicidality (Zhu, 2018). A major critique of this study is the disparity in sample sizes among the sub-groups of foreign-born and US-born Chinese Americans, which has a smaller sample sizes compared to the non-Hispanic Whites. These could lead to fewer significant prediction in the sub-groups than the non-Hispanic Whites. The study highlighted the significance of understanding the different patterns of depressive symptomology for people with different cultural norms or disposition and the relationship of depressive symptoms to suicidal ideation or suicidality, which is a distinct construct from the depressive symptoms in the study. The study also highlighted the significant influence of nativity and acculturation as important factors in the depressive symptomology of Asian American immigrants, and the need for clinicians and public health professionals to consider sociocultural factors in the diagnosis, treatment, and preventative intervention for depression and suicidality among Asian American MSM.

Ethno-Cultural Differences in Suicide, Suicidal Ideation and Suicidality

Zvolensky, Jardin, Garey, Robles, and Sharp (2016) in their work on the interactive effects of acculturative stress and experiential avoidance among minority college students found significant and consistent evidence of an interaction between acculturative stress and experiential avoidance for high levels of suicidal symptoms, social anxiety, and anxious arousal among minority college students. The study results showed that acculturative stress was specifically associated with higher levels of suicidal symptoms, social anxiety, and anxious arousal among the minority samples with higher levels of experiential avoidance, but not lower levels of experiential avoidance. The study results also showed a less significant interaction with depression, indicating that a different mechanism of interaction or mediation may explain the association between acculturative stress and experiential avoidance with depression (Zvolensky et al., 2016). The above study highlights the significance of acculturative stress and its relationship to higher levels of suicidal symptoms in the presence of elevated experiential avoidance among ethnic minority students and suggested increased intervention for mental health problems among this population, particularly Asian American MSM who may be more impacted. A major critique of this study is the use of a large percentage of female samples compared to males, and may not generalize well to the male minority or MSM population. Another limiting factor is the use of cross-sectional data, which will not allow causal relationships to be made among the variables.

Similarly, Lane, Cheref, and Miranda (2016) addressed ethnocultural differences in suicidal ideation, depression, and hopelessness among South Asian American

adolescents. The authors answered the research question about cultural differences in suicidal ideation and its correlates, which exists among South Asian American adolescents. With a sample of 204 Asian American college students of Bangladeshi, Pakistani, and Indian origin, the authors used self-reports, and measured suicidal ideation, depression, and hopelessness with Beck instruments and analyzed statistical data with ANOVA and multiple regression methods (Lane et al., 2016). The results of the study showed that Asian Indians are more susceptible to higher rates of suicidal ideation than Bangladeshi and Pakistani American peers. The results also showed that hopelessness was particularly more impactful in conferring vulnerability of suicidal ideation to Asian Indians compared to other Asian American Bangladeshi and Pakistani peers (Lane et al., 2016). The study conclusion highlights the importance of tailoring interventions that take into consideration cultural norms, ethnocultural differences, and identity when addressing suicidal ideation and its correlates in the Asian American population, especially among Asian American minorities like the MSM who may be more impacted by identity and stigma for their sexual orientation, and ethnocultural differences in nativity, and acculturation or acculturative stress which might lead to mental health problems. Some of the critiques of the study include the non-measurement of other significant ethnocultural factors such as acculturation, religious beliefs, and practices. Also, social desirability bias may impact the study due to under-reporting of mental health issues or suicidal behaviors as a result of fears for stigma related to cultural prohibitions against suicide and other mental health issues in Asian culture.

Lai, L, Li, and Daoust (2017) discussed factors influencing suicidal behaviors among immigrant and ethnocultural minority groups and used a systematic review of relevant articles that identified three major themes as (a). The impact of ethnocultural identity and acculturation or acculturative stress (b). Other cultural and immigration issues and influence, and (c). Family and social support (Lai et al., 2017). The authors used the review to identify the factors that influence suicidal behaviors such as ideation, plan and attempts in immigrant and ethnocultural groups and using the three identified themes or patterns in the analysis and concluded that some of the identified themes or patterns influence increased risk of suicidal behaviors while some provides protective mechanism and adjustments against suicidal behaviors (Lai et al., 2017). What the authors were trying to imply is that themes such as ethnocultural identity and acculturation or acculturative stress, including other cultural and immigration issues may influence increased risk of suicidal behaviors such as ideation, plans, and attempts, while family and social support plays an important role of decreasing this influence and may provide protective factors or adjustments against suicidal behaviors among this population. The authors used the results of the study to highlight the importance and significance of addressing these issues as part of prevention and intervention strategies to reduce suicidal behaviors such as suicidal ideation or thoughts, plans, and attempts among immigrant and ethnocultural groups or communities like the Asian American population, particularly Asian American MSM who may be most impacted by these variables. Some of the critiques and limitations of the study include significant gaps in methodology related to the research design and population sample. The review failed to

explore the factors influencing suicidal behaviors among ethnocultural older adults as only five reviewed articles dealt with adults over 60 years of age. Also, majority of the reviewed articles employed cross-sectional design in the study, only about six% of the articles used a longitudinal research design necessitating the need for further studies using both quantitative and qualitative methods to explore patterns of suicidal behaviors among this population over a period of time.

Sexual Victimization, Mental health, Substance Use, Drugs, and Alcohol Use/Abuse

Barnett, Molock, Nieves-Lugo, and Zea (2019) investigated the strength of association between LGBT victimization, fear of school violence and suicidality, and whether they differ by sexual orientation among ethnic minority adolescents. The authors used the 2012 District of Columbia (DC) Youth Risk Behavior Survey of high schools data set and applied a four-stage, stepwise logistic regression for suicidal ideation, planning, and attempts (Barnett et al., 2019). The authors first analyzed the independent variables, sexual orientation, and anti-LGBT victimization, and secondly, applied the anti-LGBT victimization by sexual orientation for interaction. Thirdly, the authors analyzed the independent variable fear of school violence, then finally, in the fourth stage, applied fear of school violence by sexual orientation for interaction. The results of the analysis in the four-stage process showed that - In stage-one, sexual orientation and anti-LGBT victimization were significantly correlated with suicidality (suicidal ideation, plans, and attempts). In stage-two, the anti-LGBT victimization by sexual orientation interaction was not significant for any of the dependent variables. In stage three, the fear of school violence was significantly correlated with suicidality, while in stage-four, the

fear of school violence by sexual orientation interaction was not significant for suicidal ideation and attempts, but significant for suicidal plans in the opposite direction of the study hypothesis (Barnett et al., 2019).

What this study results are trying to project was that sexual orientation, anti-LGBT victimization, and fear of school violence are all correlated with suicidality (suicidal ideation, plans, and attempts), and the strength of the correlation or relationship between fear of school violence and suicide plans was weaker for sexual minority adolescents compared to heterosexual adolescents (Barnett et al., 2019). The authors formulated a hypothesis based on Meyer's (2003) minority stress theory, and using ethnic minority samples of high-school adolescents investigated and analyzed the relationship between sexual orientation, distal and proximal minority stressors of the Meyer's theory and suicidality. The authors used this theory to develop two hypotheses: (a). "Anti-LGBT victimization is more strongly associated with suicide risk behavior for sexual minority students than for heterosexual students. (b). Fear of violence at school is more strongly associated with suicide risk for sexual minority students than for heterosexual students". (Barnett et al., 2019, p. 89). These hypotheses based on the minority stress model was disproved or contradicted by the study results, and some of the reasons might be due to unequal sample size distribution between sexual minority and heterosexual subsamples, or the use of a single question-item to measure harassment or LGBT victimization leaving out other types of LGBT questions, or it might be that the impact of LGBT victimization or harassment on all students was equally harmful to both sexual minorities and heterosexual students (Barnett et al., 2019).

Despite the hypotheses disproval, the study results concluded that sexual orientation was significantly correlated with suicidality independent of anti-LGBT victimization or harassment, and fear of school violence. As a result, clinicians and public health professionals should continue to pay more focus on sexual minority adolescents, particularly Asian American MSM, as a vulnerable population for suicidality and mental health issues. The study results also concluded that anti-LGBT victimization or harassment may have a negative and harmful impact on both sexual minority and heterosexual adolescents. The critique and limitations of the study involved the use of a single question-item to assess or measure anti-LGBT harassment and sexual orientation, which may have impacted the study results. Also, the cross-sectional data or design of the study prevented any assessment of causal relationships between the variables. Therefore, future studies using longitudinal research design to explore and assess the causal relationship between the variables may be needed.

Similarly, Hahm, Augsberger, Feranil, Jang, and Tagerman (2017) explored the association between forced sex, mental health, substance use, and HIV risk behavior among Asian American women. The authors used cross-sectional data from the Asian American Women's Sexual Health Initiative Project with a total of 820 women participants, of which only 720 completed the survey that addressed mental health status. Results of the study using logistic regression to test for mental health, substance use and HIV risks, including covariates such as age group, education, birthplace, and ethnicity showed that women with a history of forced sex were many times more likely to suffer from mental health issues, substance use, and engage in HIV risk behaviors. Also, Hahm,

Kolaczyk, Lee, Jang, and Ng (2012), Brignone, Sorrentino, Roberts, and Dichter (2018), as well as Maru et al. (2018) examined the relationship between intimate partner violence and suicidal ideation among women, particularly Asian American women, The authors stated that intimate partner violence IPV has been identified as a predictor of suicidality in female samples, and little research has been done in this area among Asian American females or women necessitating this research. The study also explored the impact of adverse health outcomes and HIV risk behaviors among Asian American women who were maltreated or abused as children. The authors proposed that childhood abuse is a risk factor for adverse health outcomes in adult life and that childhood abuse and IPV are greatly associated with increased suicidality in Asian American women, which is consistent with previous studies that explored IPV in White and non-Asian samples. The authors concluded that culture may play an important role in the vulnerability of Asian American women to IPV and childhood abuse which leads to poor mental health, suicidality and HIV risk behaviors. Although IPV affects mostly Asian American women, Asian American MSM or gay men could also be impacted by childhood abuse and victimization leading to suicidality and mental illness. Public health professionals and clinicians should device culturally sensitive interventions to reduce the IPV risk and childhood abuse among Asian American women. A major critique of the study is the use of cross-sectional data which do not allow the determination of causality. Therefore, further studies are needed to understand the processes or mechanism by which victimization and IPV leads to suicidality in this minority population.

Paul, Boylan, Gregorich, Ayala, Choi (2014), Nehl et al. (2015), Wu and Blazer (2015) Kenji Iwamoto, Kaya, Grivel, and Clinton (2016) investigated and examined substance use and negative impacts of racism and multiple forms of stigmatization among ethnic minority MSM, substance use disorders and comorbidities among Asian Americans and Native Hawaiians/Pacific Islanders, as well as substance use among a national sample of Asian/Pacific Islander MSM in the United States. According to Paul et al. (2014), ethnic minority MSM experience multiple forms of racism, discrimination, and stigmatization on the basis of both race or ethnic identity and sexual orientation. These multiple forms of minority stressors may be experienced within the LGBT or gay community as well as from the general population, family and among heterosexual friends, and may lead to substance use and abuse, mental health issues, and HIV risk behaviors among these ethnic minority groups. Although previous studies have linked multiple forms of minority stressors to substance use disorder and mental health problems among ethnic minority groups, it is still not clear to what extent or level, these multiple stressors may impact substance use and abuse in a different way, especially among Asian American MSM. In examining substance use disorders and comorbidities among Asian Americans and Native Hawaiians/Pacific Islanders Wu and Blazer (2015) used epidemiological data to describe the extent of alcohol and drug use disorders, and the discrepant use of treatment services by Asian Americans and Native Hawaiians/Pacific Islanders. Analysis of the results showed that when examined as a single group Asian Americans and Native Hawaiians/Pacific Islanders exhibited low prevalence of substance use disorders, but analysis of the epidemiological data that compared Asian Americans

and Native Hawaiians/Pacific Islanders showed a higher prevalence of substance use (alcohol and drugs), depression and delinquency among Native Hawaiians than Asian Americans (Wu & Blazer, 2015).

The results also showed that NHs/PIs were less educated and had lower incomes compared to Asian Americans (AAs). Also, when compared among treatment-seeking patients in mental health treatment facilities, Native Hawaiians/Pacific Islanders showed higher prevalence of DSM-IV diagnoses for (alcohol/drugs and other forms of mental illness) than Asian Americans (Wu & Blazer, 2015). The authors affirmed that co-morbidity was common among both groups, but suggested that both groups with substance use disorder were unlikely to seek or use mental health treatment services, especially treatment for alcohol and drug abuse problems, and treatment that tends to involve the criminal justice system. The authors concluded that although there was limitation of available data due to the small sample sizes of Asian Americans and Native Hawaiians/Pacific Islanders, the study results highlight the need to separate the two groups in health or epidemiological data and increase intervention and further studies into substance use and treatment needs of the Asian American population. Finally, the authors also concluded that some aspects of cultural differences exists between the two groups in terms of language, immigration status, socioeconomic status, substance use and mental health status, as a result, previous studies that tends to combine the two groups into one may fall short in providing adequate data or information that informs public health policy (Wu & Blazer, 2015). A major critique of the study is that the small sample sizes of AAs and NHs/Pls in traditional surveys may make it difficult to collect adequate samples for

research analysis if the two groups were separated. The author's suggestion for oversampling of the two groups may present some validity problems.

Nehl et al. (2015) described drug use among Asian/Pacific Islander MSM and how the impact of nativity and acculturation as a secondary correlate predicted the use of these drugs among these minority population. The authors used self-reported data from a total of 445 Asian/Pacific Islander MSM from seven metro cities who participated in a National HIV serological testing and psychosocial and behavioral assessment study. The study results showed that clubbing was significantly associated with increased levels of substance use. Also, U.S-born Asian participants were more likely to have reported higher levels of marijuana use than those participants with higher levels acculturation who reported lower marijuana use. Bivariate analysis showed that foreign-born status and acculturation experience may provide protective cover against marijuana use among API/MSM. The authors also warned that the association between these variables may not hold well in multivariate analysis. The authors recommended further research on the role or impact of nativity and acculturation on substance use and risky sexual behaviors (Nehl et al., 2015). As a result of the close association between substance use and HIV risk behaviors, this study will address this gap in research by focusing on the role of nativity and acculturation in influencing the psychosocial vulnerability and mental health factors associated with suicidal ideation and suicidality among this underresearched population of Asian American MSM.

Similarly, Kenji Iwamoto et al. (2016) explored underresearched demographics, and the heavy episodic drinking and alcohol-related problems among Asian Americans.

The authors remarked that epidemiological data have shown that heavy episodic drinking and alcohol abuse are significant, and have been increasing among U.S-Born Asian American adults between the ages of 18 to 25 years, even though Asian Americans have historically been known to have lower rates of alcohol abuse compared to other ethnic minority groups (Kenji Iwamoto et al., 2016). These spike in alcohol abuse increased fivefold among Asian Americans within the past decade, as recent studies have identified some high-risk subgroups of Asian American adolescents who engage in high rates of alcohol abuse more than their Asian American counterparts (Iwamoto et al., 2010, in Iwamoto et al., 2016). The authors also said that despite this recent spike in alcohol abuse, Asian Americans are still being perceived as low-risk groups in relation to alcohol and drug use due to their "model minority myth" or designation, because of their financial and academic prowess and well assimilation or acculturation to American culture, and low rates of psychological distress (Kenji Iwamoto et al., 2016). This model minority perception recognized by most researchers in the academic community prevents our understanding of the growing alcohol problems prevalent in this population. As the Asian American population are the fastest-growing ethnic minority in this country, it becomes imperative to understand the determinants and risk factors that leads to suicidality and mental health issues among this population so as to enable clinicians and public health professionals to fashion out effective interventions to prevent alcohol abuse. The authors reviewed the trends in alcohol abuse among Asian Americans and identified the role of genetic factors such as alcohol dehydrogenase (ADH) and aldehyde dehydrogenase genes (ALDH) and other sociocultural factors such as (acculturation,

enculturation, discrimination, physiological and cognitive problems, gender socialization , and mental health issues) on alcohol abuse or heavy episodic drinking among this population (Kenji Iwamoto et al., 2016).

In a meta-analytical review of acculturation and alcohol use among Asian Americans, Lui and Zamboanga (2018) considered acculturation as a key sociocultural factor that helps to explain mental health outcomes and alcohol use among Asian Americans. But yet, research on the extent or the level to which acculturation is related to alcohol use remains unclear, inconsistent, or mixed. The authors reviewed original studies on this topic and analyzed the association between acculturation and alcohol use outcomes among Asian Americans across age groups (Lui & Zamboanga, 2018). The authors also examined the extent to which participant and methodological variables moderated the relationship between acculturation and alcohol use. Analysis of the results with a cross-sectional sample of 28,028 participants from 31 published articles systematically reviewed using a random-effects correlation model revealed that acculturation was significantly correlated with alcohol use and intensity of risky alcohol use, but not with drinking-related issues (Lui & Zamboanga, 2018). The authors posit that many previous studies examined acculturation as a one-directional or unidirectional construct yielding one-directional result. But, in study samples that examined acculturation as a bi-directional construct, alcohol use was positively correlated with acculturation (orientation to host, US- culture), but negatively correlated with enculturation (orientation to native origin, Asian-culture). In essence, acculturation and enculturation are associated with alcohol use in opposite directions, but this association is

not mutually exclusive. Although, the statistically significant variability in the study was moderated by demographic variables such as age, gender, and geographical location. The authors warned that assessing acculturation and enculturation using demographic variables as a yardstick for behavioral practices does not seems to explain the large variability in alcohol use outcomes (Lui & Zamboanga, 2018). The critique and limiting elements of this study involves the use of self-reported data on acculturation and alcohol use, which might affect the reliability of the results. Also, the cross-sectional design of the study will not allow any determination of causality between the variables. Above all, this study and the rest of others related to substance use, drug and alcohol use, reveals the significant influence of acculturation, nativity and enculturation as important sociocultural factors that helps to explain Asian American's mental health outcomes and psychosocial vulnerabilities that may lead to suicidal ideation, suicidality and HIV risk behaviors among Asian American MSM.

Target Population: Asian American MSM

The priority or target population for my study is the Asian American MSM. These underresearched high-risk population are disproportionately impacted by HIV/AIDS and constitute a major source of recent HIV transmissions and infections in the United States as a result of their risky sexual behaviors of unprotected anal sexual activity and injection drug activity for injection drug users (IDU). According to the Centers for Disease Control and Prevention CDC (2018), out of the 38,739 people in the United States and dependent areas who received HIV diagnosis in 2017, 822 were Asian American men, and only 120 were Asian American women. About 9 out of 10 Asian American men who received HIV

diagnosis within the same period were either gay or bisexual. Also, among the 822 Asian American men, 91% has male to male sexual contact while heterosexual contact was only 5%. Injection drug use was 2%, and male to male sexual contact and injection drug use was also 2%, while the other was less than 1% among this population (CDC, 2018). The CDC's HIV surveillance report (2018) also reported that from 2010 to 2016, annual HIV diagnoses among Asian American MSM or gay and bisexual men increased 52% in the 50 states of the country, including the District of Columbia. During the same period in 2016, there were 95 deaths among Asian Americans diagnosed with HIV in the United States and its territories, and these deaths may be due to any cause, including HIV/AIDS and suicide or suicidality.

According to the American Psychological Association (2019), suicides was the 8th leading cause of death for Asian Americans, and the 11th leading cause of death among all other racial groups joined together. Young Asian Americans aged 20 to 24 years had the highest rate of suicides (12.44 per 100,000) (APA, 2019). Asian American females had the highest rates of suicide when compared to females of other racial backgrounds between the ages of 65 to 84. But Asian American men had lower rates of suicide compared to those of or Whites and American Indian/Alaskan native men of all age groups (APA, 2019). The American Psychological Association based on findings from the national studies on suicidal thoughts and attempts also reported that Asian American adults' lifetime rates for suicidal ideation (8.6%) and attempts (2.5%) were lower than that of the national lifetime estimate of (13.5%) for ideation, and (4.6%) for attempts. The report also continued that Asian American adults aged 18 to 34 years had the highest

rates of suicidal ideation (11.9%), suicidal intent (4.4%), and attempts (3.8%). And that Asian American college students were more likely to have had suicidal ideation and attempted suicide than or White college students (APA, 2019).

Historically, suicide rates among Asian Americans in the United States have been lower than that of or Whites and other ethnic communities such as Native Americans, and this might be the reason for the under-research of these minority population to date. But recent events and developments backed by CDC's data on increased rates of suicidality among elderly Asian American women have highlighted the need for more focus and increased attention to be placed on suicide among the fast-growing Asian American population in the United States (Leong, Chu, & Joshi, 2018). Suicidal behavior and deaths by suicide had continued to rise and had become significant and important public health problems for Asian communities resettled in the United States. According to Meyerhoff, Rohan, and Fondacaro (2018), the Asian minority community of Bhutanese refugees are dying by suicide at rates twice that of the general U. S. population. The authors identified the risk factors to be linked to culturally inflexible risk assessments and proposed the integration of Joiner's (2005) interpersonal-psychological theory of suicide and Chu et al.'s (2010) cultural model of suicide as a way of understanding the specific cultural factors related to psychopathology and suicide among Bhutanese refugees. Culturally responsive interventions based on the integration of these models may be an effective strategy to reducing the number of suicide deaths among this Asian American Bhutanese population.

Chu, Lin, Akutsu, Joshi, and Yang (2018) also examined hidden suicidal ideation or intent among Asian American/Pacific Islanders: A cultural phenomenon that is associated with greater suicide severity. The authors described this phenomenon as "the concealment or nondisclosure of suicidal distress to others" (p. 262). Although this phenomenon is often cited in suicide literature involving ethnic minority populations, yet there has been little research done to understand this phenomenon (HSI) among Asian American/Pacific Islanders (Chu et al., 2018). The authors employed a small community sample of 73 Asian American/Pacific Islanders) who were actively suicidal to assess the HSI. Results of the analysis using logistic regression analysis showed that majority of the participants about 60.3% hide their suicidal distress from others. The results also showed that those with HSI also reported increased severity of suicidal distress than those with non-HSI. The results of the study concluded that HSI among Asian American/Pacific Islanders was related or associated with culturally salient suicide risk factors (Chu et al., 2018). The critique and major limitations of the study include the overrepresentation of young adults and the Chinese and Vietnamese populations. The study sample does not accurately represent the Asian American/Pacific Islander population, and the use of cross-sectional approach prevents any conclusions about causality or directionality of the study. The clinical and public health implication of the study highlights the significance and importance of cultural responsiveness to suicidal interventions involving Asian Americans, especially Asian American MSM who are more impacted by suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis.

Remarkably, majority of the research literature reviewed on Asian American minority population mostly dealt with Asian American women or college students who are known to have higher rates of suicides, suicidal ideation, or suicidality. But little or no studies have specifically focused on suicides, suicidal ideation, or suicidality among Asian American MSM or gay males, necessitating the need for this study. In this study, I will close this gap by addressing suicidal ideation, suicidality and HIV/AIDS infection or diagnosis among Asian American MSM, and explore or examine the psychosocial vulnerability and mental health issues such as depression, substance use, drugs, and alcohol use/abuse associated with suicidal ideation or suicidality among this population. Also, the theoretical framework of syndemic theory will be used to enable us understand and determine how the correlates of these factors and other co-occurring factors leads to HIV/AIDS infection or diagnosis among this population.

Variables

The secondary dataset I used for this study was the NSDUH 2015. The 2015 NSDUH by (SAMHSA) was the first time in national survey history that sexual identity or sexual orientation (defined as someone's identification with a given sexual orientation) or sexual attraction (defined as gender or sex to which someone is attracted to) was included in a national survey (SAMHSA, 2018). The NSDUH is an annual national cross-sectional survey carried out by SAMHSA under the direction of the U. S. Department of Health and Human Services. The survey is carried out annually using stratified multistage area probability sampling method. This annual national survey provides nationally representative data for the civilian, non-institutionalized population

aged 12 and older throughout the fifty states of the country, including the District of Columbia. The annual survey is administered in English and Spanish, using audio computer-assisted, self-interviewing instruments (ACASI); (SAMHSA, 2018; Lu, 2019). The NSDUH (2015) dataset was used to test the variables depression, substance use, drug, and alcohol use/abuse as independent or predictor variables while suicidal ideation, suicidality (plan and attempt), and HIV/AIDS infection or diagnosis will serve as the dependent variables. The covariates controlled are Age, Income, and Employment. These variables and covariates would help to answer the research questions that examined the psychosocial vulnerability and mental health factors of depression, substance use, drugs, and alcohol use/abuse, and their association with suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM.

Depression

According to SAMHSA (2018), major depressive episode (MDE) in an adult is defined as a period within 2 weeks or longer in the past 12 months an individual experienced depressed mood or loss of interest or pleasure in activities of daily living, and the individual had additional symptoms such as sleeplessness, poor eating, lack of energy, concentration, and self-worth. Adults are said to have MDE with severe impairment if it caused severe problems that affected their ability to function at home, work, engage in relationships with others, or have a social lifestyle (SAMHSA, 2018). Depression is described as “a multidimensional condition with symptoms manifested in different aspects. Specifically, measurement for depression include screening test like the Center for Epidemiologic Studies Depression Scale-Revised (CESD-R) or clinical

assessment criteria like the Diagnostic and Statistical Manual of Mental Disorder (DSM)" (Zhu, 2018, p. 19). Depression is also described as the leading cause of disability-adjusted life years lost in 10–19-year-old adolescents worldwide, and in the United States remains the major risk factor for suicide, which is the third major cause of death for adolescents in the same age group (Lu, 2019). Depressive symptoms are associated with impairments, which presents a severe mental health challenge to adolescents, and if untreated during adolescent stage could lead to severe negative health and social consequences in adult life (Lu, 2019). Despite the severe consequences and public health implication of depression, it is still under-diagnosed and under-investigated in the United States in terms of scope, risk factors, and disparity in mental health service utilization and accessibility to treatment which is limited or overlooked in some racial/ethnic minority populations like the Asian Americans (Lu, 2019).

Bailey, Mokonogho, and Kumar (2019) discussed racial and ethnic differences in depression and highlighted the impact of major depressive disorder (MDD) as among the most prevalent form of depression in U.S that are often under-diagnosed and untreated. The authors revealed that this under-diagnoses and lack of treatment created a burden of disability among minority populations who are the most impacted. Depression is a disease that affects all ethnicities, races, and genders, and previous studies have shown that roughly 18 million Americans are impacted by depression, among this figure, approximately 10 million Americans suffer from either major or clinical depression, with about two-thirds going without adequate form of diagnosis and treatment (Bailey et al., 2019). In exploring the racial/ethnic differences or disparities in depression, the authors

considered predisposing factors such as genetic and adverse childhood events (ACE), the discrepant presentation of disease among minorities when compared to or Whites, and the mental health service utilization and accessibility to treatment by ethnic minorities needed for long-term sustainment. The authors posited that when considering the risk factors for depression among ethnic minorities such as African Americans and others, self-perceived racial discrimination is a major risk factor, while a strong sense of ethnic identity serves as a protective factor. Other risk factors for depression include socioeconomic status, poverty, low income, and employment status (Bailey et al., 2019).

Similarly, Kim and Haugen (2019) addressed the many facets of depression in Asian American population and highlighted the differences in culture that create difficulties for clinicians or healthcare professionals in understanding the need to create mental health practices for minorities suffering from depression. In Asian culture, the term depression is attached with a stigma, which may prevent some people suffering from depression to seek help or receive mental health counseling and treatment. As a result, there are poor utilization or lack of mental health services, which could lead to under-diagnosis and lack of treatment options in this population (C. J. Kim & Haugen, 2019). To understand the disparities and differences in depression awareness and treatment among this population, it is important that clinicians and public health professionals understand Asian cultural values and beliefs, and how these cultural values and beliefs influence their decision making and emotional processes (C. J. Kim & Haugen, 2019). Asian cultural values and beliefs are rooted in collectivistic ideological orientation, which involves family cohesion, social integration, interdependence, filial piety, harmonious

relationships, and family obligations, and these values help to shape coping strategies when dealing with depressive symptoms among this group. Previous studies on Asian American immigrants found that when this collectivist orientation are broken by social factors such as discrimination, social isolation, family conflicts, loneliness, independence, and lack of social support experienced through acculturation to host or American individualistic cultural orientation, depression and suicidal ideation or suicidality are likely to be triggered by acculturative stress, and by an internalized sense of failure for not adhering to native Asian cultural values and beliefs. All these studies help us to understand the importance of cultural responsiveness in any intervention approach or strategy dealing with depression or mental health issues in Asian American populations, as well as the importance of mental health utilization which are lacking as a result of stigma attached to depression or mental illness in this population which discourages or prevents help-seeking. One major critique is that all these studies cannot make determinations on causality as a result of cross-sectional data. A longitudinal approach may help in these determinations.

Substance Use, Drug Use, and Alcohol Use/Abuse

Substance use, substance use disorder, and substance abuse are terms that are often used interchangeably, and these terms are used interchangeably in this study. Substance use and substance abuse are defined respectively as indulgence or overindulgence in an addictive substance—addictive substances such as prescription drugs, marijuana, cocaine, heroin, and alcohol. Alcohol addiction in the form of binge drinking is defined as engulfing or consuming more than five alcoholic drinks in one

sitting, while heavy drinking is defined as consuming more than eight drinks per week or in the past 12-month period for women, and more than fifteen drinks for men per week or in the past year (SAMHSA, 2018). Assanangkornchai, Li, McNeil, and Saingam (2018) used the latent class regression model analysis to identify the clusters of alcohol and drug use, and other health risk behaviors among Thai secondary school students. The authors used data from the national school survey, which included 25,566 secondary school students ages 12–15 years. The results of the study showed that 88% of the students were classified as low-risk behaviors with moderate alcohol use, 11% were identified as moderate-risk behavior because they are under the influence of alcohol, engaged in fights, weapon possession, and alcohol and tobacco use, while 0.6% were identified as high-risk behaviors because they use illicit-drugs, are older students, mostly males, poor school performance, not living with parents, family members and peers are engaged in drug use. From the results, the authors concluded that alcohol, drug use, and tobacco use, as well as other health-risk behaviors such as fighting and bullying, are clustered among Thai secondary school students, and used the study to create awareness on the prevalence of alcohol and drug use among secondary school adolescents. The results of the study also highlights the importance of targeted, comprehensive intervention that include education and other prevention strategies targeted at the moderate to high-risk adolescents (Assanangkornchai et al., 2018).

Chandler, Kalmakis, and Murtha (2018) addressed the relationship between substance use disorder and adverse childhood experiences (ACE) and proposed the need to screen adults with substance use disorders SUD for adverse childhood experiences

ACE. The authors revealed that individuals who had been abused in early childhood or with a history of adverse childhood experiences are at greater risk of not adhering to treatment for substance use disorders, due to extensive trauma suffered during childhood which are masked through adolescent and manifested at adulthood (Chandler et al., 2018). The authors stated that lack of knowledge of trauma-informed- care TIC by clinicians may affect the type of care and ability needed to help individuals struggling from coexisting histories of both ACE and SUD, and suggested that effective implementation of ACE screening programs will increase the chances of sustaining and maintaining the SUD recovery program. The authors recommended that further studies using longitudinal research to investigate the effectiveness of TIC in SUD treatment programs will enhance knowledge of this recovery program and increase awareness of past trauma in this population. Similarly, Asian American MSM exposed to adverse childhood experiences or abuse may be predisposed to depression, substance use, drugs, and alcohol use or abuse in adult life, which may lead to HIV/AIDS transmission and suicidality in this population.

Samples, Stuart, and Olfson (2019) explored opioid use and misuse and suicidal behaviors in a nationally representative sample of U. S. adults. The authors examined the association of opioid use and misuse with suicidal ideation, plans, and attempt among adults aged 18 to 64 years old from a nationally representative cross-sectional data of 86,186 samples in the 2015 to 2016 NSDUH dataset. The authors used logistic regression to analyze the association between opioid use or misuse and suicidal behaviors and applied propensity scores in the analysis to identify a situation in which an individual

with misuse had instead not misused opioids (Samples et al., 2019). Results of the analysis showed that opioid misuse is associated with increased odds of suicidal behaviors, but opioid use without misuse is not associated with suicidal behaviors. The results of this study showed the complex relationship between opioid use with or without misuse and suicidal behaviors. The conclusion of the findings suggested that reducing and preventing the incidence of opioid misuse may also prevent the incidence of suicidal behaviors as well (Samples et al., 2019). Therefore, more public health and clinical intervention should be focused or directed at reducing and preventing opioid prescription misuse and illicit or non-medical misuse to curb the opioid epidemic and prevent suicide deaths. Substance use disorder or abuse such as opioid misuse may also be very prevalent among sexual minority populations, especially Asian American MSM, and may constitute an important risk factor for suicidal ideation, suicidality, and HIV risk behaviors among this targeted population. A major critique or limitation of the study is the use of self-reported data by NSDUH survey, which could be impacted by over- or under-reporting of some responses due the sensitive nature of the drug-use questions, leading to social desirability bias. But the use of ACASI, which improves the privacy and consistency of participant's confidential data, could help in reducing this bias.

Suicidal Ideation, Suicidality, and HIV/AIDS Infection or Diagnosis

These were the dependent variables used in this study. Klonsky et al. (2016) defined suicidal ideation as "thinking about, considering, or planning suicide" (p. 309). Suicidal ideation is described as a strong antecedent of suicidal behavior or suicidality and is associated with increased likelihood of completed suicide (Kim & Yoon, 2018).

Kim and Yoon also described suicide as a progressive behavior that is generated through stressful life events or stress-related life experiences, and suicidal ideation as the primary stages of a suicidal process that tends to end with eventual suicide. Suicidal ideation also helps to identify groups at most-risk for suicide to enable effective public health intervention and prevention practices (Kim & Yoon, 2018). Suicidality is a series of suicidal behaviors such as planning and attempts that could eventually lead to completed suicide. Previous studies have shown a strong evidence of increased rates of suicidality among sexual minorities such as lesbians, gays, bisexuals, and transgender or LGBT populations when compared to sexual majority or heterosexual populations (Ruutel, Valk, & Lohmus, 2017). Suicidal ideation and suicidality impacts MSM, especially Asian American MSM, who reported symptoms of depression and other psychosocial vulnerabilities and mental illness and could lead to HIV risk behaviors, which increases the likelihood of HIV/AIDS and sexually transmitted infections STI among this population. HIV/AIDS infection or diagnosis is as a result of HIV risk behavior, which involves such practices that culminate in condomless or unprotected anal sexual activity or unprotected virginal sex, and injection drug use, which involves sharing of unsterilized needles and syringes by injection drug users IDU.

Age, Income, and Employment

Age, income, and employment are covariates that were controlled in the study as they might affect the association between the independent and dependent variables. Age is a significant factor in the onset of depression, suicidal ideation, or suicidality in Asian American MSM (Eraydin et al., 2019). Eraydin et al. (2019) investigated the relationship

between age of onset of depressive disorder and cognitive function. The authors hypothesized that depressive disorder is commonly associated with impaired cognitive function, but the age of onset that is most associated with cognitive function or performance remains unknown. The author's objective or purpose of the study was to determine whether the age of onset of the first episode of depression, current depression severity, or historical severity of depressive episodes are most associated with cognitive function. The authors used an ongoing data from the PROTECT study which contained a total of 7344 elderly participants 50 years and older with depression history, and divided them into three groups according to the onset of depressive symptoms or episodes; early-onset, midlife-onset, and late-onset. The cognitive functions or performance measures to be assessed or measured was based on visuospatial episodic memory, executive function, verbal working, and visual working memory. Demographic and clinical covariates such as age, education, and symptoms severity during the worst depressive episodes were all included in the multivariate regression analysis (Eraydin et al., 2019). Results of the analyses showed that the group with late-onset depression scored lower on verbal reasoning performance than early-onset depression group, and there were no significant differences on other performances between the two groups. Midlife-onset depression group scored higher on the visual episodic memory function, but lower on the verbal reasoning function than early-onset depression group. The analysis also showed that current depression severity was negatively correlated with all four cognitive functions or performances, while historical depression severity was significantly correlated with cognitive function or performance on the verbal reasoning and spatial working memory

function (Eraydin et al., 2019). From the results of the analysis, the authors concluded that current severity of depressive symptoms is the most significant and important indicator of cognitive function or performance in depressive symptomology and not the historical depression severity. Also, the late-onset depression may be associated more with executive impairment function that the early-onset depression (Eraydin et al., 2019). The conclusions of this study showed the importance of the effect of age of depression onset on cognitive functions and highlights the need for more effective intervention and treatment of depressive symptoms in older adults.

Similarly, Rossom et al. (2019) examined the impact of age on suicidal ideation or suicidality in older adults. The authors explored whether thoughts and wishes for death or suicidal ideation are normal consequences of aging or symptoms of depression in older adults. The authors examined whether suicidal ideation is strongly related to depression severity in older adults compared to other age groups (Rossom et al., 2019). The authors employed a cross-sectional cohort study of 509,945 participants 18 years or older who completed survey questionnaires known as patient health questionnaires (PHQ) and had data to calculate the Charlson Comorbidity index scores from 2010 to 2012. The authors used PHQ8 to estimate depression severity, while suicidal ideation was estimated by PHQ9 or 9th item on the inventory scale. Data were separated or removed from a virtual warehouse (Rossom et al., 2019). The results of the estimation or measurement showed that suicidal ideation was strongly correlated with depression severity in older adults. The results also showed that older adults who had moderately-severe symptoms of depression are more likely to have suicidal ideation than those with minimal or mild symptoms of

depression after adjustment for other covariates, including the comorbidity index (Rossom et al., 2019). From these results, the authors concluded that depression severity was a stronger predictor of suicidal ideation in older adults, and recommended screening for depressive symptoms in older adults with suicidal ideation.

Sueki (2019) examined the relationship between annual household income and suicidal ideation using a cross-sectional approach. The author wanted to know the extent to which household income reduces suicidal ideation, and performed a survey to examine the relationship between the two and the level of income at which suicidal ideation is no longer reduced as income rises. A total of 94,131 participants completed an internet self-administered survey consisting of questions on demographics, annual income, and suicidal ideation. The author used logistic regression to analyze the samples with income level as independent variable, suicidal ideation as dependent variable, and covariates such as sex, age, marital status, education level, and parenthood controlled or adjusted for in the analysis. The results of the analysis showed that the odds ratio for suicidal ideation decreased significantly as annual household income increases. But the results also showed that once the annual household incomes exceeded a certain amount, about $77,700 dollars or 8 million Japanese Yen, the risk of suicidal ideation no longer decreased. From the results of the analysis, the author concluded that there was a negative association or correlation between suicidal ideation and household income and that at certain amount of household income such as $77,700 dollars or 8 million Japanese yen, There was a threshold to which income no longer affects any decreases in suicidal ideation (Sueki, 2019).

Kim and Yoon (2018) posited that employment status has relevant and significant impact on suicidal ideation because unemployment or non-standard employment leads to limited benefits, low earnings, and economic adversity, and could also lead to low self-control in the workplace, unlike standard employment which brings in standard wages, pays the bills, health insurance and may not lead to suicidal ideation. But total loss of employment, precarious employment, and increased working hours are linked to excessive stress and increased risk of suicidal ideation (Kim & Yoon, 2018). Employment and income are both associated with suicidal ideation because lack of employment breeds little or no income, and people with low income and economic hardship or adversity are exposed to stressful life events leading to increased risk of mental health problems such as depression, suicidal ideation or suicidality. Previous studies have shown that higher-income, which is associated with standard employment, decreases suicidal ideation, but there was a threshold of higher income level at which suicidal ideation no longer decreases with higher income (Sueki, 2019).

These studies highlight the importance of demographic and socioeconomic variables or characteristics and its impact on the psychosocial vulnerabilities and mental health factors such as depression, substance use, drug and alcohol use, and suicidal ideation or suicidality among Asian American MSM. These variables were guided by the Syndemic theory, which describes how health issues or risk factors for mental health problems like suicidal ideation or suicidality tends to accumulate or co-occur and overlap to synergistically create series of epidemics or negative health outcomes (Ferlatte et al., 2015). The negative health outcomes or series of epidemics that tends to accumulate or

co-occur as a result of syndemic theory are results of the consequences of social stressors, social marginalization, social inequality, unjust societal influence such as discrimination, social stigma, nativity, and acculturation or acculturative stress, which leads to psychosocial and mental health problems – such as depression, substance use, drug and alcohol use, suicidal ideation or suicidality, and may also lead to HIV/AIDS infection or diagnosis among Asian American MSM.

Definitions

Age Groups: These are years of life of participants at the time of survey, as defined by 18–25, 26–34, 35–49, 50–64, 65 and older (SAMHSA, 2018).

Mental Health: Defined as a person's condition regarding their psychological and emotional well-being (SAMHSA, 2018).

Mental illness: Defined as a disorder or a psychological condition that affects a person's mood, thinking, and behavior, such as depression and anxiety disorders (SAMHSA, 2018).

Major Depressive Episode (MDE): Defined as a period that is characterized by the symptoms of a major depressive disorder: Primarily a depressed mood for two or more weeks, a loss of interest or pleasure in everyday activities, associated with other symptoms such as feeling of emptiness, hopelessness, anxiety, worthlessness, guilt and/or sadness (SAMHSA, 2018).

Substance Use Disorder/Dependence/Substance Abuse: Defined as an overindulgence in or dependence on an addictive substance, especially drugs or alcohol.

Also, defined as mild, moderate, or severe to indicate the level of severity as determined by the number of diagnostic criteria met by an individual (SAMHSA, 2018).

Prescription Drug Abuse/Misuse/Use: Intentional use of a medication in any form not directed by a physician, including use without prescription of one's own, and use in greater amounts, more often or longer than as directed (SAMHSA, 2018).

Heroin Use/Abuse: Use or overuse of a strong narcotic pain killer or medication (SAMHSA, 2018).

Cocaine Use/Abuse: Use or overuse of a strong stimulant that is more addictive than heroin (SAMHSA, 2018).

Alcohol Use/Abuse: Binge drinking on 5 or more days in the past month and heavy drinking, which is five or more drinks on the same occasion on each of 5 or more days in the past month (SAMHSA, 2018).

Assumptions

This study was based on three assumptions. First, the survey instruments used to collect data in the 2015 NSDUH dataset provided accurate measures of the variables. Second, the participants willingness to respond honestly about sensitive issues, such as illegal drug use, abuse, and mental health problems, was not compromised by social desirability or response bias. Although, SAMHSA's use of ACASI in the 2015 NSDUH dataset ensured that the privacy and accuracy of participant's information was protected (SAMHSA, 2018). Third, Asian American MSM, the target population, are sexually active gays or bisexuals and may have multiple sex partners. Their relationship status was not taken into consideration in this study. Although MSM are defined as men who

have sex with men and who identify as gay, bisexual, or heterosexual, their relationship status or identification as heterosexuals was difficult to ascertain and was not included in the study.

Scope and Delimitations

The scope of these study was limited to MSM living in the United States who were of Asian descent or were Asian American. The scope was also limited in nature using descriptive and inferential statistics that yield conclusions that were only generalizable to MSM or sexual minority adults in the United States (the population sampled in the NSDUH 2015 dataset). The study focus on suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM was chosen because this is an understudied minority population, and MSM or gay and bisexual men in this population may be disproportionately impacted by HIV/AIDS because of the rising trend in HIV diagnoses and suicides, suicidal ideation or suicidality among this population (CDC, 2018; CDC, 2015). Heterosexual men who may also identify as MSM were excluded from this study. Previous studies on this topic in the Asian American population have focused on abused women, college students or LGBT minority groups, but none has specifically addressed the issues of suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM.

Joiner's (2005) interpersonal-psychological theory of suicide proposed that the intense form of suicidal ideation or suicide desire is caused by two constructs – thwarted belongingness and perceived burdensomeness, while Meyer's (2003) minority stress model described the level of chronic stress and routine stressors experienced by sexual

minorities due to sexual stigma, discrimination and internalized homophobia that predisposes them to greater risks of adverse mental health and suicidality. These two theories help explain the fundamental or root causes and societal stressors that lead to adverse mental health and suicidality but were not used to guide the study. According to Ferlatte et al. (2015), theories of suicide, such as Joiner's interpersonal-psychological theory, have been deemed inadequate for explaining suicidal ideation and suicidality among MSM or gay and bisexual men. Therefore, the theory that best represents the unique qualities of sexual minorities and better explains the excess rates of suicidal ideation and suicidality among MSM or gay and bisexual men is the syndemic theory.

Singer's syndemic theory developed in 1994 describes the accumulation and co-occurrence of mental health problems and risk factors of suicidal ideation or suicidality, which tend to overlap and synergistically create a series of epidemics or negative health outcomes among sexual minorities, such as Asian American MSM (Ferlatte et al., 2015). The syndemic theory was chosen to guide this study because it explains and highlights the accumulation and co-occurrence of psychosocial vulnerabilities and mental health issues of depression, substance use, drugs, alcohol use / abuse, suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among this minority population of Asian American MSM. This study's findings may not be generalizable to other cultures or populations in the United States that do not share the same collectivist cultural orientation as Asian Americans.

The limitations of the study that may impact its internal validity and external validity or generalizability are related to the research design, methodology, and sample

size or data collection. This study used NSDUH's 2015 survey, which was based on self-reported data that might be subject to recall and nonresponse bias. The survey might also have been impacted by social desirability bias. To address these issues, the NSDUH 2015 survey instruments had a built-in consistency validity check in its ACASI, which was designed for privacy, validity, and consistency of participant's responses. Participants were given $30 as an incentive to maximize their response rates (SAMHSA, 2018). This study did not make any causal determination or inference among the variables, since cross-sectional data from the NSDUH 2015 secondary dataset were used for statistical analysis.

Significance of the Study

This study was significant because it involves a minority population that is understudied in relation to the increased rates of suicidal behaviors, and HIV incidence, prevalence, and diagnoses among the population. The study also involves a minority population of Asian American MSM that tends to avoid help-seeking for HIV counseling, mental health treatment, or diagnoses as a result of perceived or internalized stigma, interpersonal shame, discrimination, and cultural disposition. The study was also significant because it focused on the psychosocial syndemics and HIV/AIDS risks that may lead to the adverse health outcomes of depression, suicidal ideation or suicidality. The findings of this study highlight the association or relationship among the factors of mental health, psychosocial problems, suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM. The outcome of this study will fill a significant gap in knowledge and practice and could help clinicians and public health

practitioners' fashion effective, culturally responsive, intervention strategies that take into account the association between these variables, to reduce these risks among this population. The study has implications for positive social change: Among the population of Asian American MSM, it could increase help-seeking and access to health services, improve lifestyle, and reduce suicidal ideation, suicidality, suicides, and HIV/AIDS infection or diagnosis.

Summary

In this section, I presented the foundation of the study on suicidal ideation, suicidality and HIV/AIDS infection or diagnosis among Asian American MSM, based on articulated gaps in knowledge and practice. This was followed by the problem statement, the purpose of the study, research questions and hypotheses, theoretical foundations, nature of the study, literature search strategy, and literature review. The literature review provided empirical information on previous studies related to the topic, which helped in understanding how researchers or scholars in the discipline have approached the problem in the past, and the strengths and weaknesses involved in their approaches. The literature review also helped in understanding the mixed findings and conclusions among researchers, and the lack of extensive studies on the topic. The literature review showed that this topic has not been addressed to Asian American MSM, highlighting a gap in research and knowledge. The review helped identify the need for further studies and what remains to be studied to reduce suicidal ideation, suicidality, and HIV risk behaviors that lead to HIV/AIDS infection or diagnosis in this population. In addition to the literature review, I also presented the definition of terms used, assumptions, scope and

delimitations of the study, and justified the application of the syndemic theory over other theories and models. The syndemic theory highlights the co-occurrence or combination of risk factors or epidemics that interact together to synergistically increase suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM. In Section 2, I discuss the research design and methodology used in the study.

Section 2: Research Design and Data Collection

The purpose of this study was to examine the psychosocial and mental health factors of depression, substance use, drug use, and alcohol use/abuse, and their potential association with suicidal ideation, suicidality, and HIV infection or diagnosis among adult Asian American MSM living in the United States. The covariates controlled were age, income, and employment. In this section, I describe the research design and rationale for the study, methodology, target population, sampling measures, instrumentation, operationalization of constructs, internal and external threats to validity, and ethical procedures.

Research Design and Rationale

This study employed a secondary analysis of quantitative data collected through a cross-sectional survey design method. The independent variables in the study were depression, substance use, drug use, and alcohol use/abuse, and the dependent variables were suicidal ideation, suicidality, and HIV infection or diagnosis. The covariates included age, income, and employment.

Setia (2016) described the cross-sectional research design as a type of observational study design in which a researcher measures or analyzes the outcome and exposures in the study participants at the same time. Cross-sectional research designs are based on inclusion and exclusion criteria and are used for population-based surveys and for accessing the prevalence of diseases in clinical-based samples. Some advantages of this design are that it enables research to be conducted at a faster pace and relatively inexpensively when compared to longitudinal and prospective cohort studies, which are

expensive and involve following subjects or participants for a period of time. However, this inexpensive aspect of cross-sectional study design—as a one-time measurement of outcome and exposures—is also a disadvantage because of the difficulty of inferring causal relationships from cross-sectional studies (Setia, 2016).

The choice of a cross-sectional design to document the prevalence of a public health problem in this study is consistent with research strategies needed to advance knowledge in the discipline. The cross-sectional data used for this study was the 2015 NSDUH survey, collected by SAMHSA for national and state-specific purposes (SAMHSA, 2018). There were no time constraints, which is consistent with the choice of research design and the process of data collection used for this study.

Since the aim of this study was to answer the research questions which was to determine the relationship or association between independent variables depression, substance use, drug use, alcohol use/abuse, and dependent variables suicidal ideation, suicidality, and how they predict HIV infections or diagnosis controlling for age, income and employment, the appropriate research design was a quantitative cross-sectional research design. Survey instruments, such as those employed in SAMHSA's 2015 NSDUH national surveys, have the strengths of cost-effectiveness, reliability, and generalizability of research findings, but they also have weaknesses, such as nonresponse, recall and social desirability bias (SAMHSA, 2018).

According to Burkholder, Cox, and Crawford (2016), the epistemological and ontological philosophical orientation or perspective of the worldview plays a major role in the alignment of the research designs. Burkholder et al. described epistemology as that

which concerns knowledge and what can be known using a scientific approach to understand the natural phenomena while ontology is described as the "nature of reality and being" which addresses the question whether there is objectivity and verification of reality outside of the researcher known as "realism" or whether reality is obtained as a result of individual interpretation or social construction, a situation known as "constructivism or relativism" (p. 17). Another universal and individual perspective that impacts research designs is the etic/emic distinction. The etic/emic distinction in cross-cultural psychology is used to describe the focus of research as - the quest for phenomena that are universal and transcends culture (etic perspective) or the quest for phenomena that is authentic and culturally specific (emic perspective). The etic/emic distinction drives the underlying objectives of both quantitative and qualitative research designs, as the etic perspective focuses on the generalizability of research findings which is more aligned with quantitative methodology, while the emic perspective is more focused on understanding individual, organizational and cultural phenomena which is aligned with qualitative methodology with no intent to generalize research findings to the population (Burkholder et al., 2016).

Another philosophical perspective that impacts research designs is the term "paradigm" which is described as the collection of beliefs shared by researchers or scientists as a set of agreements on how research procedures or problems are carried out. In other words, it is a basic set of beliefs or assumptions that guide scientific inquiry (Rahi, 2017). There are four types of paradigms widely used in knowledge generations or research findings, and they include positivism or positivist paradigm, interpretive

paradigm, advocacy paradigm, and pragmatism paradigm (Rahi, 2017). The positivist paradigm is more aligned with the etic perspective and quantitative research and is focused on true knowledge generation through observation and experiments called scientific method or empirical research. The interpretive paradigm is more qualitatively aligned, as research is focused on understanding phenomena through subjective meanings or through interpretation of subjects — an emic perspective which is also known as constructivism or relativism (Rahi, 2017). The advocacy paradigm is also known as critical paradigm, which is community or individual empowerment and emancipatory research inquiry that is focused on political and social issues which addresses inequality, social oppression, suppression, domination, and alienation (Rahi, 2017). Lastly, the pragmatism paradigm is a combination of both positivist and interpretive paradigms, that is - quantitative and qualitative methods or mixed-methods research. It combines both approaches and is not affiliated to any philosophical orientation or system (Rahi, 2017).

Therefore, the cross-sectional quantitative research design used in this study to generate knowledge was based on positivist (etic) ontological and epistemological, philosophical orientation or perspective, and methodology. The survey instruments used by SAMHSA in the 2015 NSDUH survey represents this philosophical foundation and is an excellent way of gathering research information from large populations. Compared to other methods of data collection such as interviews, survey instruments with well-constructed questions and questionnaire design offers the best methods for researchers to gain a representative picture of the characteristics and attitudes of larger populations and

tends to yield reliable and consistent results that generalize to the population (Babbie, 2017; Creswell, 2014).

Research Methodology

Target Population

The target population for this study was Asian American MSM in the United States, who are 18 years or older, surveyed by SAMHSA during the NSDUH annual national survey in 2015. Although the total respondent population for the 2015 NSDUH is the civilian, non-institutionalized population aged 12 years or older living in the United States, only adults 18 years or older were surveyed for suicidal ideation and suicidal behavior (SAMHSA, 2018). This was because NSDUH does not ask adolescents aged 12–17 years questions about suicidal thoughts and behavior that occurred in the past 12 months, and only adults 18 years or older were asked the sexual identity and sexual orientation questions the first time it was introduced in 2015 NSDUH national survey (Piscopo et al., 2016; CBHSQ, 2016; SAMHSA, 2018). The total sample size for respondents aged 12 years or older in the 2015 NSDUH survey was 68,073; among this figure, 32,471 were males, and 35,602 were females, according to SAMHSA's 2015 NSDUH data table. Because the target age group for the population in this study was focused on 18 years and older, the total survey sample size for respondents 18 years and older in the 2015 NSDUH survey was 51,162, among which were 23,875 males, and 27,287 females (CBHSQ, 2016; SAMHSA, 2018).

According to SAMHSA's 2015 NSDUH data table, the total sample size for Asian Americans 12 years and older was 2,924, of which only 579 were 12 to 17 years of

age. The total target sample size for Asian American adults 18 years and older was 2,345, among which (18 - 25) = 803, (26 - 49) = 1,240, and (50 or older) = 302 (CBHSQ, 2016; SAMHSA, 2018). The total sample size for Asian American MSM or gays/bisexuals was determined by the number of responses to the sexual identity and sexual orientation questions in the dataset. This figure was not available in the SAMHSA's 2015 NSDUH data tables and was estimated to be relatively lower compared to the Asian American heterosexual samples (CBHQS, 2016; SAMHSA, 2018). According to Medley et al. and SAMHSA (2016), "Due to the smaller sample sizes and associated loss of precision when data are further subdivided into sexual minority subgroups, data for these sexual minority subgroups are not compared and discussed in this report" (p. 3). This problem was apparent because 2015 NSDUH was the first time SAMHSA introduced sexual identity and sexual orientation questions for sexual minorities in a nationally representative survey, and this survey was comparable to other surveys with similar questions such as the General Social Survey (GSS), National Health Interview Survey (NHIS), and the National Survey of Family Growth (NSFG), for validity purposes. So, a combination of 2015 NSDUH data with data from future years of NSDUH surveys would improve the precision of sexual minority subgroup's estimates (Medley et al., 2016; SAMHSA, 2016).

Sampling and Sampling Procedures

In this study, 2015 NSDUH dataset was used for secondary quantitative data analysis. The total sample size of 2,345 for Asian American adults 18 years and older surveyed in the 2015 NSDUH national survey conducted by CBHQS/SAMHSA at their

place of residence in 2015 was the representative sample of the total U. S. Asian adult population 18 years and older in 2015 (CBHQS, 2016; SAMHSA, 2018). According to Babbie (2017) and Creswell (2014), a representative sample reflects the strength of the external validity in relation to the target population it represents, so that results of the findings from that representative sample would be generalizable to that target population.

The SAMHSA's 2015 NSDUH survey sample design used for this study employed a 50-state design with an independent, multistage area probability sampling that represents the 50 states and District of Columbia (DC). According to SAMHSA (2018), eight states such as (California, Florida, Pennsylvania, Illinois, New York, Michigan, Texas, and Ohio) with the largest population in the country which represents 48% of the total U. S. population were designated as large sample states and allocated samples sizes of 3,600, while the remaining 42 states and DC were allocated samples sizes of 900 each, and this has been the sample allocation method from 1999 through 2013. But from 2014 through 2017, SAMHSA adjusted the allocation method to allow for more cost-efficient sample allocation to larger states, while giving the remaining smaller states enough sample allocation to allow for small area estimation at the local level. In this sample allocation method, the 2014 to 2017 NSDUH surveys allowed sample allocation of 4, 560 samples to California, 3,300 each to Florida, New York, and Texas; 2,400 each to Michigan, Illinois, Ohio, and Pennsylvania; 1,500 samples to Georgia, New Jersey, North Carolina, and Virginia; 967 samples to Hawaii; and 960 samples to each of the remaining 37 states and District of Columbia (SAMHSA, 2018). The 2014 through 2017 sampling methods was also designed to oversample adolescents

12 to 17 years and adults 18 to 25 years, and places more samples in the age group 26 or older, which allowed for accurate estimation of drug use and mental health measurements. The sample allocation for age groups in the 2015 NSDUH survey was as follows: 25% for 12–17 years, 25% for 18–25 years, 15% for 26–34, 20% for adults 35–49, and 15% for adults 50 years or older (SAMHSA, 2018).

The name of this national annual survey was changed by SAMHSA in 2002 from the National Household Survey on Drug Abuse (NHSDA) to National Survey on Drug Use and Health (NSDUH), and 2015 estimates are still comparable to 2002 estimates except for some important methodological differences which might affect the 2002 to 2015 estimates (SAMHSA, 2018). The availability of national census population data from 2000 census to NSDUH's sample weighting procedures and improved data collection quality control measures introduced in 2001 led to the discontinuity between estimates since 2002, and estimates prior to 2002 (SAMHSA, 2018). The 2015 NSDUH used a stratified multistage probability sampling method designed to meet the representation of both the whole country and the 50 states, including the District of Columbia. The annual target sample size of 2015 NSDUH survey was 67,500 interviews which was allocated to three age groups; 25% to adolescents 12–17years, 25% to adults 18–25, and 50% to adults 26 and older, with the 26 and older age groups getting majority of the sample size allocation in 2015 NSDUH (SAMHSA, 2018).

The sampling frame for this study includes self-identified gay or bisexual male respondents who are of Asian American ethnicity, 18 years or older surveyed in their primary place of residence in 2015 NSDUH national survey. The sample excluded those

respondents who are younger than 18 years old because the 2015 NSDUH survey questionnaire did not ask the sexual identity, sexual orientation, and suicidal ideation or suicidality questions to respondents or age groups younger than 18 years (SAMHSA, 2018). Sexual attraction question was also excluded from this study because only age groups 18 to 44 years responded to the sexual attraction questions in the survey. In 2015 NSDUH, screening was completed in 132,210 addresses, and 68,073 completed interviews were obtained in total, including 51,162 interviews from adults 18 years and older (SAMHSA, 2018). The target sample size of 67,500 allowed SAMHSA room to adequately sample demographic subgroups at the national level without the need for oversampling as was done in the previous years. In 2015 NSDUH survey, the achieved sample size was 68,073 respondents (SAMHSA, 2018).

At the national and state levels, SAMHSA used multistage probability sampling, which involved stratification and cluster sampling in many stages. Sampling strata called state sampling regions (SSR) were created based on state size and geographically sized areas or regions, and each area or region within a state are expected to yield the same number of interviews during data collection (SAMHSA, 2018). In 2015 NSDUH data collection, the United States was roughly divided into 750 SSRs, resulting in 36 SSRs in the state of California; 30 SSRs each in the states of Florida, Texas, and New York; 24 SSRs each in the states of Michigan, Illinois, Ohio, and Pennsylvania; 15 SSRs each in the states of Georgia, New Jersey, Virginia, and North Carolina; and 12 SSRs in each of the remaining 38 smaller states and District of Columbia (SAMHSA, 2018). The first stage of the sampling process involved the census tracts, which were aggregated within

the SSRs until each tract met the minimum dwelling unit (DU). In larger states, the dwelling unit minimum size requirement was 250 DUs in urban areas, and 200 DUs in rural areas, while in the remaining smaller states, including District of Columbia, the minimum dwelling unit was 150 DUs in urban areas and 100 DUs in rural areas. The census tracts served as the primary sampling units (PSUs) in the NSDUH surveys coordinated within a four-year sample period from 2014 to 2017 (SAMHSA, 2018).

As stated earlier, the target population in the 2015 NSDUH dataset was Asian American males who self-identified as gay and bisexual or MSM, who were 18 years or older, who were defined as sexual minority group, and were asked and answered the following question: "if at any time during the past 12 months they had thought seriously about trying to kill themselves". Those who had serious thoughts were then asked "whether they made a plan to kill themselves or tried to kill themselves in the past 12 months" (Piscopo et al., 2016, p. 2; SAMHSA, 2018). These questions were not asked adolescents younger than 18 years, excluding them from the study (SAMHSA, 2018). The questions contained in the survey also determined or predicted whether depression, substance use, drug use, and alcohol use/abuse are associated with suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among this target population. The 2015 NSDUH survey or dataset was cross-sectional in design, as respondents or participants in the survey were only sampled or interviewed once, and not followed up for additional interviews or more questions in subsequent years. The 2015 NSDUH cross-sectional dataset only sampled participants or residents of the United States in 2015, at a point in time (SAMHSA, 2018).

Power analysis. G* Power by (Demidenko, 2007; Erdfelder, Faul, & Buchner, 1996) was used to estimate a priori and compute required sample size - given alpha, power, and effect size for logistic regression analysis. Since I am using a secondary dataset that has a predetermined sample size of 2,345, changed to 2,541 (as recoded in the codebook) for Asian American respondents 18 years and older sampled in the 2015 NSDUH dataset, I had to limit the sample to only Asian American male respondents with an estimated final sample size of 1,018. Those who reported as homosexual or bisexual equaled approximately 102 or ten% of males and estimated to constitute the sample of Asian American MSM in this study. Power analysis for logistic regression was conducted using guidelines established in Lipsey and Wilson (2001) and G* power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2013) to calculate the sample size using an alpha of 0.05, a power of 0.80, a large effect size (odds ratio = 2.48) two-tailed test. With X normally distributed, the minimum sample size was 71 cases. Also, using an alpha of 0.05, a power of 0.95, and a larger effect size (odds ratio = 5.44444) two-tailed test. With X binomially distribution, the minimum sample size was 81 cases.

Yenipinar, Koc, Canga, and Kaya (2019) in determining sample size for logistic regression with G-power stated that the limitation of sample size calculation with G* power is that due to the presence of multiple independent variables in multiple logistic regression analysis, it's not possible to calculate a separate sample size for each. So, experts and previous researchers recommended the calculation of the power for the most striking variable. Van Smeden et al. (2016) reported that ten events per variable (10 EPV) is a widely adopted criteria or minimal guideline for binary logistic regression analysis,

but despite the widespread use and acceptance of this rule in medical literature, recent simulation studies has shown that (10 EPV) has a problem with small sample bias. Although Peduzzi et al. was the only study among three that supported (10 EPV) rule, they concluded that no major problem was observed when EPV exceeds 10. Other researchers, in contrast, found that problems may still occur if EPV exceeds 10 (Van Smeden et al., 2016). These authors showed that the performance of the logistic regression model may depend on factors other than EPV, and these factors may include strength of association between covariates and outcome variables and the correlation between covariates. Demidenko (2007), therefore, concluded that there is no consensus on what type of approach to use for sample size determinations in logistic regression analysis. Many researchers use various approximations such as variance-inflation factors, while others use maximum likelihood approach. Demidenko argued that power calculation should be determined by the same test statistic, which was used in coefficient significance testing.

Table 1

Power Analysis: Z Test – Logistic Regression.. X Distribution = Normal

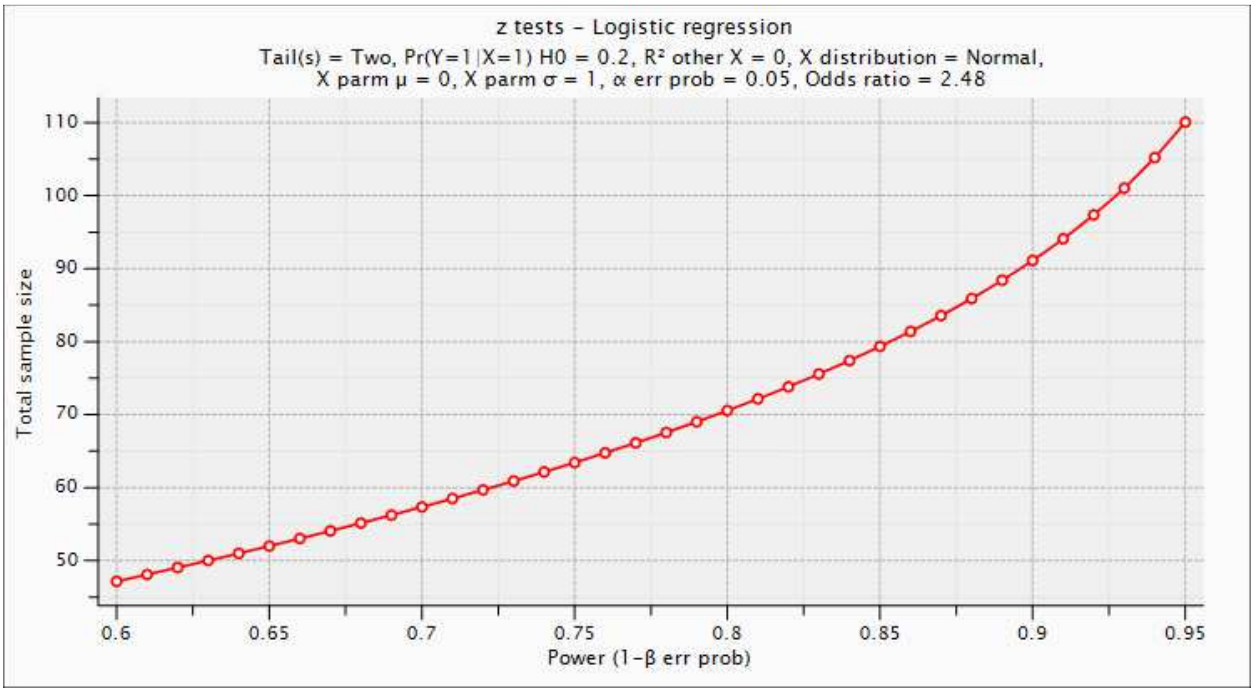


Table 2

Power Analysis: Critical Z – Logistic Regression

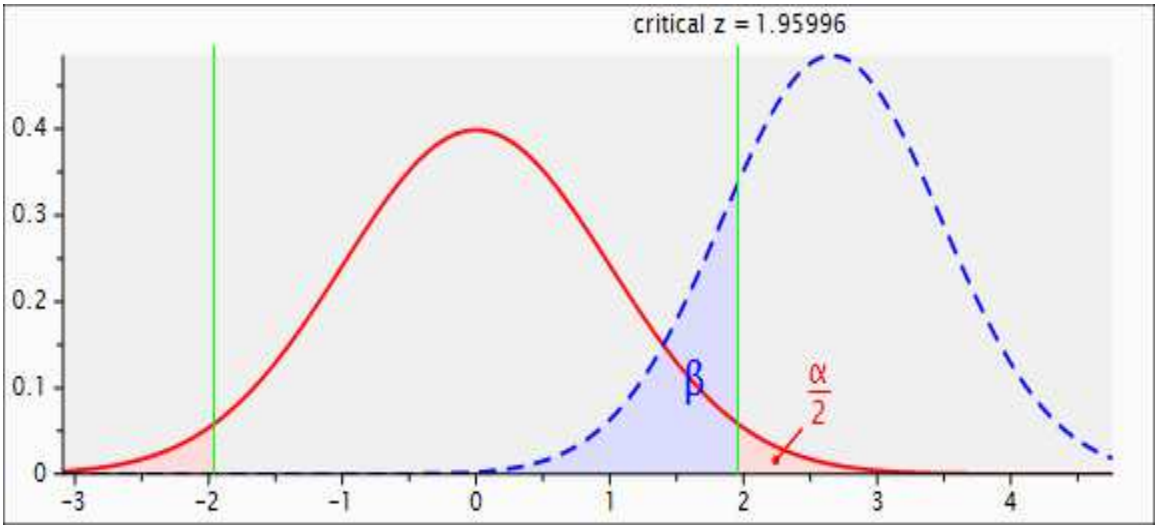
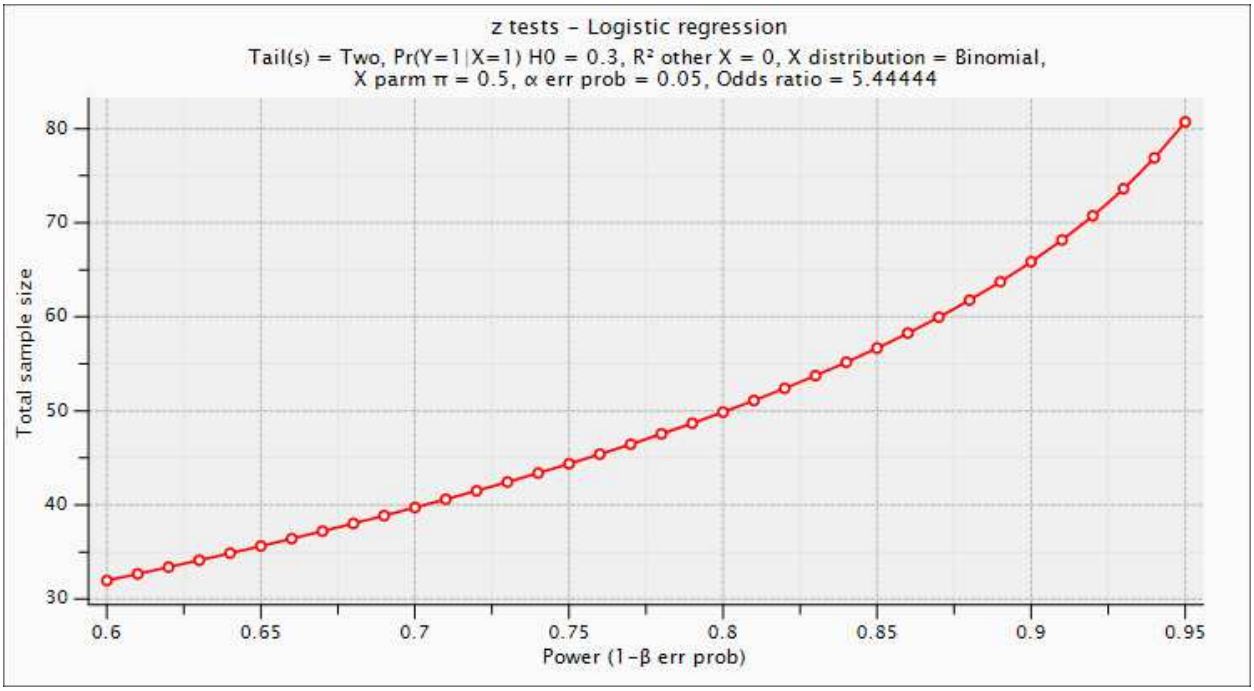


Table 3

Power Analysis: Z Test – Logistic Regression. X Distribution = Binomial



Data Collection and Management

Since the 2015 NSDUH by SAMHSA is an open and public-use data files available to the general public, there was no permission needed to access the data files. The 2015 NSDUH national survey dataset and codebook may be reproduced and copied without permission from SAMHSA, as this study represents a monitoring and evaluation investigation SAMHSA makes this public-use data files available to enhance research, knowledge generation, and public health education on national drug use and mental health (SAMHSA, 2018). The national survey on drug use and health NSDUH is a national representative survey and the primary source of statistical data on substance use and abuse prevalence, patterns, alcohol use and abuse, prescription use and abuse, and

illicit drugs, and mental health among civilian and noninstitutionalized U. S. households 12 years and older (SAMHSA, 2018). But this study was focused on adults 18 years and older, who self-identified as sexual minorities and responded to the survey questions on suicidal ideation and suicidal behaviors excluded from respondents 12–17 years old. There were approximately 3,000 completed survey interviews from adult respondents 18 years and older who self-identified as sexual minorities – gays, lesbians, or bisexuals (Medley, 2016; SAMHSA, 2016).

Instrumentation and Operationalization of Constructs

This 2015 NSDUH cross-sectional, national survey, was used to determine the association between depression, substance use, drug use, and alcohol use/abuse, as independent variables and suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis as dependent variables controlling for age, income, and employment as covariates.

Table 4

Scale of Measurement Level and Operational Definition of Variables

Variables	**Level of Measurement**	**Definition**	**Levels**
Age (Covariates)	Ordinal	Defined as years of life at the time of survey	1 = 18 - 25 2 = 26–49 3 = 50–64 4 = 65 and older
Income (Covariates)	Ordinal	Defined as income earned as personal income or total family income. NSDUH accesses income as categorical variable, so income will be divided into categories of 'higher' or 'lower' income.	1 = Less than $20,000 2 = $20,000–$49,000 3 = $50,000 - $74,000

			4 = $75,000 or More Categorical value 1 = $20,000 - $74,000 (Lower income) 2 = $75,000 or More (Higher income)
Employment (Covariates)	Nominal	Defined as working full time, part-time, unemployed or other (Not in labor force)	1 = Full time 2 = Part-time 3 = Unemployed 4 = Other (Students, retired or disabled and other people not in labor force)
Adult depression (Independent variable)	Nominal	Depression for 18 years or older respondents (Adult depression) will be accessed or classified as having a major depressive episode MDE in their lifetime or past year	1 = Yes 2 = No
Substance use (Independent variable)	Nominal	Defined as substance use in the past year and past month. Substances such as tobacco in the form of cigarettes and smokeless tobacco. Illicit drugs, such as marijuana, cocaine, and heroin. Hallucinogens, inhalants, ecstasy, and methamphetamines.	1 = Yes 2 = No
Drug use Independent variable)	Nominal	Defined as prescription drug use in the past year alone, and that includes any pain reliever, oxycontin, tranquilizers, stimulants, sedatives, and psychotherapeutic drugs.	1 = Yes 2 = No

Alcohol Use (Independent variable)	Nominal	Alcohol use defined as use of alcohol in the past month, past year or lifetime use, Binge alcohol use, and heavy alcohol use.	1 = Yes 2 = No
Alcohol Abuse (Independent variable)	Nominal	Alcohol abuse defined according the (DSM-IV) criteria 1. Problems at work, home, or school; 2. Doing something physically dangerous; 3. Problems with the law; 4. Problems with family and friends as a result of the use of alcohol in the past 12 months (SAMHSA, 2016).	1 = Yes 2 = No
Suicidal Ideation (Dependent variable)	Nominal	Defined as questions for adults 18 years or older, whether they had a serious thought about suicide. And if so,	1 = Yes 2 = No
Suicidal Behavior or Suicidality 1. Suicide plans 2. Suicide attempts (Dependent variable)	Nominal	Whether they had made a suicide plan or suicide attempts. Respondents who attempted suicide were asked whether they had received medical attention from a healthcare professional and whether they had stayed overnight in a hospital for the past 12 months due to suicide attempt.	1 = Yes 2 = No
HIV/AIDS infection or diagnosis (Dependent variable)	Nominal	Defined as infections or diagnosis for HIV or AIDS during the past 12 months. Or ever told by a health care professional, they had HIV/AIDS infection.	1 = Yes 2 = No

Research Questions and Hypotheses

RQ1: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American MSM, controlling for age, income, and employment?

H_{01}: There is no association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American MSM, controlling for age, income, and employment.

H_{a1}: There is an association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American MSM, controlling for age, income, and employment.

RQ2: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American MSM, controlling for age, income, and employment?

H_{02}: There is no association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American MSM, controlling for age, income, and employment.

H_{a2}: There is an association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American MSM, controlling for age, income, and employment.

RQ3: What is the association between depression, substance use, drug use, alcohol use/abuse, and HIV/AIDS infection or diagnosis among Asian American MSM, controlling for age, income, and employment?

H_{03}: There is no association between depression, substance use, drug use, alcohol use/abuse, and HIV/AIDS infection or diagnosis among Asian American MSM, controlling for age, income, and employment.

H_{a3}: There is an association between depression, substance use, drug use, alcohol use/abuse, and HIV/AIDS infection or diagnosis among Asian American MSM, controlling for age, income, and employment.

Data Analysis Plan

The statistical analysis used to analyze the data include frequencies for nominal or ordinal data to describe or analyze the 12-month prevalence of suicidal ideation, plans, and attempts among the target population. Then, multivariate or multiple logistic regression analysis was performed to estimate the association of depression, substance use, drug use, alcohol use/abuse, and suicidal ideation, suicidal plans, attempts, and HIV/AIDS infection or diagnosis among the target or priority population. The analysis also includes a calculation of 95% confidence intervals (C. I.). The 2015 NSDUH by SAMHSA employed a weighted analysis approach due to its complex survey design. The nature of the weighted analysis approach enabled the estimation of population parameters and sampling errors. The weighted sampling analysis approach used by SAMHSA also enabled the estimation of the association between the predictors or independent variables and dependent or outcome variables using the latest version of the Statistical Package for Social Sciences (IBM SPSS) 24.0 or 25.0 software version.

Data cleaning procedure was very important in the secondary data analysis. Data cleansing was focused on examining the integrity and reliability of data or information used in the study or research. Data imported from other sources needs to be examined for validity and reliability of contents (Watthananon & Mingkhwan, 2012). The 2015 NSDUH dataset by SAMHSA was used for secondary data analysis, this dataset may be

reproduced or copied, and does not require any permission to access the data. The 24.0 or 25.0 versions of the (IBM SPSS) downloaded from the Walden University database was used for recoding of some variables and for statistical analysis. The 2015 NSDUH data collection period by SAMHSA lasted for 12 months, from January 1st to December 31st, 2015. The response rates and accuracy of the survey was balanced by SAMHSA to ensure validity and reliability of the survey. Since the accuracy of the survey estimates could be impacted by nonresponse situation, SAMHSA employed a strategy in 2015 NSDUH to maximize response rates by giving $30 incentives to respondents. As a result, this yielded a weighted household screening response rate of 79.7% and a weighted interview response rate of 68.4% for adults 18 years or older (CBHSQ, 2016; SAMHSA, 2018). The rationale for covariate inclusion of age, income, and employment was to determine the impact of these demographic variables on the association between the independent and dependent variables. The results of the study were interpreted using probability values (P values) to determine the statistical significance of the hypotheses testing depending on if the P-value is 5% or lower, and if the observed differences between the association is real, and not merely due to chance. Also, odds ratios with 95% confidence intervals was used to interpret the results.

Threats to Validity

According to Babbie (2017), the term validity refers to "a measure that accurately reflects the concept it is intended to measure" (p. 152). In conventional terms, validity is the ability to draw significant conclusions from measurements on the instruments used in the empirical study. In essence, validity means that what is intended

to be measured is what was measured. Threats to validity occurs when certain factors cause researchers to make incorrect extrapolations from the sample measurements used in a study. The potential limitations of using the 2015 NSDUH dataset by SAMHSA for secondary data analysis constitutes a threat to the validity of the study. The 2015 NSDUH by SAMHSA is a national survey with primary and comprehensive dataset used for a wide variety of research studies but could also be impacted by some limitations which might affect the validity of studies. Some of the limitations of the 2015 NSDUH dataset by SAMHSA include: (a) data collected by NSDUH surveys are self-reported data and subject to recall, and nonresponse biases; (b) missing values or incomplete data excluded from the study could affect the validity of the results. As a result of these limitations, SAMHSA devised some strategies in 2015 NSDUH to reduce or prevent the occurrence of ambiguous data, missing values or incomplete information, and to resolve the problem of inconsistencies between related variables by using (a) logical editing software that allows the use of data from elsewhere within the respondent's record; (b) statistical imputation to replace missing values with valid non-missing values. Statistical imputation was randomly done to preserve the natural variability of the data (SAMHSA, 2018).

Internal validity of this study determined the soundness of the research design and methodology used to reach conclusions on the association between my independent and dependent variables controlling for the demographic covariates. In this study, the focus of internal validity was on the ability to justify the association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation, suicidality, as well as HIV/AIDS infections or diagnosis among my priority population of Asian American

MSM. Since the secondary dataset used for this study was SAMHSA's 2015 NSDUH, the key threats to the internal validity of the study includes the design and structure of the survey instruments used in data collection, the accuracy of the self-reported data collected which may be impacted by some factors such as social desirability bias, and time to recall past behavior information due to cognitive ability or recall bias of the respondents. According to Creswell (2014), the main threats that impacts the internal validity of a quantitative study includes history, mortality, statistical regression or lack of statistical validity, instrumentation, maturation, and selection bias. The SAMHSA's 2015 NSDUH survey was an annual national cross-sectional survey that doesn't require repeated measures and hence not impacted by history. Also, the survey was not affected by mortality, since it is not a longitudinal study, and no respondents or participants dropped out of the survey due to death or mortality. Although there were some survey design changes and introduction of new variables for sexual identity and orientation in 2015 NSDUH, that did not have any negative impact on the survey instruments, but rather improved the quality of the 2015 NSDUH data, and addressed the changing needs of policymakers and researchers (SAMHSA, 2018).

External validity of the study was focused on the generalizability of the study to the general population. That is, the ability of the study to make inferences about the population as a whole using a representative sample. The 2015 NSDUH by SAMHSA used a sampling method that was designed to be representative of the nation as a whole and each of the 50 states of the country, including the District of Columbia (). The annual national survey uses a stratified multistage area probability sampling design that covers

each of the 50 states and DC and allows for the estimation of sampling errors from the survey data (SAMHSA, 2018). Some of the major threats to external validity are the inclusion and exclusion criteria and missing or incomplete data. The study included only adults 18 years or older and excluded non-adult respondents 12–17 years old because of the requirements of the 2015 NSDUH survey questionnaire that only sampled adults for sexual orientation and suicidality. This requirement ensures that study results using data from this survey was unbiased and generalize to the whole U. S. adult population regarding sexual orientation and suicidality. Missing values and incomplete data were dealt with in 2015 NSDUH survey by multiple imputation methods, and by giving of $30 incentives to respondents to improve the survey response rate which yielded a weighted household survey response rate of 79.7% and weighted interview rate of 68.4% for adults 18 years or older (SAMHSA, 2018).

Statistical regression or lack of statistical validity could result when a sample is selected to analyze extreme behavior in respondent's data or when researchers make inaccurate inferences from collected data or information due to insufficient or inadequate statistical power (Creswell, 2014). While lack of construct validity could result when researchers make insufficient description of variables, construct validity is based on logical relationships between variables and is the degree to which a measure relates to other variables within a system of theoretical relationships (Babbie, 2017). In this study, there was no threat of statistical regression and construct validity since all variables were clearly defined and articulated. Also, the threats of poor inferences due to inadequate statistical power and assumptions was greatly minimized.

Ethical Procedures

There was no permission needed to access the 2015 NSDUH dataset and codebook from SAMHSA since this is a public-use data file made available to the general public, although SAMHSA has a restricted version of the dataset that contains sensitive information which requires permission for access. The NSDUH public-use data files from SAMHSA do not contain any sensitive information or any personal identifiable data on respondents, as such data are highly restricted and protected from public domain. A Walden University's Institutional Review Board (IRB) application and approval was needed and granted before any study was done using the 2015 NSDUH dataset from SAMHSA. The need for Walden's IRB approval number (11-12-19-0721332) was to confirm that this study meets ethical standards for research. The 2015 NSDUH survey and dataset was conducted based on SAMHSA's publicly accepted ethical principles. During the screening phase, SAMHSA ensures that individuals 18 years or older must be present in the household before interviews are scheduled and informed consents obtained. There was an understanding of mutual agreement and trust between SAMHSA and sampled household respondents, so there was no coercion or deception involved in the national household survey (SAMHSA, 2016). SAMHSA uses computer-assisted interviewing (CAI) methods to ensure anonymity, confidentiality, and privacy of respondent's data during interviews (CBHSQ, 2016).

There were no ethical concerns related to data collection methods used by SAMHSA during the 2015 NSDUH survey and dataset, although SAMHSA used $30 incentives to encourage respondent's participation rates. The dataset used for this study

was secured by encryption of the data files with a secure password, which was changed every 6 months until study completion. After the study completion, the encrypted files were stored for a period of five years, according to Walden's IRB data protection requirements.

Summary

Section 2 presented the methodology of the quantitative research studied and the 2015 NSDUH cross-sectional survey and dataset by SAMHSA used for the study. The dataset was focused on the association between adult depression, substance use, drug use, alcohol use/abuse, and suicidal ideation, suicidality, and HIV/AIDS infection or diagnosis among Asian American MSM, after controlling for age, income, and employment as covariates. Section 2 also included a discussion of the research design and rationale, description of the target population, sampling procedures, and data collection methods; it also included data analysis procedures and instruments to be used, as well as threats to validity and ethical procedures.

Section 3 presents the results and findings of the study relative to the research questions.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this quantitative, cross-sectional study was to use the 2015 NSDUH dataset for secondary analysis to determine if a relationship existed between depression, substance use, drug use, alcohol use/abuse and suicidal ideation, suicidality and HIV/AIDS infection or diagnosis among Asian American MSM, while controlling for potential confounders or covariates such as age, income, and employment. The research questions and hypotheses addressed the association between these variables.

But the third research question RQ3 could not be answered or addressed in this study because of NDSUH dataset sample size limitations, no responses to HIV/AIDS questions, and low precisions when data was further subdivided into sexual orientation or sexual identity. Also, due to dataset sample size limitations for Asian American MSM, a gender variable was introduced to enable the estimation of statistical data for Asian American Gays/Lesbians and bisexuals, bringing the final sample size to 91cases. For this reason, this section will use the 2015 NSDUH dataset to analyze the research questions for Asian American GLB. To enable the best statistical test results of the analysis, the 2015 NSDUH dataset was slightly adjusted to adequately reflect the target variables used to answer the two research questions in this section. Apart from the introduction of the gender variable, the age variable was recoded into binary values of low and high age groups, while alcohol abuse was combined with the alcohol use variable because the number of respondents that answered the abuse question also answered the alcohol use question in the dataset. As a result of the dataset sample size

limitation for Asian American MSM and the inclusion of the gender variable, the final sample size for this study was 91 cases. With this adjustment, the study was guided by the following research questions and hypotheses:

RQ1: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American GLB, controlling for age, gender, income, and employment?

H_{01}: There is no association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American GLB, controlling for age, gender, income, and employment.

H_{a1}: There is an association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American GLB, controlling for age, gender, income, and employment.

RQ2: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American gays, lesbians, and bisexuals GLB, controlling for age, gender, income, and employment?

H_{02}: There is no association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American GLB, controlling for age, gender, income, and employment.

H_{a2}: There is an association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American GLB, controlling for age, gender, income, and employment.

In this section, I present the results of the secondary data analysis using the 2015 NSDUH dataset, and the statistical analyses using chi-square and binary logistic regression on the secondary data. This section also includes a description of the time frame for data collection, the response rates of participants, and the discrepancies in the 2015 NSDUH dataset. This is followed by frequency tables for the selected categorical or nominal variables and the descriptive demographic characteristics of the sample, including data analysis/results and assumptions/hypotheses. I conclude with the summary of the results for the two research questions.

Data Collection of Secondary Data Set

In this study, the 2015 NSDUH dataset, which is an open and public use dataset available to the general public, was used for secondary data analysis. Because this was an open and public-use data file, there was no permission needed other than Walden's IRB approval to access the data files needed for analysis. The 2015 national survey on drug use and health NSDUH is a national representative survey collected annually by SAMHSA, and the primary source of statistical data on substance use and abuse prevalence, patterns, alcohol use and abuse, prescription use and abuse, and illicit drugs, and mental health among civilian and non-institutionalized U. S. population 12 years and older (SAMHSA, 2018). The 2015 NSDUH survey or dataset also employed a 50-state sampling design, which involved an independent stratified multistage area probability sampling for each of the 50 states and the District of Columbia (SAMHSA, 2018). In this study, the focus was on adults 18 years and older, who self-identified as sexual minorities and responded to the survey questions on suicidal ideation and suicidal behaviors,

excluding respondents 12 to 17 years old. There were approximately 3,000 completed survey interviews from adult respondents 18 years and older who self-identified as sexual minorities – gays, lesbians, or bisexuals (Medley, 2016; SAMHSA, 2016).

The sampling frame for this study originally included self-identified gay or bisexual male respondents who are of Asian American ethnicity, 18 years or older surveyed in their primary place of residence in the 2015 NSDUH national survey. The sample excluded those respondents who are younger than 18 years old because the 2015 NSDUH survey questionnaire did not ask the sexual identity, sexual orientation, and suicidal ideation or suicidality questions to respondents younger than 18 years old (SAMHSA, 2018). Sexual attraction questions were also excluded from this study because only age groups 18 to 44 years responded to the sexual attraction questions in the survey or dataset.

Discrepancies

There were significant and major discrepancies in the use of 2015 NSDUH secondary dataset different from the plan presented in Section 2 of the Proposal. While cleaning the 2015 NSDUH secondary dataset and arranging the variable frequencies of the recoded sample size of 2,541 total Asian American respondents in the dataset, I found that the ten% estimates of the MSM or gays and bisexuals derived from 2015 NSDUH data tables I previously used in my proposal was significantly higher than the actual Asian American gays and bisexuals presented in the dataset. This might be due to the sexual identity or sexual orientation questions in the survey and dataset, which excluded participants 12 to 17 years, leaving only 2,050 total Asian American

respondents 18 years or older who are the focus of the study. Out of the 2,050 Asian American respondents 18 years or older, only 1,216 respondents were males while the rest were females.

Majority of the Asian American adults in the dataset presented as heterosexuals and were excluded from the study, while a large number skipped the survey questions or refused to answer the survey questions, especially HIV/AIDS questions in the dataset. Only 91 respondents presented as sexual minorities – gays, lesbians, and bisexuals. When the dataset was further subdivided into sexual identity or sexual orientation, only 38 males presented as gays or bisexuals or MSM, making the small sample size insufficient for significant statistical analysis. As a result, authorization and approval was sought to include the gender variable as covariate, which increased the sample size to 91 cases of Asian American gays, lesbians, and bisexuals or sexual minorities. As a result of the non-responses to the HIV/AIDS questions and large number of legitimate skips in the dataset, the third research question RQ3 was dropped from the study analysis leaving only the first and second research question(s) RQ1 and RQ2 for the analysis of the Asian American GLB instead of Asian American MSM.

Data Analysis and Results

This quantitative and cross-sectional study explored the characteristics that were most influential in predicting suicidal ideation and suicidality (suicide plans and attempts) among Asian American GLB. The sample of participants came from the 2015 NSDUH dataset, a large nationally representative sample collected annually by SAMHSA, and logistic regression was the primary analysis used for this study.

Table 5

Frequency Table for Categorical or Nominal Variables

Variable	n	Percentage (%)
Gender		
Male	38	41.8
Female	53	58.2
Missing	0	0.00
Age		
Low Age (18–25)	63	69.2
High Age (26 and older)	28	30.8
Missing	0	0.00
Sexual Identity		
Lesbian or Gay	29	31.9
Bisexual	62	68.1
Missing	0	0.00
Family Income		
Less than $20,000	20	22
$20,00 - $49,999	30	33
$50,000 - $74,999	13	14.3
$75,000 or More	28	30.8
Missing	0	0.00
Employment Status		
Employed full time	43	47.3
Employed part time	23	25.3
Unemployed	2	2.2
Other	23	25.3
Missing	0	0.00
Lifetime Major Depressive Episode (MDE)		

Yes	18	19.8
No	73	80.2
Missing	0	0.00
Substance Use		
Yes	3	3.3
No	88	96.7
Missing	0	0.00
Drug Use		
Yes	8	8.8
No	83	91.2
Missing	0	0.00
Alcohol Use		
Yes	55	60.4
No	36	39.6
Missing	0	0.00
Alcohol Abuse		
Yes	6	6.6
No	85	93.4
Missing	0	0.00
Seriously Thought About Killing Self in Past year		
Yes	12	13.2
No	79	86.8
Missing	0	0.00
Made Plans to Kill Self in Past Year		
Yes	5	5.5
No	86	94.5
Missing	0	0.00
Attempted to Kill Self in Past Year		
Yes	2	2.2

No	89	97.8
Missing	0	0.00
Ever Told Had HIV or AIDS		
Refused	1	1.1
No	20	22.2
Legitimate Skip	70	76.9
Missing	0	0.00

Note. Family income: $0 - $74,999 = low income; $75,000 and above = high income

Assumptions and Hypothesis Testing

Binary logistic regressions were conducted to examine the research question(s) and investigate which independent variables predicted the dependent variable. Due to the dependent variables being dichotomous logistic regression is the appropriate statistical analysis (Menard, 2010). Logistic regression permits the evaluation of the odds of membership in one of the two outcome groups based on the combination of predictor variable values. To test the overall model for statistical significance, the $\chi 2$ omnibus test of model coefficients were examined using the Nagelkerke R^2. Additionally, the Nagelkerke R^2 was inspected to assess the percent of variance accounted for by the independent variables, and predicted probabilities of an event occurring will be determined by the odds ratio. Before proceeding, preliminary analyses of the dataset were conducted to observe if the assumptions of logistic regression were met.

Multicollinearity was examined to determine if the independent variables are highly correlated with one another. To assess multicollinearity, a tolerance statistic was calculated where higher tolerance values suggest low levels of collinearity. A tolerance of less than .2 is alarming (Menard, 2010). Finally, the ratio of cases to variables was

analyzed. Too few cases to the number of variables could produce significant standard errors. As a result, the model may not converge (Tabachnick & Fidell, 2013). Hence, the cell counts were observed for each variable and each category of the categorical variables. Finally, since none of the variables were continuous, a Box Tidwell test was not used to test for linearity for the log odds.

Research Question 1 - Results

RQ1: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American GLB, controlling for age, gender, income, and employment?

H_{01}: There is no association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American GLB, controlling for age, gender, income, and employment.

H_{a1}: There is an association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American GLB, controlling for age, gender, income, and employment.

A logistic regression was used to examine the relationship between suicidal ideation and (1) depression, (2) substance use, (3) drug use and (4) alcohol use/abuse, which were coded as 0 for no and 1 for yes, while controlling for age, gender, income, and employment for gay, lesbian, and bisexual Asians. Gender was coded as 0 for females and 1 for males. Ages between 18-25 were dummy-coded as 0, whereas 26 and older were dummy-coded as 1. Income between $0 to $74,999 was coded as 0, and $75,000 and above were coded as 1. Employment had four categories, and these

categories were dummy coded. The control variables were entered into the first block, while the independent variables were entered into the second block. First, the assumptions were examined. The multicollinearity tolerance values for the independence values ranged from 0.82 to 0.93, which exceeded the threshold of at least 0.2 or higher (Hosmer & Lemeshow, 2001). Next, upon inspection of the data (see Table 6), the small cell counts for unemployed, substance use, and drug use were alarming.

First, to test the null hypothesis that the data fit the specified model, the Hosmer and Lemeshow Goodness-of-Fit test was conducted, $\chi^2(8) = 5.53$, $p = .699$, and the test was not statistically significant. As a result, the null hypothesis was not rejected. In these results, the predicted probabilities did not deviate from the probabilities in such a way that was not aligned with the prediction of the binary distribution, and the model was adequate for analysis purposes. Next, the control variables were examined. In model one, control variables only, the logistic regression model was not statistically significant, $\chi^2(4) = 4.99$, $p = .545$. The model explained 9.9% (Nagelkerke R^2) of the variance for suicide ideation and correctly classified 86.4% of the cases. Additionally, none of the control variables were statistically significant.

In Model 2, control and independent variables, the Omnibus Tests of Model Coefficients is used to check that the new model (with the independent variables included) is an improvement over the baseline model (with only the control variables). The Omnibus Test uses chi-square tests to determine if there is a significant difference between the log-likelihoods (LL) of the baseline model and the new model. The new model had a significantly reduced -2LL (53.57) compared to the baseline

(65.98), which suggests that the new model is explaining more of the variance in the outcome and is an improvement. In this instance, the chi-square was significant ($\chi^2(10) = 17.41$, $p < .05$), so the new model is significantly better.

Model 2 explained 32.2% (Nagelkerke R^2) of the variance for suicide ideation and correctly classified 89.0% of the cases. The only statistically significant variable in suicide ideation was 'having a major depressive episode in which those who answered yes had 11.08 (95% *CI*: 1.00–3.19) times higher odds, or a 92% probability, than those who did not have a depressive episode of having suicidal thoughts. As a result, for $H_0 1$ the null hypothesis was rejected, and the alternative hypothesis was accepted. The results are presented in Table 6 below.

Table 6

Hierarchical Multiple Logistic Regression Analysis of Suicidal Ideation with OR, 95% CI, Wald and P values (N = 91)

Table 6 : Hierarchical Multiple Logistic Regression Analysis of Suicide Ideation with OR, 95% CI, Wald and P values (*N* = 91)

	N	%	OR	95% CI		Wald	*P*
Variables				Lower	Upper		
			Model 1				
Low Income	63	69.2	1.00				
High Income	28	30.8	0.70	0.16	3.08	0.22	0.64
Low Age	63	69.2	1.00				
High Age	28	30.8	0.63	0.16	2.54	0.42	0.52
Females	53	58.2	1.00				
Male	38	41.8	2.51	0.66	9.58	1.81	0.18
Employment 'Other'	23	25.3	1.00				
Employment 'Full'	43	47.3	1.58	0.26	9.63	0.25	0.62
Employment 'Part'	23	25.3	3.29	0.53	20.38	1.64	0.20
Unemployed	2	2.2	0.00	0.00	0.00	0.00	1.00
			Model 2				
Low Income	63	69.2	1.00				
High Income	28	30.8	0.38	0.06	2.41	1.05	0.31
Low Age	63	69.2	1.00				
High Age	28	30.8	1.12	0.23	5.44	0.02	0.89
Females	53	58.2	1.00				
Male	38	41.8	2.68	0.55	13.18	1.47	0.23
Employment 'Other'	23	25.3	1.00				
Employment 'Full'	43	47.3	1.22	0.18	8.50	0.04	0.84
Employment 'Part'	23	25.3	3.08	0.38	25.32	1.10	0.30
Unemployed	2	2.2	0.00	0.00	0.00	0.00	1.00
No Depressive Episode	73	80.2	1.00				
Depressive Episode	18	19.8	11.08	0.03	2.32	52.83	0.00
No Substance Use	88	96.7	1.00				
Substance Use	3	3.3	2.08	0.08	52.45	0.20	0.66
No Drug Use	83	91.2	1.00				
Drug Use	8	8.8	8.00	0.91	70.58	3.50	0.06
No Alcohol Use	36	39.6	1.00				
Alcohol Use	55	60.4	2.81	0.21	5.65	0.01	0.92

Note. Please see Tables 8 -13 and 14 - 19 for Model Fitting Information for Research Question 1.

Research Question 2 - Results

RQ2: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American GLB, controlling for age, gender, income, and employment?

H_{02}: There is no association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American GLB, controlling for age, gender, income, and employment.

H_{a2}: There is an association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American GLB, controlling for age, gender, income, and employment.

A logistic regression was used to examine the relationship between suicidality and (1) depression, (2) substance use, (3) drug use and (4) alcohol use/abuse, which were coded as 0 for no and 1 for yes, while controlling for age, gender, income, and employment. The same coding scheme from research question one was used for this analysis, and since the same independent variables were used, the multicollinearity results were the same.

To test the null hypothesis that the data fit the specified model, the Hosmer and Lemeshow Goodness-of-Fit test was conducted, $\chi^2(8) = 5.33$, $p = .699$, and the test was not statistically significant. As a result, the null hypothesis was retained. These results show the predicted probabilities did not deviate from the probabilities in such a way that was not aligned with the prediction of the binary distribution, and the model was adequate for analysis purposes. Next, the control variables were examined. In model one,

control variables only, the logistic regression model was not statistically significant, $\chi^2(6) = 4.99$, $p = .545$. The model explained 9.9% (Nagelkerke R^2) of the variance for suicidality and correctly classified 86.8% of the cases. Additionally, none of the control variables were statistically significant.

In Model 2, control and independent variables, the Omnibus Tests of Model Coefficients is used to check that the new model (with the independent variables included) is an improvement over the baseline model (with only the control variables). The new model had a significantly reduced -2LL (53.56) compared to the baseline (65.98), which suggests that the new model is explaining more of the variance in the outcome and is an improvement. In this instance, the chi-square was significant, so the new model is significantly better. However, the model was not statistically significant $\chi^2(10) = 17.41$ $p < .066$.

Model 2 explained 32.2% (Nagelkerke R^2) of the variance for suicidality and correctly classified 97.8.% of the cases. The only statistically significant variable in suicidality was 'having a major depressive episode in which those who answered yes had .09 (95% *CI*: 0.83–52.45) times higher odds or a 58% greater probability of making plans to kill themselves than those who did not have a depressive episode of making plans to kill themselves. As a result, for $H_0$1 the null hypothesis was rejected. The results are presented in Table 7 below.

Table 7

Hierarchical Multiple Logistic Regression Analysis of Suicidality with OR, 95% CI, Wald and P values (N = 91)

Table 7 : Hierarchical Multiple Logistic Regression Analysis of Suicidality with OR, 95% CI, Wald and P values (*N* = 91)

	N	%	OR	95% CI		Wald	*P*
Variables				Lower	Upper		
			Model 1				
Low Income	63	69.2	1.00				
High Income	28	30.8	0.70	0.16	3.08	0.22	0.64
Low Age	63	69.2	1.00				
High Age	28	30.8	0.63	0.16	2.54	0.42	0.52
Females	53	58.2	1.00				
Male	38	41.8	2.51	0.66	9.58	1.81	0.18
Employment 'Other'	23	25.3	1.00				
Employment 'Full'	43	47.3	1.58	0.26	9.63	0.25	0.62
Employment 'Part'	23	25.3	3.29	0.53	20.38	1.64	0.20
Unemployed	2	2.2	0.00	0.00	0.00	0.00	1.00
			Model 2				
Low Income	63	69.2	1.00				
High Income	28	30.8	0.38	0.06	2.41	1.05	0.31
Low Age	63	69.2	1.00				
High Age	28	30.8	1.12	0.23	5.44	0.02	0.89
Females	53	58.2	1.00				
Male	38	41.8	2.68	0.55	13.18	1.47	0.23
Employment 'Other'	23	25.3	1.00				
Employment 'Full'	43	47.3	1.22	0.18	8.50	0.04	0.84
Employment 'Part'	23	25.3	3.08	0.38	25.32	1.10	0.30
Unemployed	2	2.2	0.00	0.00	0.00	0.00	1.00
No Depressive Episode	73	80.2	1.00				
Depressive Episode	18	19.8	0.09	0.02	0.43	9.11	0.00
No Substance Use	88	96.7	1.00				
Substance Use	3	3.3	2.08	0.08	52.45	0.20	0.66
No Drug Use	83	91.2	1.00				
Drug Use	8	8.8	8.00	0.91	70.58	3.50	0.06
No Alcohol Use	36	39.6	1.09	0.21	5.65	0.01	0.92
Alcohol Use	55	60.4	2.81	0.21	5.65	0.01	0.92

Note. Please see Tables 8 - 13 and 20 - 25 for Model Fitting Information for Research Question 2.

Logistic Regression Model 1–Model Fitting Information for Research Questions 1 and 2

Table 8

Omnibus Tests of Model Coefficients: Chi-square Test for Model 1: (RQ1 and RQ2)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.989	6	.545
	Block	4.989	6	.545
	Model	4.989	6	.545

Table 9

Model Summary for Model 1: (RQ1 and RQ2)

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	65.976[a]	.053	.099

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 10

Hosmer and Lemeshow Test for Model 1: (RQ1 and RQ2)

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.533	8	.699

Table 11

Contingency Table of Hosmer and Lemeshow Test for Model 1: (RQ1 and RQ2)

Contingency Table for Hosmer and Lemeshow Test

		RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR = No		RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR = Yes		
		Observed	Expected	Observed	Expected	Total
Step 1	1	8	8.695	1	.305	9
	2	8	7.598	0	.402	8
	3	7	6.510	0	.490	7
	4	8	7.396	0	.604	8
	5	7	8.041	2	.959	9
	6	8	7.967	1	1.033	9
	7	8	7.677	1	1.323	9
	8	7	7.570	2	1.430	9
	9	10	9.052	1	1.948	11
	10	8	8.495	4	3.505	12

Table 12

Predicted Variable for Model 1: (RQ1 and RQ2)

		Predicted RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR		Percentage
Observed		No	Yes	Correct
RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR	No	79	0	100.0
	Yes	12	0	.0
Overall Percentage				86.8

Table 13

Variables in the Equation for Model 1: (RQ1 and RQ2)

Variables in the Equation

							95% CI.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	income recoded	-.353	.754	.219	1	.640	.702	.160	3.082
	New_age_2_cat	-.460	.711	.419	1	.517	.631	.157	2.542
	GENDER - IMPUTATION REVISED	.920	.684	1.810	1	.178	2.509	.657	9.581
	IRWRKSTAT18=Employed full time	.460	.921	.249	1	.618	1.583	.260	9.633
	IRWRKSTAT18=Employed part time	1.192	.930	1.643	1	.200	3.294	.532	20.380
	IRWRKSTAT18=3 - Unemployed	-19.010	27597.367	.000	1	.999	.000	.000	.
	Constant	-2.586	.865	8.933	1	.003	.075		

a. Variable(s) entered on step 1: income recoded, New_age_2_cat, GENDER - IMPUTATION REVISED, IRWRKSTAT18=Employed full time, IRWRKSTAT18=Employed part-time, IRWRKSTAT18=3 - Unemployed.

(Note: Multicollinearity results were the same for Research Questions 1 and 2)

Logistic Regression Model 2–Model Fitting Information for Research Question 1

Table 14

Omnibus Tests of Model Coefficients: Chi-square Test for Model 2: (RQ1)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	12.419	4	.014
	Block	12.419	4	.014
	Model	17.408	10	.036

Table 15

Model Summary for Model 2: RQ1

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	53.557[a]	.174	.322

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 16

Hosmer and Lemeshow Test for Model 2: RQ1

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	16.326	8	.038

Table 17

Contingency Table of Hosmer and Lemeshow Test for Model 2: RQ1

Contingency Table for Hosmer and Lemeshow Test

		RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR = No		RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR = Yes		
		Observed	Expected	Observed	Expected	Total
Step 1	1	10	9.909	0	.091	10
	2	9	8.782	0	.218	9
	3	7	8.739	2	.261	9
	4	11	10.639	0	.361	11
	5	9	9.374	1	.626	10
	6	9	8.331	0	.669	9
	7	8	7.752	1	1.248	9
	8	8	6.350	0	1.650	8
	9	6	6.128	3	2.872	9
	10	2	2.995	5	4.005	7

Table 18

Predicted Variable for Model 2: RQ1

Observed		Predicted RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR		Percentage Correct
		No	Yes	
RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR	No	78	1	98.7
	Yes	9	3	25.0
Overall Percentage				89.0

Table 19

Variables in the Equation for Model 2: RQ1

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% CI.for EXP(B) Lower	Upper
Step 1[a]	income recoded	-.964	.940	1.052	1	.305	.382	.060	2.406
	New_age_2_cat	.111	.807	.019	1	.891	1.117	.230	5.436
	GENDER - IMPUTATION REVISED	.986	.812	1.474	1	.225	2.681	.546	13.175
	IRWRKSTAT18=Employed full time	.202	.989	.042	1	.838	1.224	.176	8.503
	IRWRKSTAT18=Employed part time	1.125	1.075	1.096	1	.295	3.081	.375	25.323
	IRWRKSTAT18=3 - Unemployed	-18.102	28030.888	.000	1	.999	.000	.000	.
	RC-ADULT: LIFETIME MAJOR DEPRESSIVE EPISODE (MDE)	-2.405	.797	9.106	1	.003	.090	.019	.430
	SUBSTANCE_USE	.733	1.647	.198	1	.656	2.081	.083	52.454
	DRUG_USE	2.079	1.111	3.500	1	.061	7.995	.906	70.583
	ALCOHOL_USE	.086	.839	.011	1	.918	1.090	.210	5.649
	Constant	1.033	1.669	.383	1	.536	2.811		

a. Variable(s) entered on step 1: RC-ADULT: LIFETIME MAJOR DEPRESSIVE EPISODE (MDE), SUBSTANCE_USE, DRUG ALCOHOL_USE.

Logistic Regression Model 2–Model Fitting Information for Research Question 2

Table 20

Omnibus Tests of Model Coefficients: Chi-square test for Model 2: (RQ2)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	12.419	4	.014
	Block	12.419	4	.014
	Model	17.408	10	.066

Table 21

Model Summary for Model 2: RQ2

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	53.557[a]	.174	.322

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 22

Hosmer and Lemeshow Test for Model 2: RQ2

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	16.326	8	.038

Table 23

Contingency Table of Hosmer and Lemeshow Test for Model 2: RQ2

Contingency Table for Hosmer and Lemeshow Test

		RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR = No		RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR = Yes		
		Observed	Expected	Observed	Expected	Total
Step 1	1	10	9.909	0	.091	10
	2	9	8.782	0	.218	9
	3	7	8.739	2	.261	9
	4	11	10.639	0	.361	11
	5	9	9.374	1	.626	10
	6	9	8.331	0	.669	9
	7	8	7.752	1	1.248	9
	8	8	6.350	0	1.650	8
	9	6	6.128	3	2.872	9
	10	2	2.995	5	4.005	7

Table 24

Predicted Variable for Model 2: RQ2

		Predicted RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR		Percentage
Observed		No	Yes	Correct
RC-SERIOUSLY THOUGHT ABOUT KILLING SELF IN PAST YEAR	No	78	1	98.7
	Yes	9	3	25.0
Overall Percentage				89.0

Table 25

Variables in the Equation for Model 2: RQ2

Variables in the Equation

							95% CI.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	income recoded	-.964	.940	1.052	1	.305	.382	.060	2.406
	New_age_2_cat	.111	.807	.019	1	.891	1.117	.230	5.436
	GENDER - IMPUTATION REVISED	.986	.812	1.474	1	.225	2.681	.546	13.175
	IRWRKSTAT18=Employed full time	.202	.989	.042	1	.838	1.224	.176	8.503
	IRWRKSTAT18=Employed part time	1.125	1.075	1.096	1	.295	3.081	.375	25.323
	IRWRKSTAT18=3 - Unemployed	-18.102	28030.888	.000	1	.999	.000	.000	.
	RC-ADULT: LIFETIME MAJOR DEPRESSIVE EPISODE (MDE)	-2.405	.797	9.106	1	.003	.090	.019	.430
	SUBSTANCE_USE	.733	1.647	.198	1	.656	2.081	.083	52.454
	DRUG_USE	2.079	1.111	3.500	1	.061	7.995	.906	70.583
	ALCOHOL_USE	.086	.839	.011	1	.918	1.090	.210	5.649
	Constant	1.033	1.669	.383	1	.536	2.811		

a. Variable(s) entered on step 1: RC-ADULT: LIFETIME MAJOR DEPRESSIVE EPISODE (MDE), SUBSTANCE_USE, DRUG ALCOHOL_USE.

As stated in the result analysis for research question 2 on (page 114), the same coding scheme for research question 1 (suicidal ideation) was also used for research question 2 (suicidality), and since the same independent variables were used in the analysis, the multicollinearity results were the same. The model results showed that Major Depressive Episode (MDE) was the only variable with a P value < .05, which indicated a statistically significant result, or a moderately negative significant relationship

between the predictor or independent variable and dependent variables. The significance of the results also led to the rejection of the null hypothesis. The alternative hypothesis in the research questions were accepted, which showed that Major Depressive Episode (MDE) or depression was significantly associated or related to suicidal ideation and suicidality when controlled for covariates - age, gender, income, and employment.

The model results also showed no significance among other predictors or independent variables and covariates. These variables may be impacted by sample size limitations, low precisions and variances in the NSDUH dataset. The sample size limitations of the dataset may have impacted the results of the model, and may not have generated enough statistical power to address some of the variables in the model analysis. A brief summary of the results presentation by research questions and main predictors is shown in (Table 26) below.

Table 26

Summary of Results by Research Question and Main Predictors

Research Question	Results
RQ1: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American Gays, Lesbians, and Bisexuals (GLB), controlling for age, gender, income, and employment?	Major depressive episode (MDE) with a P value <.05 was the only statistically significant result with (OR: 11.08, 95% CI: 1.00–3.19), in which those that answered yes to depression had higher odds or a 92% probability of suicidal ideation than those who did not. The null hypothesis was therefore rejected and the results showed an association or relationship between depression and suicidal ideation.

RQ2: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidality among Asian American Gays, Lesbians, and Bisexuals (GLB), controlling for age, gender, income, and employment?	Major depressive episode (MDE) with a P value < .05 was the only statistically significant result with (OR: 0.09, 95% CI: 0.83–52.45), in which those with depressive episodes or depression has more odds or a 58% greater probability of suicidality than those who did not. The null hypothesis was therefore rejected and the results showed that depression was related or associated with suicidality.

Summary

In this section, I presented the results of the 2015 National Survey for Drug Use and Health (NSDUH) data by SAMHSA used to evaluate the association or relationship between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation or suicidality among Asian American GLBs. Out of the total sample of 2,541 Asian Americans surveyed in the secondary data, only 91 cases presented as gays, lesbians, and bisexuals or Asian American sexual minorities. I tested for assumptions and model fit using chi-square analysis and conducted multiple hierarchical logistic regression to determine the relationship between these variables and covariates. The results of the analysis indicated that depression or "having a major depressive episode" was the most significant variable or factor impacting suicidal ideation and suicidality among these underresearched minority population. A more detailed analysis and interpretation of the findings is discussed in the next section. Section 4 serves as an overview of the study, a detailed interpretation of the findings, limitations of the study, recommendations, and implications for professional practice and social change.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this quantitative, cross-sectional study using the 2015 NSDUH secondary dataset was originally to determine whether an association or relationship exists between the psychosocial/mental health factors of depression, substance use, drug use, alcohol use/abuse, and suicidal ideation, suicidality, as well as HIV/AIDS infection or diagnosis among Asian American MSM, 18 years or older, controlling for age, income, and employment. But due to sample size limitations or smaller sample size among Asian American MSM respondents, and no responses to HIV/AIDS questions in the dataset, a gender variable was introduced to enhance the sample size and expand the population to Asian American GLBs, instead of MSM. This also led to the elimination of the third research question, which involved HIV/AIDS infections or diagnosis.

As a result of these adjustments, the target population changed from Asian American MSM to Asian American GLBs. The findings from this study may help in filling the gaps on the psychosocial vulnerabilities and mental health factors associated with suicidal ideation and suicidality among this underresearched minority population. The secondary data examined 91 cases or participants who self-identified as Asian American gays, lesbians, and bisexuals or sexual minorities, out of a total of 2,541 Asian Americans sampled in the national survey. The study used multiple logistic regression to answer the two research questions:

RQ1: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidal ideation among Asian American gays,

lesbians, and bisexuals (GLB), controlling for age, gender, income, and employment?

RQ2: What is the association between depression, substance use, drug use, alcohol use/abuse, and suicidality (suicide plans and attempts) among Asian American gays, lesbians, and bisexuals (GLB), controlling for age, gender, income, and employment?

The results of the analysis indicated a moderately negative significant relationship between MDE and suicidal ideation and suicidality, and indicated that only the mental health factor of depression was significantly associated with suicidal ideation and suicidality. Thus, those who answered no to depressive episode were not impacted by depression and were less likely to report suicidal ideation or suicidality, while those who answered yes were negatively impacted by increased depression and had 11.08 (95% Cl: 1.00–3.19) times higher odds or 92% probability of having suicidal ideation, and 0.9 (95% Cl: 0.83–52.45) times higher odds or 58% probability of having suicidality. This section includes the interpretation of the findings as it relates to the literature and to the theoretical framework guiding the study; the limitations of the study; recommendations for further study; and implications for professional practice and social change.

Interpretation of the Findings

In this subsection, I compare the findings of this study to previous studies to confirm, disconfirm, or extend knowledge in the discipline. I analyze and interpret the findings in the context of the syndemic theory, the theoretical model or framework used to guide this study. I examined the relationship or association between the independent

variables of depression, substance use, drug use, alcohol use/abuse, and the dependent variables of suicidal ideation, suicidality (plan and attempts), controlling for covariates age, gender, income, and employment, among Asian American gays, lesbians, and bisexuals or sexual minorities.

The findings for the RQ1 and RQ2 using the 2015 NSDUH dataset indicated that depression was statistically significant to suicidal ideation and suicidality, controlling for the covariates or confounding factors of age, gender, income, and employment. The covariates were all nonsignificant and had no impact on the analysis. Those who had lifetime major depressive episode have higher odds or probability of serious thoughts about killing themselves in the past year than those who did not have a major depressive episode. Also, those with lifetime major depressive episode were more likely to make plans or attempt to kill themselves in the past year than those who did not have a major depressive episode. The null hypothesis, which stated that there is no association or relationship between depression and suicidal ideation or suicidality among Asian American GLBs, was therefore rejected. This finding is consistent with Lee et al. (2017), who described and highlighted the significance of depression as a mental health issue and its relationship to suicidal ideation and suicidality. The authors also emphasized the essential role health care workers and public health practitioners should play in understanding the risk factors and other vulnerabilities that would help in planning effective interventions. The finding is also consistent with Fang et al. (2018), who studied the prevalence, risk factors, and clinical characteristics of suicidal ideation and suicidality in depressed Chinese patients. Fang et al. also concluded that suicidal ideation and

suicidality are increased in people with major depressive episode or disorder, and the risk factors could be predicted with clinical symptoms such as self-harm, suicidal attempts, hopelessness, sleeplessness, crying, psychosis, worthlessness, guilt, and being of the male gender.

This finding is also in agreement with Zhu (2018), who examined and compared the depressive symptoms, patterns and social correlates among Asian American groups, and highlighted the significance and influence of nativity and acculturation as important factors in the depressive symptomology of Asian American immigrants. Zhu (2018) also suggested that vulnerability factors such as (chronic medical conditions or physical conditions) is one of the four factors that serve as social precursors of depressive symptomology. The author concluded that there are increased rates of suicidal ideation among US-born Asian American immigrants than among foreign-born Asian American immigrants due to depressive symptomology caused by acculturative stress, which creates a complicated psychological impact on this minority population leading to mental health issues and suicidality.

Other predictors or independent variables such as substance use, drug use, and alcohol use/abuse were not significant to suicidal ideation and suicidality, controlling for age, gender, income, and employment, which were also non-significant and did not impact the analysis. These may be due to low variances created by low responses and sample size limitations for this minority population. Therefore, the null hypothesis, which stated that there is no association or relationship between substance use, drug use, alcohol use/abuse, and suicidal ideation or suicidality among this population, was not rejected.

The results showed that substance use, drug use, and alcohol use/abuse did not have any influence or impact on suicidal ideation or suicidality among Asian American gays, lesbians, and bisexuals. These findings were not consistent with previous studies by Paul et al. (2014), Wu and Blazer (2015), Lui and Zamboanga (2018), who investigated and examined substance use, drugs use, alcohol use, and negative impacts of racism and multiple forms of stigmatization among ethnic minorities, especially substance use disorders and comorbidities among Asian Americans and Native Hawaiians/Pacific Islanders. Paul et al. described the relationship between the multiple forms of minority stressors experienced by GLBs or MSM and substance use and abuse, mental health, and HIV risk behaviors, but, although previous studies have established the links between these factors among ethnic minorities, the authors concluded that there was no clear indication to what extent or magnitude these stressors may impact substance use and abuse among Asian American sexual minorities differently.

Wu and Blazer (2015), used epidemiological information to analyze the extent of alcohol and drug use disorders, and the lack of adequate responses to treatment and medical services by Asian American and Native Hawaiians/Pacific Islanders. Lui and Zamboanga (2018) described acculturation as a key socio-cultural component that helps to explain mental health outcomes and alcohol use among Asian American adults. But, empirical studies on the extent and magnitude of the relationship between acculturation and alcohol use remains unclear, inconsistent, or mixed, and requires further research (Lui & Zamboanga, 2018). Because of the influence and relationship of acculturation to substance use, drugs, and alcohol use, the 2015 NSDUH dataset used in this study does

not have acculturation and nativity as variables, and this may have impacted the results and non-significant relationship or association in the analysis.

The theoretical framework or model used to guide this study was the syndemic theory. This theoretical framework would have supported the outcome more perfectly if HIV/AIDS questions were answered by Asian American sexual minority respondents in the dataset. The third research question (RQ3) which was excluded due to no responses to HIV/AIDS questions might have made a perfect fit for understanding the co-occurrence of multiple epidemics, risk factors, societal stressors, chronic conditions, or health issues that combine together to synergistically impact suicidal ideation and suicidality among this population as purported in the syndemic theory. According to Ferlatte et al. (2015), the syndemic theory represents the unique qualities of sexual minorities and helps to understand and explain the excess rates of suicidal ideation and suicidality among gay and bisexual men. The syndemic theory developed in 1994 by Merrill Singer was used to describe how health issues tends to co-occur or accumulate and overlap synergistically to create a series of epidemics or negative health outcomes, and these negative health outcomes are as a result of the consequences of marginalization, social stressors such as discrimination and stigma, social inequity, or unjust social influence (Ferlatte, 2015). The syndemic theory was used in this study because it represents the best foundation for explaining and understanding the accumulation of multiple or co-occurring psychosocial and mental health factors that influence suicidal ideation and suicidality, as well as HIV/AIDS infection or diagnosis among this sexual minority population. But, since HIV/AIDS infection or diagnosis was excluded and wasn't determined in this study due

to the no response situation, the syndemic theory was used to help explain the co-occurrence or combination of health issues, risk factors, and other chronic health conditions which highlights the synergistic interaction of multiple problems that leads to negative health outcomes impacting the Asian American gay, lesbian, and bisexual community.

The findings in this study showed that only the mental health factor of depression was significantly related or associated with suicidal ideation and suicidality. Since depression does not act in isolation, many underlying factors may impact the progression of depression or a major depressive episode (Zhu, 2018). According to the syndemic theory, prior chronic health conditions and social or societal stressors such as discrimination and stigma may exacerbate the progression of a major depressive episode, creating a synergistic interaction of multiple problems that lead to negative health outcomes of suicidal ideation and suicidality among the Asian American gays, lesbians, and bisexuals or sexual minorities. The syndemic theory confirmed the study findings and enabled us to understand the socio-environmental or psychosocial and mental health influences impacting suicidal ideation and suicidality among this underresearched minority population. The syndemic theory may assist health professionals in understanding the underlying conditions that lead to depression to device effective intervention strategies that prevents or controls suicidal ideation and suicidality.

Limitations of the Study

There are several limitations in this study. The study sample size was relatively small for this sexual minority population and may have been insufficient to detect small

effects. Sample size limitations have always been a major limiting factor in previous studies involving this minority population. As a result, most previous studies tend to combine the Asian American population and Native Hawaiians/Pacific Islanders into one population to increase the sample size and improve the availability of data (Wu & Blazer, 2015). The authors also contended that some form of cultural differences exist between these two groups, and as a result, previous studies that tend to combine the two groups into one population because of sample size limitations, may fall short in providing adequate health interventions, or fail to provide adequate information or data that informs public health policy (Wu & Blazer, 2015).

The year 2015 was the first time SAMHSA included sexual orientation or sexual identity questions in the annual NSDUH survey or dataset (SAMHSA, 2018). In this study, there were loss of precision and low variances due to smaller sample sizes when data was further subdivided into sexual orientation or sexual minority subgroups. Consequently, sample size was improved by the introduction of the gender variable, which increased the sample size to accommodate Asian American gays, lesbians, and bisexuals (GLB), instead of just men who have sex with men (MSM). Other limiting factors that impacted the study include no responses and legitimate skips to survey questions, especially sensitive questions involving HIV/AIDS. As a result, RQ3 was excluded from the study.

Another limitation of the study involved the methodology used in data collection. The 2015 NSDUH survey by SAMHSA was based on respondents self-reported data, which was subject to recall, non-response, and social-desirability biases. These biases

may influence the accuracy of data and affect the external validity of the results. Recall bias may negatively impact respondent's memory and ability to remember past events accurately, especially for a population already impacted by depression and other adverse life events due to their sexual minority status. Nonresponse bias involves the inability to respond to sensitive health issues and life events such as infections or diagnosis with HIV/AIDS, mental illness, and suicidal behaviors. A population already impacted by discrimination and stigma may feel humiliated and uncomfortable responding or answering questions related to these issues and events. Social desirability bias may impact this study by non-responses to real and accurate life events other than those that are socially desirable. It may also take the form of low responses to bad behaviors and over responding to good behaviors that are desirable or viewed favorably by the general public.

The last limitation of this study involved threats to external validity, which was the generalizability of the study findings to the general population. The study only focused on Asian American gays, lesbians, and bisexuals or Asian American sexual minorities. Other races or ethnicities were not considered in the study. As a result of the small sample size of the population and the non-inclusion of other cultures or ethnic minorities, the study findings may not generalize beyond the Asian American population studied.

Recommendations

Recommendations for further studies are based on the strengths and limitations of the current study to assist further research on suicidal ideation and suicidality among this underresearched minority population. In consideration of the heterogeneity and inadequate sample size of this population, I recommend that further studies examine a more diverse samples of the population using a longitudinal research design rather than cross-sectional, to determine the underlying causes of depression and its impact on suicidal ideation and suicidality. Employing a longitudinal research design would allow changes to be tracked over time for depression and its comorbidities and understand the co-occurring factors that trigger major depressive episodes that lead to suicidal ideation and suicidality. I also recommend that this study be replicated by future researchers by combining the 2015 NSDUH dataset with data from future years such as 2016 or 2017 to avoid loss of precision and low variances when data are further subdivided into sexual minority subgroups. According to Medley (2016), "combining the 2015 NSDUH data with data from future years would improve the precision of estimates for subgroups of sexual minorities" (p. 3).

Additionally, I recommend that further studies examine more data with responses to HIV/AIDS to determine the relationship between these variables and HIV/AIDS infection and diagnosis. Although in this current study, I was unable to determine this relationship due to a no-response situation in the dataset. Future studies should replicate this study and evaluate further how the psychosocial and mental health factors of depression, substance use, drug use, alcohol use/abuse, impact suicidal ideation,

suicidality, and HIV/AIDs infection or diagnosis among this minority population. Further examination and evaluation of this relationship will shed more light on the co-occurrence, combination, and overlapping health issues, risk factors, or epidemics that synergistically increase negative health outcomes. A situation described by the "syndemic theory" and its effects on the Asian American gay, lesbian, and bisexual community.

Implications for Professional Practice and Social Change

The implications of this study for professional practice and social change could help public health practitioners to have more knowledge of depression and its impact on suicidal ideation and suicidality, to devise effective intervention strategies for its control and prevention. According to Kim and Haugen (2019), there are many facets of depression in the Asian American population, and this is due to cultural differences. These differences create difficulties for clinicians and public health practitioners in understanding the mental health services needed for minorities with depression. Stigmatization for people suffering from depression is very rampant in Asian culture or Asian American community, and this may prevent people with depressive episodes from seeking help or receiving mental health counseling and treatment (Kim & Haugen, 2019). As a result, this community is plagued with poor mental health utilization and medical services, leading to under-diagnosis for depression and lack of treatment options (Kim & Haugen, 2019).

According to Zhu (2018), the manifestation of depressive symptoms among Asian Americans is very distinct or different from the general American population, and this distinctiveness is due to cultural differences in depressive symptomology as a result of

the collectivistic and philosophical orientation of the Asian culture, which is quite different from American individualistic culture. The cultural differences in collectivism and individualism orientation is why acculturative stress due to acculturation to American culture impacts the depressive symptomology of Asian Americans (Zhu, 2018). So, to understand these differences in depressive symptomology, awareness, and treatment among this population, it is important that public health professionals and clinicians take into consideration Asian cultural disposition, and how this cultural disposition or values influence their emotional processes and decision making (Kim & Haugen, 2019).

The findings in this study showed that depression was the only statistically significant variable impacting suicidal ideation and suicidality when controlling for age, gender, income, and employment among this population. Public health practitioners should take into consideration the underlying conditions or co-occurring factors that trigger depression when devising effective interventions for suicidal ideation and suicidality in this population. Although other notable predictors such as substance use, drug use, and alcohol use/abuse were not significant to suicidal ideation and suicidality when controlling for age, gender, income, and employment among the Asian American minority population in this study, public health practitioners and clinicians should also take into consideration the effects of these variables on this population when planning intervention programs for suicidal ideation and suicidality because some previous studies have found these variables to be significantly associated with suicidal ideation and suicidality under different research conditions.

Although HIV/AIDS infection or diagnosis was not determined in this study, previous studies have revealed the significant relationships or associations between HIV/AIDS diagnosis and suicidal ideation or suicidality. According to CDC (2018), annual HIV diagnoses in the 50 states and the District of Columbia increased by 52% from 2010 to 2016 among Asian American gay and bisexual men. During this period, there were 95 deaths among Asian Americans diagnosed with HIV in the United States and dependent areas. As a result of this data, it becomes very important that public health practitioners and clinicians examine the effects of depression on people diagnosed with HIV/AIDS and its impact on suicidal ideation and suicidality among this minority population.

The positive social change implication of this study is that the information obtained from this study could contribute to the existing body of knowledge on sexual minority health and health disparities by providing insight and awareness into the cultural differences in depressive symptomology and needed treatment among Asian American sexual minorities. This would enable public health practitioners and clinicians to devise effective intervention strategies to prevent or control depression and impact suicidal ideation and suicidality among Asian American gays, lesbians, and bisexuals. Another positive social change implication of this study is the increased access to mental health services for Asian American GLBs and the development of clinical and public health policies or strategies that would prevent or reduce suicidal ideation and suicidality among this population.

Conclusion

The purpose of this quantitative, cross-sectional study using the 2015 NSDUH secondary data was to determine the relationship or association between the psychosocial and mental health factors of depression, substance use, drug use, alcohol use/abuse, and suicidal ideation & suicidality among Asian American gays, lesbians, and bisexuals (GLB), controlling for age, gender, income, and employment. I found no significant relationship or association between substance use, drug use, alcohol use/abuse, and suicidal ideation/suicidality while controlling for age, gender, income, and employment among Asian American GLBs in my sample. But this finding was not consistent with some previous researchers that found an association or relationship between these variables (Paul et al., 2014; Wu and Blazer, 2015; Lui & Zamboanga, 2018).

However, I found a significant relationship or association between depression and suicidal ideation/suicidality among Asian American GLB, controlling for age, gender, income, and employment. This significant association was consistent with previous studies that associated depression with suicidal ideation and suicidality among this sexual minority population. This finding also supports the application of the syndemic theory, which highlights the underlying co-occurring factors that trigger or act in combination with depression to increase suicidal ideation and suicidality among this minority population. Having clear knowledge of the disparities and differences in depression awareness, symptomology, and treatment options will assist and enable public health practitioners and clinicians to take into consideration Asian cultural values and beliefs when planning effective intervention programs to prevent and reduce suicidal ideation

and suicidality among this minority population (Kim & Haugen, 2019). This could lead to a positive social change outcome of increased access to mental health services, improved health, lifestyle, and increased life expectancy and productivity for this Asian American minority population.

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