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What are the Most Commonly Used Tools to Screen Depression in HIV-Infected Gay and Bisexual Men?

Michael Isner
University of Central Florida

WHAT ARE THE MOST COMMONLY USED TOOLS TO SCREEN

DEPRESSION IN HIV-INFECTED GAY AND BISEXUAL MEN?

by

MICHAEL J. ISNER

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Thesis Chair: Christopher Blackwell, PhD, ARNP, ANP-BC, AGACNP-BC, CNE, FAANP

ABSTRACT

Gay and bisexual men infected with human immunodeficiency virus (HIV) comprise a sizeable, medically vulnerable population. Depression is the most commonly experienced mental health disorder affecting this group of people, lending itself to a host of risks associated with depression. As screening of depression in this population can be challenging, it is vital that clinicians have the best available tools and guidelines to detect depressive symptomology. This focused, comprehensive review of the literature examined current data describing the clinical instruments used to detect depressive symptoms in HIV-infected gay and bisexual men. The aim of this analysis was to seek out which instruments were the most widely and successfully employed for this population. An initial search using EBSCOhost and associated databases CINAHL, MEDLINE, PsycINFO, and Health and Psychosocial Instruments alongside inclusion and exclusion criteria found 1,899 articles. Results were narrowed using additional inclusion and exclusion criteria and relevancy, yielding a total of 13 articles for review. The findings of this review suggest screening of depressive symptoms in HIV-infected gay and bisexual men was most successful using the CES-D, the BSI-18, and the BDI. Health care providers should have an understanding of the importance in assessing this population for depression and have access to the best possible tools to do so.

DEDICATIONS

With love to the many lives affected by HIV, may this work provide comfort and healing.

ACKNOWLEDGEMENTS

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Introduction

Background and Significance

Human immunodeficiency virus (HIV) is a retrovirus that attacks the immune system causing severe immunocompromisation and susceptibility to various sequelae (Mulryan, 2010). The function of a retrovirus is to infect a host cell through injection of ribonucleic acid (RNA); which, through a series of cellular processes, becomes deoxyribonucleic acid (DNA) (Mulryan, 2010). This process is what allows HIV to commandeer healthy cells and use them to create "daughter" cells for further distribution throughout the host. HIV is transmitted during exposure to infected body fluids allowing the virus to move from person to person. The infected body fluids with the highest concentrations of HIV are blood, semen, vaginal secretions, colostrum, and cerebrospinal fluid (Mulryan, 2010). Transmission is defined by the infectious body fluid of origin and is comprised of three main routes: sexual practices, contact with infected blood, and vertical transmission from mother to fetus or mother to a breastfeeding child (Mulryan, 2010).

According to the Centers for Disease Control and Prevention (CDC), minority groups are at highest risk for developing HIV infection. These include: gay men (men with same-sex sexual behavior), bisexual men (men with same-sex and opposite-sex sexual behavior), IV drug users, sex workers, prison populations, and economically disadvantaged individuals. This can be explained by lack of access to testing, lack of regular medical care, lack of preventative measures such as condoms or pre-exposure prophylaxis (PrEP), substance abuse, unstable housing, lack of employment, and mental health disorders such as depression (Blank et. al, 2014).

Literature indicates that depression is reported as the most common mental health diagnosis for people living with HIV/AIDS (PLWHA); it is as much as 1.99 times more

prevalent than in HIV-negative persons (Sherr et. al, 2011). Furthermore, 22 to 54 percent of

PLWHA in the United States reportedly experience depression and depressive symptoms. There

is significant evidence to suggest that infection with HIV may influence the development of

depression through a multifactorial process, including factors such as societal stigma, felt stigma

(the awareness of discrimination from external sources), necessary adherence to a lifelong

medication regimen, lack of familial or social support and changes in body image related to

disease progression (Sherr, Clucas, Harding, Sibley, & Catalan, 2011). Additionally, there is

evidence to suggest that depression acts as a precursor to the development of HIV through

suppressing immune functioning prior to infection and potentiating risk factors of transmission

behaviors. Some of these behaviors include not adhering to prescribed drug regimen, engaging in

unprotected sexual intercourse, engaging with higher numbers of sexual partners, and abusing

substances.

The vast majority of PLWHA are minorities; as such, they experience a significant

amount of stigmatization. This stigmatization of PLWHA, particularly against gay and bisexual

men, is defined as devaluation due to discrimination, labeling, attributing damaging qualities,

and separation from society (Ramirez-Valles, Molina, & Dirkes, 2013). According to Ramirez-

Valles and colleagues (2013), attribution theory is a framework that describes how negative

labels are incurred on PLWHA and how these labels stem from the belief that HIV-infected

people are deserving of their diagnosis. Individuals attribute the cause of a characteristic to an

inference about the characteristics' responsibility. Once an inference is developed an emotional

reaction occurs later evolving into a behavioral response, such as separation (Ramirez-Valles et.

al, 2013). An example of attribution theory in this study might be: an outside individual views a

gay man infected with HIV as being responsible for his diagnosis and subsequently separates

from him. As a result of blame and stigmatization, HIV positive individuals experience societal

isolation, guilt about their status, anxiety, and suicidality (Sivasubramanian et. al, 2011).

Additionally, this contributes greatly to the development and severity of depression and

depressive symptomology.

Depression is a highly debilitating illness; and its emergence is linked to diminished

quality of life and highly critical outcomes. These include: diminished adherence to highly active

antiretroviral therapy (HAART) and further disease progression to Acquired Immunodeficiency

Syndrome (AIDS). AIDS is characterized by the CDC as a CD4 count below 200 cells/mm^3 or

development of specific opportunistic infections, including candidiasis of the pulmonary system,

coccidiodomycosis, and Cryptococcus bacterial infections (CDC, 2012). Depressed PLWHA

might have difficulty with the minutiae of a drug regimen (Gruber, Sorenson, & Haug, 2007).

Factors identified as being associated with this include coordinating movement to take

medications, difficulty timing correct dosage, and forgetting or skipping doses. Depression

seems to cause individuals to recall adherence problems more frequently and report them more

freely (Gruber et. al, 2007). This tendency to fixate on mistakes, such as forgetting doses, is an

important factor to account for in researching depression in HIV-infected gay and bisexual men.

A challenging aspect of living with HIV is maintaining strict adherence to its associated

medication regimen- typically in the form of highly active anti-retroviral therapy (HAART)- to

suppress viral load, decrease risk of transmission, and prevent further progression to AIDS

(Gruber, Sorensen, & Haug, 2007). Ninety-five percent of the prescribed dose must be taken in

order to suppress viral load effectively. Due to the necessity for near perfect compliance,

mutation of HIV with consequential resistance is a concern (Fisher et. al, 2006). HAART is considered a complex regimen as it involves taking three or more medications at several times over the course of the day. Additionally, it is not free from adverse effects that affect desire, and ability, to take the medication. According to Gruber and colleagues (2007), there are major barriers to HAART adherence. These include: 1) variables in medication (e.g. adverse effects), 2) patient variables (e.g. psychosocial problems), 3) patient-health care provider relationship variables, and 4) system of care variables. The second defined barrier (patient variables) is pertinent to the discussion about how depression qualifies as a significant psychosocial barrier to adhering to a HAART medication regimen (Gruber et. al, 2007).

Depression has the ability to increase risk-taking behavior and reduce adherence to medications. Its development in PLWHA can contribute to severe alterations in immune functioning. These alterations include reduced natural killer (NK) cell levels and impaired ability of lymphocytes to proliferate (Alciati, Gallo, Monforte, Brambilla, & Mellado, 2007). Deficiency of NK cells contribute considerably to immune decline by reducing total natural immunity. A finding that bolsters the need to identify depression early, particularly in PLWHA, is that antiretroviral therapies (including HAART) do not improve the reductions in NK cells related to depression. In order to maintain an appropriate viral load and reduce rates of mortality, PLWHA need to maintain the highest levels of immune functioning, which may not be possible with diminished NK cell levels (Alciati et. al, 2007).

The formation of depression is multifactorial regardless of population; however, in each at-risk population the factors that contribute to its formation are unique to that group of people and their experiences. In HIV-infected gay and bisexual men, depression and depressive

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symptoms are related to factors such as sexuality (social and internalized homophobia), felt stigma, abuse of drugs and alcohol, living with HIV, the implications of the HIV epidemic, body image, social isolation, loss of family and friends- either through disease progression or through separation (Körner et. al, 2008) Detection of depression in this population is complicated by the overlap in symptoms of depression and HIV/AIDs. Somatic symptoms of depression are defined in the *Diagnostic and Statistical Manual of Mental Disorders-5* (*DSM-5*) as significant weight loss, sleep disorders, psychomotor agitation or suppression, fatigue, feelings of worthlessness, diminished ability to concentrate, and suicidality (American Psychiatric Association, 2013).

The somatic symptoms of HIV generally mimic the symptoms listed above, often confounding the health care providers of these patients. There are four recognizable situations discussed by Körner and colleagues (2008) that complicate the process of defining depression in HIV-infected gay and bisexual men. First is the gap between recognition of depressive symptoms and the health care provider's ability to match a patient's symptoms to the psychiatric designations needed for a true diagnosis. Second is the reluctance of many to accept a diagnosis of depression, particularly when only experiencing somatic symptoms. Third is the hesitance experienced when a standardized instrument detects depressive symptoms or makes a diagnosis of depression but the individual perceives his or her experiences to be a result of poverty, loss of jobs, unstable housing, social isolation, or the diagnosis of HIV. The fourth situation that complicates this process is determining if depression occurred primary to an HIV diagnosis or secondary to an HIV diagnosis. In the instances of depression occurring primary to HIV, the patient may have experienced symptoms or received a diagnosis prior to being diagnosed with HIV. In the instances of depression occurring secondary to HIV, the patient may be experiencing

symptoms as a result of: the diagnosis itself, felt stigmatization, or side effects from antiretroviral therapies (Körner et. al, 2008)

The CDC estimates prevalence of HIV in the United States alone at 1,218,400 people, with an incidence rate of 50,000 new infections each year (CDC, 2015). Suffering from mental health problems (i.e. depression, anxiety, and suicidality) and adverse social conditions may produce significantly enhanced vulnerability to infection with HIV. These are known as syndemics and may affect an individual or population such as in gay and bisexual men (Sivasubramanian et. al, 2011). Because depression is the most significant mental health concern affecting HIV-infected individuals, screening for depression is a highly-indicated aspect of the routine care of PLWHA. Screening of depression in this population can potentiate means for treatment, improve health-protective behavior, enhance quality of life, and ameliorate rates of mortality (Sherr, Clucas, Harding, Sibley & Catalan, 2011). Having an understanding of these characteristics is important in tailoring interventions and treatments to improve adherence to medications, increase access to mental health counseling, and reduce stigmatization.

Purpose

The purpose of this comprehensive review of the literature is to: 1) identify the instruments most commonly used in the detection of depression in HIV-infected, adult gay and bisexual men; 2) examine which of the identified tools have the highest efficacy in diagnosing depression in this population; and 3) report the commonly cited strengths and weaknesses of these instruments. Additionally, this review will provide a window into a sampling of available clinical instruments used to diagnose depression in this population while providing rationales for the importance of a strong screening instrument with suggestions for further research.

Methods

An initial literature review search was performed using research databases accessed through EBSCOhost. These included CINAHL Plus with Full Text, MEDLINE, PsychINFO, and the Health and Psychosocial Instruments. Key terms used in the initial search included: (MH "Human Immunodeficiency Virus") OR HIV OR "HIV-infected patient" OR HIV/AIDs OR "Human Immunodeficiency Virus") AND (anxiety or depress*) AND (men or male) AND (stigma* or shame or ridicule or prejudice* or stereotype*) AND instrument*. This search yielded n = 195 articles. Upon review of these articles, abstracts, and research aims, the number of accepted results was further reduced to n = 88 articles. These 88 articles were hand reviewed for relevance; 56 were excluded for not fully meeting inclusion criteria, and 42 remained. A last more detailed review was performed, excluding more articles due to lack of fit in this thesis. Finally, 15 articles remained for inclusion into this work.

The results were limited for inclusion by English language, evidence-based practice, being peer-reviewed, and using research instruments, questionnaires, or scales. Articles were excluded from the search if they did not relate to adult populations (operationalized as being 18 years and older), HIV seropositive individuals, and depression or depressive symptomology. An important note to make is the presence of HIV seropositive women and Trans* women in several of the articles selected for inclusion. For the purposes of this literature review, however, the only data considered for inclusion and discussion is that pertaining to depression in HIV-infected gay and bisexual men.

Discussion

Findings

Upon analysis of the literature, this study revealed some of the most commonly used clinical instruments in HIV-infected gay and bisexual men with analysis of their efficacy in this population. In Sherr and colleagues (2011) systematic review, 1,015 articles were generated with 90 studies included for analysis. Of the 90 articles, 58 addressed only HIV-infected gay and bisexual men with emphasis on the challenges of detecting depression in this population (Sherr, 2011). The final 32 articles included in the systematic review addressed both HIV-infected gay and bisexual men in addition to other HIV-infected adult populations. The articles included in the Sherr study (2011) incorporated depression with other outcomes: anxiety, coping, quality of life (QOL), fatigue, smoking, immunological measures, adherence to medication, adverse effects of medications, HIV progression, and risk-taking behaviors. As noted throughout, there is a significant overlap between somatization of depression and the experienced somatic symptoms of HIV requiring clinicians to incorporate instruments that assess the "other outcomes" of depression.

Twenty-one standardized instruments were analyzed in the above systematic review to detect depression. As there is an abundance of clinical instrumentation used in the detection and diagnosis of depression, this study focused on the five most commonly used tools from this systematic review in addition with several tools from separate articles. The five most common tools from the systematic review include the *Beck Depression Inventory* (BDI), the *Hamilton Depression Rating Scale* (HAM-D), the *Center for Epidemiological Studies Depression Scale* (CES-D), the *Profile of Mood States* (POMS) depression subscale, and the *Clinical Global*

Impression (CGI). A feature typical to all of the studied literature is the comparison to the *Mini International Neuropsychiatric Interview* (MINI) for efficacy.

The MINI is a brief, structured interview developed to detect the 16 major psychiatric disorders within Axis I of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*). Importantly, studies that incorporate the MINI indicate high validity and reliability in detecting major depressive episodes, dysthymia, and suicidality (Sherr et. al, 2011). The MINI is considered the gold standard in detecting depressive symptoms in all populations; however, it does not consider chronic illness- such as HIV/AIDS. This leads to difficulty in differentiating between the somatic symptoms of depression and HIV and lends itself to the need to determine a screening tool that is most effective for HIV-infected gay and bisexual men.

Sherr and colleagues (2011) determined that the prevalence of depression in HIV-infected adults is around 51.6%. However, the true prevalence of depression in HIV-infected gay and bisexual men is difficult to determine due to the use of different screening instruments and the potential for persons to keep their sexual orientation hidden from their healthcare provider (Körner et. al, 2008). For the purposes of this study, the prevalence rates of depression determined by each screening instrument were compared to the average prevalence of depression in HIV-infected adults (51.6%). The results were then generalized with the intention of establishing a correlation between the instrument used and its efficacy in detecting depression. Additionally, several of the studies reviewed made concerted efforts to control for the somatic items that often skew the results of screenings. This occurs through the inclusion of additional analyses with subscales that do not include somatic items. For example, the BDI includes subscales specifically addressing depression (BDI Affective and BDI Cognitive/Affective). This

is typically used in addition to the standard BDI to better grasp the affective aspects of depression, rather than the somatic (Sherr et. al, 2011).

The BDI was cited 30 times in the systematic review (its subscales were cited 13 times). It was used with various cut-off scores meaning each researcher established a statistical prevalence after a certain number of questions were answered per the inventory. For instance, a study with sample size of $n = 299$ HIV-infected gay and bisexual men determined a diagnosis of moderate or severe levels of depressive symptoms could be accurately identified in 71% of the sample after 16 or more questions were answered. Over the 30 instances of its use, the average prevalence of depression determined by the BDI was 46.7% (Sherr et. al, 2011).

The HAM-D was cited 20 times in the systematic review and its subscales were cited 11 times. As with BDI, the HAM-D was used with varying cut-off scores, however, it determined the average prevalence of depression was 49%. The CES-D was cited 19 times throughout the review and it determined the average prevalence of depression as 49.4%. The POMS Depression-Dejection subscale is cited 15 times throughout the systematic review and determined the average prevalence of depression to be 36.2%. The CGI is cited 14 times throughout the review and determined the average prevalence of depression to be 56.4% (Sherr et. al, 2011).

An additional instrument from articles beyond the Sherr and colleagues (2011) systematic review included use of the *Brief Symptom Inventory-18* (BSI-18). The BSI-18 is an 18-question screening tool for psychiatric distress, anxiety, depression, and somatization. The BSI-18 was validated against the MINI and accurately described depression and depressive symptoms in $N = 150$ HIV-infected gay and bisexual men, 62% (n = 93) (Sivasubramanian et. al, 2011). In

addition to assessing the efficacy of the BSI-18 through validation with the MINI, the instrument incorporated contributing factors to distress, particularly those relevant to minority populations with HIV such as: homelessness, substance abuse, and disrupted social support (Sivasubramanian et. al, 2011).

In an attempt to determine whether the length of time needed to complete a screening made a significant difference in results, researchers compared three clinical instruments with their shortened form or their subscale. Literature indicates that long depression screening tools and those requiring an interview between the health care provider and patient were often left un-administered or incomplete (Akena, Joska, Obuku, & Stein, 2013). This particularly in HIV-infected individuals; required multiple follow-up appointments and screenings.

A study performed by Akena and colleagues (2013) tested the validity of two brief scales (and their shortened counterparts) to a long depression-screening instrument for PLWHA. These included 1) the Patient Health Questionnaire-9 (PHQ-9) and its shortened version the PHQ-2; 2) the Kessler-10 (K-10) and its shortened version the K-6; and 3) the CES-D (also mentioned by Sherr et. al, 2011). The MINI was used as the standard to compare validity and efficacy in detecting depression. The PHQ-9 measures depressive symptoms and their reported severity on a Likert-type scale and focuses on the nine criteria for diagnosis of depressive disorders per the *DSM IV* (Akena et. al, 2013).

When compared to the MINI, the PHQ-9 was able to correctly identify depression 89.36% of the time in this population with a sensitivity of 91.67% and specificity of 89.02% (Akena et. al, 2013). The K-10 was able to correctly identify depression 74.7% of the time with sensitivity of 83.33% and specificity of 72.37% (Akena et. al, 2013). Finally, the CES-D was

able to correctly identify depression 82.95% of the time with a sensitivity of 88.95% and a specificity of 81.43 % (Akena et. al, 2013). The overall results of the study indicate that the shortened questionnaires (PHQ-2 and K-6) experienced decreased sensitivity and specificity as well as a severely diminished ability to correctly identify depression. Additionally, it showed that the PHQ-9 was the most effective in determining depressive symptoms in HIV-infected gay and bisexual men.

Limitations

Determining the efficacy of the clinical instruments in this study was limited by several factors. A potential threat to the generalizability of the study is that many of studies reviewed had smaller sample sizes. This may have been brought about by fear of revealing sexuality to providers, lack of access due to socio-demographics and socio-economics, and unwillingness to fully complete screenings (by both health care providers and patients). Additionally, a great deal of the literature included for analysis incorporated HIV-infected gay and bisexual men from high-income countries such as the United States or United Kingdom. This creates a gap in the understanding of this population from low-income and developing countries.

Further factors limiting discernment of efficacy were the 1) inability to discern baseline depression from depression secondary to HIV and 2) the inability to distinguish between somatization of depression versus HIV symptomology/disease progression. This was researched in several of the studies; however, there was no singular instrument used to address these limits. Instead, use of a primary screening tool with follow up subscales and interviews was necessary. A dilemma with this process was the inability or unwillingness of health care providers and patients to complete several screenings and interviews. This may have been a product of time

constraints on medical visits in primary care settings or a function of somatic disease sequelae in the patient. Thus, many of the studies included in this analysis themselves noted significant participation limitations.

Future Research and Impact on Clinical Practice

Health care providers should continue to use validated instruments to detect/diagnose depression in HIV-infected gay and bisexual men. The research has suggested the risk in this population for developing depression is double that of other non-HIV-infected populations (both heterosexual and homosexual). Further, due to the negative sequelae of depression on the management of HIV infection, early detection and intervention are crucial. This study was unable to determine a single best instrument to use for HIV-infected gay and bisexual men. However, it was able to determine that inclusion of minority-specific variables (unstable housing, lack of access to care, substance use) and control for somatic symptoms was effective in the early detection of depression in HIV-infected gay and bisexual men. The clinical scales that stood out the most include CGI, BSI-18, and the BDI.

Future research of this topic should delve further into understanding the efficacy of the CGI, BSI-18, and BDI on this population. The research should include a broader scope of studies with an aim focused on determining the best depression-seeking clinical tools for these persons. Assessing variations within this population (i.e. HIV-infected gay and bisexual men who are unstably housed versus HIV-infected gay and bisexual men who are IV drug users) would also be of value. After obtaining a comprehensive screening instrument, researchers should explore the best interventions to encourage positive health outcomes in HIV-infected gay and bisexual men.

Nurses are integral agents in the process of accessing health care, providing skills that are vital to the detection of disruptions in both mental and physical health. Nurses perform admission assessments, act as conduits to future inpatient and outpatient placements, provide referrals to further specialized care, and can advocate for patient needs. Nurse researchers are able to develop an evidence-base of best practices applicable to clinical settings. In regard to detecting depression in HIV-infected gay and bisexual men, nurses are front line care providers. They provide initial assessments and are able to devote the significant time to their patients. In instances of encounters with HIV-infected gay and bisexual patients, nurses should include depression screenings as routine care measures.

Future nursing research should focus on the development of an evidence-based tool to influence best practices of care in HIV-infected gay and bisexual men, including those tools to screen for depression in this high-risk population. Nurses in the clinical setting can use the best appropriate comprehensive depression-screening instrument to determine if depression is an active pathology in their HIV-infected gay and bisexual patients. This can help facilitate improvement of the adherence to HAART, reduce transmission of HIV, increase the quality and length of life, reduce risk-taking behaviors, protect against suicide, and reduce the sequelae of both HIV and depression.

Nursing Education

Registered nurses and nurse practitioners often have limited exposure to issues relevant to GLBT populations (Blackwell, 2015). As such, the experiences felt by nurses are not the same as those of HIV-infected gay and bisexual men. Further, nurses are not exempt from displaying behaviors described by attribution theory in that they may also ascribe blame to gay and bisexual

men for their infection with HIV (Ramirez et. al, 2013). Ramirez and colleagues (2013) also posit that the traditional health promotion strategy for HIV prevention of being personally responsible for one's health, such as using a condom or getting tested regularly, may be a contributing factor to the societal development of homophobia. The lack of knowledge, ascription of blame, and traditional health promotion model can be addressed through nursing education.

Körner et. al (2008), provided surveys of general practitioners indicating depression in HIV-infected gay and bisexual men was detected with more frequency when sexuality was considered during initial assessments (Körner et. al, 2008). As homophobia and heteronormativity are present in medical settings, research suggests providers should begin to incorporate means to determine sexuality and provide interventions to counteract negative outcomes (Körner et. al, 2008). Homophobia is a term that encompasses fear of and aversion to homosexuality or homosexuals as well as discrimination and prejudice that accompanies (Blackwell, 2015). Heteronormativity is described as "the attitude that heterosexuality is the only normal and natural expression of sexuality" (Merriam-Webster, 2017) These ideas can be relayed insidiously within healthcare settings by presuming all individuals are heterosexual and ascribe to heterosexual relationships and marriage rather than asking openly about sexual relationships with all genders (Blackwell, 2015).

Blackwell (2015) describes the need for education related to mental health in gay and bisexual men as there is homophobia and persistent misunderstanding regarding the needs of this population. Through incorporation of nursing curricula with an emphasis on gay and bisexual men, nurses can develop better perspectives towards the experiences of gay and bisexual men

and deeper understandings of their mental health needs (Blackwell, 2015). During health

promotion activities, nurses can tackle the current HIV-prevention model of personal

responsibility and push for a more empathetic message of collective responsibility, thus pulling

away from placing personal blame (Ramirez et, al, 2013). Lastly, nurses can provide a safe space

for HIV-infected gay and bisexual men to access health care through asking openly about sexual

practices and providing appropriate resources (Blackwell, 2015).

Appendix A – Tables

Table 1: Table of Evidence

Inclusion Criteria: English-language, peer reviewed, evidence-based, abstract available, adult population, full-text available, relevant to literature analysis

Exclusion Criteria: Pediatric population (<18 years old), not English-language, not relevant to literature analysis

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations
Akena, D., Joska, J., Obuku, E. A., & Stein, D. J. (2013). Sensitivity and specificity of clinician administered screening instruments in detecting depression among HIV positive individuals in Uganda. *AIDS Care, 25*(10), 1245-125. doi:10.1080/09540121.2013.764385	• **Mini International Neuropsychiatric Instrument (MINI)** <u>used</u> as gold standard • **Patient Health Questionnaire-9 (PHQ-9)-** AUC 0.964; CI of 0.92-0.99; optimal score of 10; sensitivity 0.91; specificity 0.81 **BEST performing instrument of this study** • **PHQ-2 = shortened version of PHQ-9**; AUC of 0.82; CI of 0.71-0.93; optimal score of 3; sensitivity 0.83; specificity 0.70 • **Centre for Epidemiological Surveys for Depression (CES-D)-** AUC of 0.944; CI 0.89-0.99; optimal score of 18; sensitivity 0.88; specificity 0.81 • **Kessler-10 (K-10)-** AUC of 0.824; CI 0.72-0.93;	• Coefficient 0.75 or greater is adequate • BRIEF instruments may be preferable in busy areas • HIV positive patients presented with MINI defined depression in HIV-primary care clinics TWICE as often as in non-HIV primary health care settings • MINI confirmed (w/sociodemographic info) the high burden of depression among PLWHA in low/middle income countries • All 3 instruments were highly accurate in ability to ID depression r/t MINI • PHQ-9 validated against the MINI had very good psychometric properties; however, the shortened versions of	• HIV-positive individuals • Population Size = 368 -71% (261) were <u>women</u>, mean age = 31 (SD10); n=241 employed; lived within 21 km -MINI defined depression was 17.4% • Sample Size = 276	• Uganda	• Nurses (RN) were able to successfully administer the 3 questionnaires (PHQ-9, K-10, and CES-D) in a low/middle-income setting where patients have low literacy. • Having the ability to screen at the level of the RN provides earlier detection of depression and greater access to resources. • One of the roles of nursing = patient education. If screening results in positive markers of depression; the nurse should offer education regarding interventions and expectations.

	optimal score of 23; sensitivity 0.83; specificity 0.72 • **K-6- shortened K-10**; AUC of 0.81; CI 0.71-0.93; optimal score of 13; sensitivity 0.77; specificity 0.67	both questionnaires were found to decrease both sensitivity and specificity of the results • K-10 did not perform as well as the CES-D and PHQ-9 probably b/c it screens for "psychological distress" or "common mental disorders" rather than specifically depression			

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations
Alciati, A., Gallo, L., Monforte, A. D., Brambilla, F., & Mellado, C. (2007). Major depression-related immunological changes and combination antiretroviral therapy in HIV-seropositive patients. *Human Psychopharmacology Clinical & Experimental, 22*(1), 33-40. doi:10.1002/hup.813	**After MINI diagnosis →** interviewed w/: 1) Structured Clinical Interview for DSM-III-R/DSM-IV Axis I disorders to confirm the diagnosis 2) **17-Item Hamilton Depression Rating Scale (HDRS)**- must score >20 to be selected 3) If negative HDRS screen, participants self-administered the **Beck Depression Inventory (BDI)**- if <4 and 0 on the question "I do not feel sad"	• Natural killer cells are an appropriate marker of the effect of psychological disorders (e.g. depression) on immune functioning • Depressive symptoms & stress (individual or together) r/t decreased NK and CD8 T-cells • MDD → functional alterations of NK cells (found in HIV+ women) • Improvement of depression/symptoms r/t increased NK cell activity • After analyzing different groups of HIV-infected people based on the form of therapy they were engaging in, the study found: there is no form of antiretroviral therapy that will improve diminished NK cell r/t depression	• PLWHA diagnosed with major depression per MINI • Non-depressed PLWHA were located and matched with criteria: gender, age, r/f (i.e IVDU or sexual transmission), 1993 CDC HIV staging, duration of serostatus, type/duration of antiretroviral therapies • N=113 • n1=36 PLWHA with MDD – 20M, 16F • n2=77 PLWHA w/o MDD – 40M, 37F • EXCLUDED: People who learned of status w/i last 6 mos. -Significant neuro/medical illnesses -Present/past IV drug use, >60 alcoholic	• Italy	• Aim of study was to investigate MDD on the immunological function of PLWHA • This study shows ARV therapy does NOT improve changes in NK cell levels r/t MDD • Limitation: Low # of patients Did not account for felt stress (stress can account for reduced immune functioning) • The nurse should encourage continued adherence to ARV therapy while stressing the importance of additional-supportive- therapy for MDD and depressive symptoms

			drinks/month, heavy rec. drug use -Starting antiretroviral therapy <1 month ago -Treatment regimen with 2 NRTIs and 1 NNRTI		

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations
Blank, M., Himelhoch, S., Balaji, A., Metzger, D., Dixon, L., Rose, C., Oraka, E., Davis-Vogel, A., Thompson, W., Heffelfinger, J. (2014). A Multisite Study of the Prevalence of HIV with Rapid Testing in Mental Health Settings. *American Journal of Public Health, 104*(12), 2377-2384. doi:10.2105/	• **Short Form 12- Item Health Survey (SF-12)**; from the Medical Outcomes Study -Assess comprehensive health status and functioning • **Risk Assessment Battery (RAB)** -Assess sexual orientation, homelessness/unstable housing, involvement with justice system, type/frequency of drug use, IDU (With source of needles) • **24-Item Behavior and Symptom Identification Scale (BASIS-24)** -6 subscale: 1) Depression/ functioning 2) Relationships 3) Self-harm 4) Emotional lability 5) Psychosis 6) Substance Abuse -NOT diagnostic-specific (e.g. depression only) -Includes measures of a broad range of symptoms r/t mental illness • Algorithm to create 3 <u>mutually exclusive categories</u> based on DSM-IV diagnoses of psychiatric	• Rate of infection was higher in Baltimore (5.9%) than Philadelphia (3.9%) • 288 = from university-based inpatient psych units; 17 were HIV-infected (5.9%) • 273 = from ICM programs; 14 were HIV-infected (5.1%) • 501 = CMHCs, 20 were HIV-infected • Philadelphia: 24/608 tested positive; 21/24 previously knew of status • Baltimore: 27/454 tested positive; 17/27 previously knew of status • Age: -40-49 had highest HIV prevalence (6.7%) • Race: -Black participants (692 people) had highest HIV prevalence (6.2) over other races (White- 196 people; other- 166 people) • Homeless/unstably housed: 14/173 (8.1%) people had HIV	• N=1061 621M, 436F • 65.7% = Black • 51 people= confirmed HIV+ • 570 = ONLY psychiatric disorder -332 (58.3%) had schizophrenia or other psychotic disorder -227 (59.4%) had affective disorder -11 (1.9%) had other psych diagnosis • 350 = co-occurring psych and substance abuse disorders • 141 = substance abuse disorder and no other psych diagnoses	• Baltimore and Philadelphia	• Evaluation of patients in this study occurred over routine inpatient, routine outpatient, and intensive case management mental health settings • HIV = highly prevalent in people ALREADY receiving mental health care • Patterns in HIV infection are similar to this population as well: Black race, homosexual/bisexual, HCV infection, and IVDU • Psychiatric severity was DIRECTLY associated with HIV infection • HOWEVER – prevalence of HIV did not differ between the 3 settings • Nurses should implement continued screening (using the tested instruments) and intervention in HIV+ individuals • Nurses should perform HIV-screening as part of

	and substance abuse disorders (commonly co-occur) 1) Psychiatric diagnosis only 2) Co-occurring psych and substance dependence/abuse diagnoses 3) Those with substance dependence/abuse diagnosis only • **Colorado Symptom Index** for psychiatric symptom severity -47% increased r/f HIV among people w/ scores >30 (SEVERE psych symptoms) – used in study to show that more severe psych symptoms = > chance of being HIV-infected	• Coinfection with HCV: 17/51 HIV-positive people • 10 of the 96-reported homosexual or bisexual individuals were HIV positive • No statistical significance for BASIS-24 • Emotional lability and total RAB score were significantly different between HIV-infected and non-HIV infected populations • NO difference in prevalence of HIV by service setting • Need for long-term caring relationships b/c access to care in the community for PLWHA and mental illness is diminished by: substance abuse, unstable housing, lack of employment			baseline mental health assessment • See article for some "System-level barriers" that must be bridged in order for HIV/MDD detection to become commonplace

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations

Körner, H., Newman, C., Mao, L., Kippax, S., Kidd, M., & Saltman, D. (2008). 'It's really a myriad of different signals, not just the textbook': The complexities of diagnosing depression in gay men in general practice. *Mental Health in Family Medicine, 5*, 167-175.	• Face to face interviews with HCPs
	  - Open-ended, conversational
	• Explored diagnosis, tx, management of depression r/t HIV status, gender, and sexuality
	• No instruments used to diagnose depression in this instance
		• Depression associated with lower quality of life, unemployment, higher sexual risk taking, non-adherence to ARV treatment, disease progression
		• Long-term, trusting relationships with HCPs resulted in better care
		• Major theme regarding depression in HIV-infected gay men = loss: income, careers, relationships, family, support, future…
		• Triggers to developing depression, determined by HCPs, = pos diagnosis, starting ARV therapy, AIDS defining illness
		  - Long-term HIV diagnosis and loss of friend/loved-one to disease = MAJOR cause of depression
		  - BE ALERT
			• N = 16 HCPs were interviewed
			-14M, 2F
			-Have worked in HIV medicine for 2-24 years
				• Sydney, Australia
				• Adelaide, Australia
				• A rural-coastal town in Australia
					• General practitioners in this study considered all facets of their patients': life circumstances, social stigma r/t homosexuality, effects of HIV epidemic (esp. as it affects gay men living with HIV for a long time)
					• Being homosexual/bisexual is a major predictor of suicidality
					• Unique challenges to HCP; if depression is 1º to HIV = may/may not have had hx of depression; if depression is 2º to HIV- may be the result of infection or SE of ARV/txs
					• Complication unr/t to limitations: symptoms of depression in PLWHA are sometimes hard to detect b/c mimic disease progression
					  - Fatigue, sleep problems, weight

					loss
					• L: <u>Diagnosis</u> of depression is affected by demographic of patients w/i primary care setting
					• If pt. able to visit more often, more likely to have symptoms recognized
					• Some HCPs may meet resistance from pt. in being labelled "depressed"
					• L: Pt. may be "depressed" according to standardized instruments but not to pt themselves
					• This study reinforces the need to DIRECTLY question patients regarding their mental health – direct questioning alleviates patient fears about doubt and discussion of personal problems
					• Strengths:
					• HCPs understood depression's prevalence in this population, strong commitment to patients, proactively pursued issues

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations
Leserman, J. (2008). Role of depression, stress, and trauma in HIV disease progression. *Psychosomatic Medicine, 70*(5), 539-545. doi:10.1097/PSY.0b013e31 81777a5f	• CES-D (see Table 1 in article) -Findings at baseline: decreased CD4 count, increased mortality, increased r/f AIDS • HDRS - Findings at baseline: increased r/f AIDS	• SF Men's Health (N=400) - Depressed at study entry progressed to AIDS 1.4 years sooner than non-depressed counterparts - At 5.5 years, baseline depression was r/t CD4+ decline (did not lead to AIDS/mortality) - At 7 years – elevated depressive symptoms = 67% increased r/f mortality • M AIDS CS- Baseline depression- before HIV diagnosis- was not associated with HIV progression 8 years after infection - Increase in depression 6-18 months BEFORE an AIDS diagnosis - Re-analysis at 13 years indicated somatic symptoms at baseline associated with shorter survival time BUT NOT shorter time to AIDS- opportunistic disease (fatigue, poor appetite, trouble concentrating)	• San Francisco Men's Health Study (9-year longitudinal study) – prior to initiation of HAART • N = 400 asymptomatic, HIV+ gay men • Multicenter AIDS Cohort Study • N = 1339 gay men • Longitudinal study (8 years) • CHIP • N = 96 asymptomatic HIV+ gay men • N = 85 HIV+ gay men (Bereavement section)	• Literature review out of UNC Chapel Hill	• When phrasing questions on depression scales, using positively worded items lead to better predictions of survival (i.e. hopeful vs. sad) • Is depression a predictor/result of disease progression? • We must measure depression as baseline or measure in the time interval before HIV-related changes to immune status • Depression scores are typically elevated in the year before AIDS-related death • Be aware of factors that contribute to depressive changes in this population: • "Trauma" in the sense of abuse, assault, unexpected death of loved one, drug use, abandonment • Bereavement- particularly in individuals who have

		• Coping in Health and Illness Project (CHIP) = depressive symptoms q6 months up to 9 years
		• In CHIP (N = 96)
		  - Each increase of 1 severe depressive symptom = 2x r/f AIDS at 5.5 years; r/f clinical AIDS condition (but not AIDS) was 3x in 9 years
		• 74% of participants above median progressed to AIDS
		• 40% of participants below median did not
		• Depression with HAART use =
		  - > 5x r/f progression to AIDS
		  - Slower suppression of the virus
		  - Shorter survival time
		• Cumulative depression (w/ and w/o somatic symptoms) = progresson → AIDS, nonadherence to meds, decreased CD4 count, and diminished virological response
		
		• AIDS symptoms and CD4 count do not predict major
					lived with HIV for a long time (partners have passed, close friends, they may be very ill)
					• Finding meaning in loss of loved ones, less distress when notified about change in serostatus = slower progression of HIV
					• Discontinuation of HAART and non-adherence may lead to depression (and other health outcomes)
					• PLWHA seeking/receiving mental health services are <likely to die from AIDS-related causes
					• CBT and stress management improve depression, anxiety and improve adherence
					• Involve case management; able to provide psychiatric resources, and refer therapies
					• Limited by:
					• Our poor understanding of the biological mediators for HIV infection

		depression
		• Depressive symptoms DO predict development of AIDS and other AIDS related conditions
		• Bereavement section (N = 85 gay men)
		  - Had a partners/close friends die of AIDS
		  - CD4 count rapidly dropped during 3-4 years following
		  - Unexplained by non-adherence or health habits
		  - Did not show progression to AIDS or mortality though
		  - Immune markers associated with increase r/f AIDS (neopterin- immune activation marker, decreased NK cell cytotoxicity and lymphocyte proliferative response)
					• Need for more research into best psychiatric therapies

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations
Passos, S. M., Souza, L. D., & Spessato, B. C. (2014). High prevalence of suicide risk in people living with HIV: who is at higher risk? *AIDS Care, 26*(11), 1379-1382. doi:10.1080/09540121.2014.913767	• MINI – Module C - Assess suicide risk - Module C = 5 questions regarding previous 30 days and questions suicide attempts throughout lifetime • Clinical interview: - Time since diagnosis, period on and current use of ARV meds and pt. perception of social support r/t infection • Brazilian versions of: - Alcohol, Smoking, and Substance Involvement Screening Test - Hospital Anxiety and Depression Scale (HAD)	• Reinforces research describing high prevalence of suicide in this population compared to individuals with other chronic diseases • R/F: suicide increased with length of diagnosis • n = 25 diagnosis < 12 months; n=10 determined at risk for suicide (29.4%) • n = 141 diagnosis > 13 months; n = 41 at risk for suicide/arfs (29.1%) • Stage of infection: ->Asymptomatic – n=20; n=13 arfs (44.8%) ->Symptomatic - n=5; n=2 arfs (40.0%) ->AIDS – n=177; n=57 arfs (32.2%) • CD4 < 499; n=68, n=28 arfs (41.2%) • CD4 >500; n = 65, n=19 arfs (29.2%) • Of the total sample: 49 patients (23.2%) reported attempting suicide at least once; 34.1% arfs	• N = 262 individuals with HIV (>18 years old) • 101M, 110F • M, n = 24 at r/f suicide • F, n = 48 at r/f suicide	• Pelotas, Brazil	• This study delves into HIV+ individuals as a whole (does not differentiate gay/bi men) • Consider: stigma/demographics, lack of support, underlying mental health disorders (prior to diagnosis) • This population is at very high risk for suicide • Considering /rf: HCPs should take every effort to implement protective/preventative measures • Routinely evaluate HIV+ patients for suicidality, depression • Attend to social support/inclusion, unemployment, drug use

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations

Ramirez-Valles, J., Molina, Y., & Dirkes, J. (2013). Stigma towards PLWHA: The role of internalized homosexual stigma in Latino Gay/Bisexual Male and Transgender communities. *AIDS Education & Prevention, 25*(3), 179-189. doi:10.1521/aeap.2013.25.3.179	• Internalized Homosexual Stigma
	• 17 item variable, validated in this population "Being gay means you will be alone when old" (Likert Scale)
	  - a= 0.88
	• HIV/AIDS Personal Responsibility Beliefs
	  - 3 items; Likert Scale; items capture existing definitions of personal responsibility in the realm of HIV/AIDS – the condition is the result of people's own acts and values
	  - a = .66
	• Discriminatory Actions Towards PLWHA
	  - Developed similarly to PRB
	  - 3 items; Likert scale
	  - a = .70
		• Outcomes regarding stigmatization of Latino GBT individuals
		• Trans women included b/c experiences of stigmatization are comparable to those of G/B men
		• Discriminatory Actions Towards PLWHA
		• > discriminatory actions reported in Chicago
		• > discriminatory actions reported by U.S. residents than from foreign born
		• Bisexual men > discriminatory actions than gay men
		• No difference by serostatus
		• Discriminatory actions towards PLWHA was associated with both HIV/AIDS Personal Responsibility and Internalized Homosexual stigma.
		• It was found that there is an empirical and theoretical link between homosexual stigma and stigma towards PLWHA in sexual
			• 643 gay, bisexual men and trans women (M→F)
			• Chicago N = 320
			• San Francisco N = 323
			• All Latino individuals
			• Recruited by the Respondent-Driven Sampling (RDS)
			• 18-73 years old
			• 170 (26.4%) = HIV+
				• From Chicago and San Francisco	• Nurses/HCPs must work to change the message of personality responsibility to more collective responsibility and empathy to others
					• Try to reduce the felt exposure of stigma against gay/bi men and PLWHA
					• Important public health problem as it hinders prevention efforts and negatively affects health of stigmatized people
					• Limited: cross sectional vs longitudinal or RCT
					• Study does not make generalizations about a population; but to test a model about attitudes towards PLWHA (and how they are shaped)
					• As internalized stigma indicates psychological distress and lack of social support HCPs should consider addressing those topics (perhaps

		minorities			refer to social work/psych)
		• Latino GBT people who have internalized stigmatization project onto PLWHA (see HIV/AIDS as a punishment)			
		• Appears that the message of personal responsibility in the prevention of HIV/AIDS (use a condom, get tested…) contributes to a culture of negative attitudes towards PLWHA.			

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations
Sherr, L., Clucas, C., Harding, R., Sibley, E., & Catalan, J. (2011, October). HIV and Depression- a systematic review of interventions. *Psychology, Health & Medicine, 16*(5), 493-527.	• **Beck Depression Inventory (BDI)-** a score of ≥16 = "moderate" or "severe" levels of depressive symptoms; cited 30/90 times • **Centers for Epidemiologic Studies-Depression Scale (CES-D)-** a score of ≥16 = high level of depressive symptoms; cited 19/90 times • **Hamilton Depression Rating Scale (HAM-D)-** a score of • **Profile of Mood States-depression subscale (POMS)-** a score of • **Clinical Global Impression (CGI)** • See Table III- Outcome measures of depression	• 99 interventions were investigated and referred to = psychological, psychotropic, psychosocial, physical, HIV-specific health psychology • Interventions investigating effects of treatment- on HIV and its related conditions- on depression found these treatments generally decrease depression - Enhancing efficacy is a valuable area of future research • The association btwn elevated symptoms of depression and disease progression = a 1.7x greater r/f mortality than those without any signs of elevated depression • Depression may be a cause of OR a marker of disease progression (as it has a complex interaction in both) • Depression ca influence immune function	• All HIV+ individuals; 90 articles included out of 1015 • 65 studies recruited only men/mostly men • 31 recruited gay/bi men • 21 standardized instruments were used	• 63 = United States • 4 = Canada • 2 = UK • 3 = Spain • 2 = Italy • 1 = Belgium • 2 = Germany • 2 = Hong-Kong • 1 = Japan • 2 = Netherlands • 1 = South Africa • 1 = Nigeria • 1 = Kenya • 1 = Tanzania • 2 = Brazil	• HCPs should encourage patients to routinely log depression and depressive symptoms throughout the course of infection with HIV • When utilizing any of the depression inventories it is vital to control for somatic symptoms by either: excluding symptoms or conducting additional study into the mental health of the patient • Clearly demonstrates the need to incorporate regular measurement/treatment of depression in this population

		- Depression can be the consequence of disease progression or negative life/disease events → trigger lower mood reactions - HIV+ people = 1.99x more likely to have MDD than HIV- people - Depression can emerge due to triggers during the progression of HIV (emotional reactions, chronic stress from social stigma, long-term physical discomfort) - Depression predicts quality of life better then severity in the stages of HIV/AIDS 5/9 HIV-specific health psychology interventions appear effective (55.5%) - Risk prevention/reductio n interventions - Adherence to ART			

Reference	Instrumentation	Outcomes	Population	Geographic Location	Implications for HCPs & Limitations

Sivasubramanian, M., Mimiaga, M. J., Mayer, K. H., Anand, V. R., Johnson, C. V., Prabhugate, P., & Safren, S. A. (2011). Suicidality, clinical depression, and anxiety disorders are highly prevalent in men who have sex with men in Mumbai, India: Findings from a community-recruited sample. *Psychology, Health & Medicine*, 16(4), 450-462	• Mini International Neuropsychiatric Interview (MINI)
	 - Cited in article
	 - Validated, brief
	 - English-language translated into Hindi for this study
	 - Assesses psych disorders including MDD
	 - Assessed outcomes:
	  1) Current suicidality
	  2) Current MDD
	  3) Screen for any anxiety related disorder
	• Brief Symptom Inventory-18 (BSI-18)
	 - Validated in community populations
	 - Screens for psych distress, anxiety, depression, and somatization
	• Rosenberg Self-Esteem Study
	 - Validated tool to determine self-esteem of participants
	 - Total score = 36
	 - Likert scale questions of 1-4
		• India = highest # of HIV infections in Asia and 3rd largest epidemic in the world
		• MSM = highest risk group with increasing risk/prevalence
		• It is known that MSM experience worsened mental health in greater numbers in western nations such as US
		• Minority stress = model that explains health disparities in MSM and other sexual minorities
		 - Evaluates external social conditions (i.e. stigma, discrimination, prejudice)
		 - Evaluates internal conditions such as expectation of rejection, internalized homophobia
		 - ^ presents as depression, anxiety, SI
		• Syndemics occur where mental health problems + HIV = increased r/f transmission/progression of disease
			• N = 150 M (MSM= men who have sex with men; gay/bi men – does not include Trans men)
			 - Mean age = 25.1 yo
			 - 21% married to women
			 - 24% = current MDD
			 - 45% current suicidal ideation
			 - 15% = high r/f suicide
			 - 19% = moderate r/f suicide
			 - 66% = low risk
			• References a second study in Chennai with 210 MSM
			 - Over ½ of study had "significant depressive symptoms" associated with
				• Mumbai, India	• This population is MORE likely to be HIV+ than the rest of the population
					• Programs to improve self-esteem, support networks may improve mental health outcomes
					• HCPs should absolutely incorporate mental health services/referrals into practice
					• Because of pressure to remain hidden, finding sexual partners can be difficult and may increase high-risk behaviors (such as negotiating safe sex) – reinforce the need to continue safe sexual practices
					• Same-sex behavior is technically criminal in Indian states (other areas of the world); culturally; forbidden → increased r/f mental health disorders (reinforces need for screening

			unprotected anal sex and increased # of male sexual partners		and referrals/interventions

	• Life Experiences Survey
	  - Assess 40 stressful life events over past 6 months
	  - Includes:
	    1) Pressure of marriage
	    2) Pressure of have children
	    3) Fear of having orientation discovered
	    4) Discrimination
	    5) Harassment
	  - 5 Most Common:
	    1) Financial problems
	    2) Anxiety/guilt about sex life
	    3) Fear of having sexual orientation known
	    4) Work pressure
	    5) Other
	  - However, 12 = average number of stressful life events reported
	• For study, 1 time confidential quantitative interview conducted (non-experimental descriptive study) through the Humsafar Trust (in Mumbai, India)
	  - Included: 18-50 yo MSM
	  - MSM defined as:
		• Self-esteem and perception of social support play roles in protecting from suicide, MDD, and other psych disorders			

	-Kothi – feminine acting/appearing/receptive partner *-Panthi* – masculine/insertiv -Gay or bi men -Other term - M→F trans women were no included b/c they have different life experiences (called *hijra, ali,* or *arivani*)				

Appendix B - Figures

Figure 1: Flow Diagram of Article Selection Process

Key Search Terms - *HIV, AIDS, immun*, "HIV and infection", depress*, "depressive disorders", instrument*, bisexual, homosexual, gay, man, men, male*, "HIV seropositivity", and HAART*
Limiters - *English language, evidence-based practice, peer-reviewed, and use of research instruments, questionnaires, or scales*

Databases used: CINAHL Plus with Full Text, MEDLINE, PsychINFO, and Heath and Psychosocial Instruments
(MH "HIV-Infected Patients") OR (MH "Treatment Refusal") OR (MH "HIV Seropositivity") OR (MH "HIV Integrase Inhibitors") OR (MH "HIV treatment") AND HAART
This search yielded 400 articles
(N = 400)

Databases used: CINAHL Plus with Full Text, MEDLINE, PsychINFO, and Heath and Psychosocial Instruments
(MH "Human Immunodeficiency Virus") OR HIV OR "HIV-infected patient" OR HIV/AIDs OR "Human Immunodeficiency Virus") AND (anxiety or depress*) AND (men or male) AND (stigma* or shame or ridicule or prejudice* or stereotype*) AND instrument*
This search yielded 195 articles
(N = 195)
Upon review of these articles, abstracts, and research aims, the number of accepted results was further reduced to 88 articles
(N = 88)

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88 final articles were hand reviewed for relevance
(N = 88)

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56 articles excluded after not fully meeting inclusion criteria, resulting in 42 remaining articles
(N = 42)

A final, more detailed review was performed resulting in the exclusion of more articles for not fully pertaining to the aims of this study
15 articles remained for inclusion in this analysis
(N = 15)

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