Post-traumatic Stress Disorder and Depression among Patients Suffering from HIV/AIDS

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Abstract

This study aimed to investigate the prevalence of depression and post-traumatic stress disorder in HIV positive and HIV negative individuals. The sample consisted of two hundred participants (N =200), including two groups: hundred HIV positive individuals and hundred HIV negative individuals, including males and females ranging in ages between twenty to fifty years with educational background of primary, intermediate and above, from Peshawar and Rawalpindi-Islamabad. Convenient sampling methods were used. Participants were interviewed individually on Beck depression inventory and Clinician administered PTSD scale in addition with self-constructed structured interview to seek demographic information such as age, sex, educational qualification, and other required information. Overall analysis was completed on SPSS using mean, standard deviations and independent sample t-test. Results indicate significant differences among HIV positive and HIV negative individuals on the variable beck depression inventory ($t=15.800$, $df=198$, $p<.001$) and Clinician administered PTSD scale ($t=15.382$, $df=198$, $p<.001$). The results verified the hypotheses which indicated that HIV is associated with higher levels of depression and posttraumatic stress disorder and are consistent with previous studies conducted by confirming that there is significantly high occurrence of depression and PTSD with HIV-positive status. Hence psychologists and mental health professionals should play their role in alleviating the suffering of these individuals. In addition, these findings have implications for therapeutic interventions and also suggest avenue for future research.

Keywords: HIV positive individuals, depression, posttraumatic stress disorders.

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Introduction

Medical illness usually causes a human being to feel ill and the state of illness then usually interferes with many personal and social activities. Minor diseases such as diarrhea, vomiting, nausea, muscular headache are physiological abnormalities that affect healthy individuals for a short period. These minor diseases are treatable and persons can live normal, happy lives without feeling the effects of the illness in every aspect of their lives. These people are healthy in other aspects of their lives; they feel well and engage in their normal activities. Having these minor diseases does not have psychological problems as a consequence. Whereas different chronic diseases such as asthma, cancer, diabetes, heart disease and depression which place enormous burden on patients and their families, both emotionally and economically. The World Health Organization in 2011 described the chronic disease as a disease that is persistent in nature and usually progressive. These diseases are non communicable illnesses that are prolonged in duration, do not resolve spontaneously and generally cannot be prevented by vaccines or cured completely by medication, nor do they just disappear which results in a lifetime of discomfort, doctor's visits, medical tests, medications, therapies and sometimes surgeries. Like the U.S National Centre for Health Statistics defined the term chronic is usually applied when the course of the disease lasts for 3 months or more than three months.[1] They influence a person's ability to lead a 'normal' lifestyle, and are associated with lower quality of life. Psychological stress, demoralization, and distress are ever-present with chronic illnesses. Besides this psychological disorder can be seen as arising when the process of coping is either maladaptive or is adaptive but only partially successful. Therefore living with a chronic illness is the coexistence of emotional and psychological reactions. As in the Diagnostic and Statistical Manual of Mental Disorders,[2] the psychological presentation of a medical illness is classified as "the presence of mental symptoms that are judged to be the direct physiological consequences of a general medical condition. Thus understanding common psychological symptoms and the chronic illnesses that may cause or mimic them is of utmost importance.

Among the above mentioned chronic illnesses of present era Acquired Immune Deficiency Syndrome is one of the leading enemies. This chronic disease has involved the whole globe breaking the boundaries of countries and continents. It appeared twenty five years ago and mystified doctors and scientists alike as it became one of the worst plagues in human history. The virus of AIDS called Human Immune Deficiency Virus has already infected millions of people and the

incidence is increasing alarmingly in the world. Now an estimated 33.3 million individuals worldwide are living with HIV/AIDS. The number of annual AIDS-related deaths worldwide is steadily decreasing from 2.1 million in 2004 to an estimated 1.8 million in 2009. The decline reflects the increased availability of antiretroviral therapy, as well as care and support to people living with HIV, particularly in middle and low-income countries.[3] But for all practical reasons HIV/AIDS is still a new disease among humankind. Keeping the perspective of the newness is important, especially for those working to develop preventive interventions for a disease that cannot be controlled by using traditional technological methods; vaccines are not yet available, treatment is limited, and a complete cure is still a vision for future.

The spread of HIV varies greatly by geographic regions of the world both between and within countries. In Asian countries HIV is transmitted primarily by travelers from regions of America, Africa, and Western Europe. An estimated 4.1 million people living with HIV/AIDS in Asia in 2009, of which 270,000 adults and children newly infected, 160,000 children living with HIV/AIDS, and the estimated 260,000 of deaths among adults and children occurred during the same year. In Asia, Pakistan is a low-prevalence country that faces a concentrated epidemic among some key populations. The country is at high risk for an HIV/AIDS epidemic due to the presence of several socioeconomic conditions contributing to the spread of HIV, including poverty, low levels of education, and high unemployment, which lead to increased exposure to the disease through temporary migration to higher prevalence countries. According to the U.S census Bureau (mid-2010) the total population of Pakistan is 177 million with an estimated population living with HIV/AIDS was 97,400 by the end of 2009 of which an estimated number of women aged 15 years and up living with HIV/AIDS were 28000, and approximately 95,000 adults of ages between 15 and 49 years are living with HIV/AIDS. By the end of 2009, about 58,000 AIDS related deaths had occurred in the country.[4] The number of registered patients is low compared to the estimates because of unawareness of the disease, its causes and consequences regarding stigma and discrimination and infected people are reluctant to visit the doctor. Nearly 2917 HIV/AIDS patients are registered in 13 treatment centers and 7 PPTCT (Prevention of Parent to Child Transmission of HIV/AIDS) centers across the country. Of these, 1320 on antiretroviral therapy (ARV) drug therapy, of which 661 patients are registered in Hayatabad Medical Complex Peshawar. They also receive treatments for AIDS related opportunistic infections.[5]

Among the reported HIV infections in Pakistan, heterosexual sex is the primary mode of transmission of HIV/AIDS. Therefore, according to the Integrated Behavioral and Biological Surveillance (IBBS, 2009) data obtained from eight major cities of Pakistan it was found that prevalence rates of HIV in Pakistan among the most at risk populations (MARPs) is on a steady rise. An average prevalence rate of 0.97 percent among female sex workers, 0.9 percent among male sex workers (MSWs), 20.8 percent among injection drug users (IDU's), and 6.1 percent among *hjira* (transgender) sex workers was found.[6] Thus HIV prevalence and incidence data for Pakistan indicate that HIV is considered a generalized epidemic in this country.

Due to these epidemiological facts, attention should be given in dealing not only with the causes of HIV/AIDS but also with its consequences and the impact on individual, their families and communities. As described by Morrison, 2002 AIDS is not simply a medical problem but due to its associated morbidity and mortality every aspect of individual's life is vulnerable to great damage.[7]

Though, AIDS is a progressive and degenerative disease involving several major organ systems including the immune system and central nervous system. Uniformly fatal, it is associated with human immunodeficiency virus (HIV), a viral infection that infects the host cell and replicate within those cells which progressively weakens the immune system.[8]

When HIV enters in the body it infect a variety of white blood cells of the immune system such as T helper lymphocytes, macrophages and dendritic cells of the vaginal, cervical, and rectal epithelium. T helper lymphocyte contains the surface molecule cluster determinant 4 (CD4) which is the first target for HIV replication. Normally the range of CD4 T helper cell count in healthy individual is 500 to 1500 cells per cubic millimeter of blood, whereas in infected individual these cells count declines and falls below 500 cells per cubic millimeter of blood and when it continues to decrease below 200 cells per cubic millimeter; acquired immunodeficiency syndrome commonly occur. Therefore the hallmark of HIV infection depends on the gradual destruction and dysregulation of white blood cells function throughout the disease.

HIV is transmitted through sexual intercourse, contact with infected blood and blood products, and the birth process. The greatest numbers of HIV cases are sexually transmitted, through both homosexual and heterosexual intercourse. Screening of donated blood and blood products since 1985 has drastically reduced the risk of transfusion-related HIV. Children may be infected by exposure to blood and vaginal

secretions during childbirth. The child of an infected mother has a 25 to 35 percent chance of acquiring the virus.

Persons infected with HIV initially show no symptoms. Within three to six weeks after infection they may exhibit flu-like symptoms that last up to three weeks and resolve spontaneously. The entire course of HIV disease, starting from primary infection to clinical AIDS and death spans a period of ten to fifteen years.

HIV/AIDS has different stages; World Health Organization (WHO) introduced staging system for patients infected with HIV infection comprises of several stages:

- Stage I: Acute HIV infections
- Stage II: Asymptomatic stage includes minor mucocutaneous manifestations and recurrent upper respiratory tract infections
- Stage III: Early symptomatic stage includes unexplained chronic diarrhea for longer than a month, severe bacterial infections and pulmonary tuberculosis
- Stage IV: Late symptomatic stage includes toxoplasmosis of the brain, candidiasis of the esophagus, trachea, bronchi or lungs and Kaposi's sarcoma; these diseases are indicators of AIDS.

AIDS is considered full-blown when the immune system is seriously suppressed. It manifests itself in a number of different diseases and conditions in the form of opportunistic infections, resulting from progressive HIV induced immune suppression which is responsible for up to 90 percent of all AIDS-related deaths. The most common opportunistic infections associated with HIV/AIDS which caused by viruses, bacteria, fungi, and protozoa are cytomegalovirus, Herpes simplex viral infections and Herpes zoster, candidiasis, cryptococcal meningitis, Histoplasmosis, and Pneumocystis Carinii pneumonia. mycobacterium tuberculosis, persistent sinusitis, and mycobacterium avium complex, cryptosporidiosis and isosporidiosis, Kaposi's sarcoma, Non-Hodgkin's Lymphoma, Cervical Carcinoma and Anal Carcinoma. AIDS also attacks the nervous system. Neurological disorders such as encephalitis and dementia occur in over two-thirds of AIDS patients.

In spite of extensive medical research, there is no definite cure for AIDS yet. The available medication is just palliation to slow the speed of the disease process and to improve the quality of life as much as possible. Therefore AIDS has become a leading cause of death in men and women under the age of 45 and children under the age of five.

However when individuals are faced with HIV/AIDS, their physical health is not the only issue at hand. Along with the physical illness associated with the virus are mental health conditions. Thus

people diagnosed with HIV infection experience many of the emotional responses identified in them facing a terminal illness. It threatens an individual's life, goals, expectations, significant intrapersonal and interpersonal relationships as well as material resources, so people living with such a chronic illness may suffer psychological distress as a result they face many physical, social and economic effects of the disease in their lives. HIV infection consists of complex interactions among events, interpretations, reactions, and coping resources of an infected individual. Among the various stressors are long periods of symptomatic illness, loss of physical functioning at young age, chronic physical pain, physical disfigurement, the possibility of infecting other people, face loss of independence; physical, social, and emotional isolation; uncertainty concerning the timing and nature of treatment and disease progression; and uncertainty in their personal and social lives, and abuse, fear of death, and financial burdens that treatment brings for oneself and one's family and loss of fundamental human rights. As a result of these many stressors, people diagnosed with HIV infection often suffer from a number of psychological symptoms, including anger, frustration, anxiety, depression, and chronic somatic preoccupation.[9] In addition to the disease itself the medication commonly used to treat infectious illnesses can also have side effects that alter individual's behavior as well as their cognitive and affective functioning.

Moreover probably the most important factor in producing and extending negative psychological impact of HIV/AIDS is social stigma that effect the individual's normal functioning. Stigma is an "attribute that is significantly discrediting used to set the affected person or group apart from the normalized social order". HIV/AIDS related stigma includes all of the adverse attitudes, beliefs, and behaviors directed at individuals perceived as HIV infected. The factors contribute to stigmatization of HIV infection includes misinformation about risk of HIV transmission, prejudicial attitudes, the sexual and drug using behaviors that transmit HIV, and fears more generally associated with sickness. Therefore, people suffered from HIV have countless social repercussions. Family, friends, employers, co-workers and health care providers can all contribute to social prejudice, discrimination and isolation. Thus stigma becomes a source of depression and posttraumatic stress disorders for individuals living with HIV infection.

Above all related issues an HIV positive individual has to go through intense mental pressure. After being diagnosed as an infected person, one becomes easy victim of tension, fatigue, anxieties, isolation, and hopelessness which leads towards frustration and even to commit suicide. Therefore depression is common among these people, especially

as they adjust to the fact that they are no longer healthy and will eventually die. Depression may be increased by internalized shame regarding previous risk behaviors and by fear that others will find out about their risk behaviors.

Whereas depression is an emotional state typically marked by great sorrows, distress, and sadness, feelings of valueless and worthlessness, greater guilt, escape from others, and disturbances in sleep, appetite, sexual desire, difficulty concentrating and making decisions, interest and pleasure in usual activities and in most severe cases delusions and suicidal impulses.

Depression is a deteriorating condition; its symptoms for HIV infected consists of four interactive dimensions; emotional affective symptoms (sadness, crying), cognitive symptoms (pessimism, negativistic beliefs, guilt, and recurrent thoughts of death, recurrent suicidal ideation), behavioral symptoms (anhedonia, diminished motivation), vegetative symptoms (insomnia or hypersomnia nearly every day, and loss of appetite). HIV positive individuals experience all four dimensions of depression with demoralization, diminished self-esteem, sense of worthlessness, and social retardation.[10]

Furthermore the literature suggested several factors that increase the morbidity for depression among HIV/AIDS individuals includes; the patient's discovery of the infection and the disease progression.[11] Other risk factors for depression include prior history of depression, substance abuse, unemployment, lack of social support, use of avoidance coping strategies, HIV related physical symptoms, and multiple losses.[12]

Since HIV is sexually transmitted disease, HIV positive individuals face affective and sexual relationship difficulties, as well as marital conflict and divorces. Thus individuals with HIV infection are vulnerable to depression because of varying degrees of instability in social relationships. Relationships and social integration may therefore affect the prevalence and course of depression in HIV positive individuals.[13] The studies of Karasu et al.[14] demonstrated that depression can result in occupational problems, including absenteeism and loss of job in HIV positive individuals. Here again HIV interacts with depression, because social and occupational dysfunctions ensue as a result of HIV related stigmatization, discrimination, and physical limitations. Moreover HIV related depression includes demoralization stemming from multiple intrapersonal and interpersonal losses, disabilities, and prejudices.[15]

Other studies demonstrated that depression is the most common reason for psychiatric referral among people with HIV-infection.[16] Studies of Acuff et al.[17] found that the rates of major depression range

from 8 percent to 67 percent among HIV infected individuals who were referred for psychiatric evaluation. Ruiz, Guynn, and Matorin also found that the rate of depression is 20 percent to 35 percent among HIV/AIDS individuals.[18]

Moreover in a meta-analysis of published studies, Ciesla and Roberts found that people with HIV were almost twice as likely as those who were HIV negative to be diagnosed with major depression, and that depression was equally prevalent in people with both symptomatic and asymptomatic HIV.[19] Another study has found a 72 percent prevalence of distress, 70 percent prevalence rate of anxiety, and 55 percent prevalence rate of depression in a waiting room sample of HIV individuals at clinic.[20] Similarly Tate et al. reported the prevalence of some major depressive symptoms in HIV positive individuals.[21]

Elevated rates of depression are seen among patients with more advanced HIV disease, particularly those hospitalized for medical illness. Therefore depression and anxiety disorders are seen throughout the course of HIV infection, and the conditions commonly coexist.[22]

Additional prevalence studies have estimated the one month rate of depression in hepatitis C related to HIV infected individuals at 28 percent,[23] but it is clear that treatment of hepatitis C with interferon-based therapies dramatically increases the risk of depressive symptoms to near 80 percent.[24] These effects on mood, increased fatigue, and worsened quality of life are even greater in patients with concurrent advanced HIV disease,[25] and appear likely to be due to a variety of factors, including biological and socio demographic ones.[26]

Similarly posttraumatic stress disorders is particularly relevant to the onset of a severe, life threatening illness; and it can be a natural consequence of learning that one is HIV positive, because of the traumatic impact of being infected. As in the diagnostic and statistical manual of mental disorders, included the event being diagnosed with a life threatening illness is a qualifying trauma that could result in symptoms of PTSD. Therefore it can be a response to receipt of an HIV diagnosis. The traumatic experiences which are the precursors of PTSD in HIV/AIDS population includes as risky behaviors involved in HIV transmission are; commercial sex, previous traumatic life events such as history of sexual abuse and drug abuse, decreased social support from friends and family, increased perception of stigma, and discrimination. As presented in the earlier studies, on receiving a diagnosis of HIV/AIDS, infected individuals may experience recurrent, intrusive thoughts of illness and death and may try to avoid people, activities and places that serve as reminders of the illness. [27]

Whereas, PTSD is a complex disorder result from a single traumatic event, or ongoing pattern of traumatic experiences includes child sexual abuse, domestic violence, homelessness and or chronic life threatening illness. It is characterized by the re-experiencing of an extremely traumatic event. The person experienced, witnessed or confronted with an event that involves actual or threatened death, or other threat to physical integrity of self or others (DSM-IV-TR, 2000). A history of previous traumatic experiences increases a person's vulnerability to developing PTSD upon exposure to subsequent trauma. The person's response to the event involved intense fear, helplessness, or horror which impair his/her ability to handle future stressors. The more severe the trauma is, the greater the likelihood will be that the person will develop PTSD.

The relationship between PTSD and HIV infection has been studied by many researchers. Literature has demonstrated that post traumatic stress disorder is one of the most prevalent psychiatric disorders in people with HIV/AIDS as studies of Kessler[28] and Breslau[29] found that the prevalence of PTSD and depression ranges form 35 percent to 50 percent and are many times higher in the HIV population than the general population.

Similarly, Kimmerling et al. studied a sample of 67 African American HIV positive women and found that 35 percent met DSM-IV criteria for PTSD following their diagnosis.[30]

Simoni et al. found PTSD symptoms in his sample of HIV positive women in New York City that 50 percent had been abused in childhood and 68 percent admitted to being a victim of abuse during adulthood.[31] Whereas, Hutton and colleagues have proposed that PTSD may also have an association with increased risky sexual behaviors that lead to HIV exposure, and explored that among women prisoners there was 15 percent rate of PTSD which was associated with unprotected sex and prostitution.[32]

Furthermore in a study of 64 HIV-positive people it was found that acute stress reactions to recent events such as HIV-related physical symptoms, extensive history of pre-HIV trauma, decreased social support, increased perception of stigma, and negative life events were significantly positively correlated with PTSD symptoms related to prior trauma but did not differ based on gender, and AIDS status.[33]

Safren et al. studied 75 subjects and found 64 percent met criteria for PTSD related to the diagnosis of and living with HIV.[34]

O'Cleirigh et al. surveyed an HIV positive comparison group, and found a cohort of long term HIV survivors reported higher levels of emotional expression and depth processing of traumatic events.

Olley, Zeier, Seedat, and Stein investigated the prevalence and correlates of PTSD in a population of 149 recently diagnosed HIV/AIDS patients in South Africa. PTSD was found in 14.8 percent and appeared secondary both to the diagnosis of HIV/AIDS and to a range of other traumas and it was significantly associated with major depression, suicidality and social anxiety disorder.[35] In addition posttraumatic stress disorder has also been noted to have an association with pain[36] and depressive symptoms.[37]

In terms of being at risk for subsequent psychological disorders, anxiety and depression frequently run hand in hand among HIV/AIDS individuals. Thus posttraumatic stress disorder, often accompany depression.[38] As PTSD can occur after a person experiences a terrifying event, such as natural disaster, an accident or a life threatening illness, consequently people experiencing PTSD are especially prone to having co-existing depression. Likewise in a study of National Institute of Mental Health, researchers found that more than 40 percent of people with PTSD also had depression four months after the traumatic event.[39] Similarly, Vranceaun et al. found depression to have a primary role and PTSD a secondary role in HIV disease.[40]

Due to the above mentioned epidemiological characteristics as well as social and psychological effects of HIV/AIDS on individuals and their families it has become increasingly more necessary to assess depression and PTSD among individuals with HIV/AIDS in Pakistani culture. The reason for the impetus on Pakistani culture is due to the unavailability of relevant literature, as the existing material is with reference to western culture, thus the existing cultural differences and diversities allowed to study the phenomena with reference to particular aspects of Pakistani society. Pakistani culture is a unique blend of eastern and Islamic orientation with peculiar structure and mechanism. According to our religious and cultural beliefs as HIV is transmitted through culturally immoral, illegal, unethical behaviors, so people with HIV/AIDS are more stigmatized and discriminative because of they are shamefully deviant from society which exacerbates individual's psychological functioning.

Thus there is a clear need for mental health services to provide education and support for trainees, support for the multidisciplinary team of physicians, policy makers, and social workers that will improve the psychological well-being, quality of life, and psychosocial stability of people with HIV/AIDS.

As in Pakistan, there is lack of research in this area therefore clinical assessment of depression and PTSD will help to provide empirical information for its evaluation in HIV/AIDS. One of the objectives of the current research was that the information gleaned from

clinical assessment can assist health care professionals involved in the treatment of HIV/AIDS individuals from psychological perspective and will also help them to take preventive measures at the right time.

Hypotheses

1. HIV positive individuals would have high scores on beck depression scale as compared to HIV negative individuals.
2. HIV positive individuals would have high scores on clinician administered PTSD scale as compared to HIV negative individuals.

Methods

Sample

A sample of 200 adults (males and females) ranging in age 20-50 years (with the mean age of 35.81 years for HIV positive group and 33.47 for HIV negative group) including an equal number of diagnosed HIV/AIDS individuals (n=100) and individuals with HIV negative status (n=100). The entire sample belonged to low and middle socioeconomic class.

Group of HIV/AIDS consisted of 100 diagnosed individuals, who had been taking treatment of their disease from the outpatient department of ARV/VCT (Antiretroviral & Voluntary Counseling and Testing) treatment centre in Peshawar and PIMS (Pakistan Institute of Medical Sciences) Islamabad. HIV negative individuals who had no chronic medical illness were selected from the general population of Peshawar and Islamabad. Both groups were matched on demographic variables (age, sex, and education).

Instruments

- In-depth Structured Clinical Interview: In depth structured clinical interview was conducted to obtain detailed personal and clinical information from both of the samples selected for the study. This qualitative measure was designed to develop rapport based on the criteria of Diagnostic and Statistical Manual for Mental Disorders as well as other details necessary to screen out the diagnosis. It consisted of items focusing on an individual's demographic information, educational history, and personal history, social supports available, presenting problem, medical history of the problem, social history, sexual history, and history of substance abuse. Mental status examination was done through a combination of questioning and observation to examine Behavior and appearance, mood and affect, speech and thought,

perceptions, insight, judgment and impulse control, cognitions, attention and memory, motivation and behavior during interview. A brief questionnaire, which also doubled as a referral form, was used to collect clinical information from the treating physicians. Parameters included concomitant clinical HIV staging (broadly defined as asymptomatic or symptomatic),[41] CD4 count and CD8 count was included. It is a qualitative interview which usually takes 20-30 minutes to be administered.

- The Beck Depression Inventory: The Beck Depression Inventory [42] is a 21 questions multiple- choice self-report inventory, one of the most widely used instruments used for assessment of the severity of depression among psychiatric patients as well as depression in normal.

  For the present study BDI-II [43] was used as an assessment tool for measuring depression among HIV-positive and HIV-negative individuals. It contains total of 21 questions to various symptoms, each answer being scored on a scale value of 0 to 3. Typical questions relate to areas such as sense of failure, guilt feelings, sleep disturbance, and loss of appetite. The inventory is self administered and takes from 5 to 10 minutes to complete. A fifth to sixth grade level is required to adequately comprehend the items. The scores were obtained by averaging the scores across the items. The total possible range of scores extends from a low of 0 to theoretical high of 63. However, only the most 'severe' levels of depression are reflected by scores of 40 to 50. 'Mild and moderate' levels of depression reflected by scores of 14 to 28 and "No or Minimal levels" are reflected by 0 to 13.

  It has been observed that the BDI-II has high internal consistency ranging from .48 to .49 even when using a variety of population.[44] Test-retest reliability over one week interval was .93.[45]

- Clinician Administered PTSD Scale (CAPS): Clinician-Administered PTSD Scale is a 30 items semi-structured interview developed by National Centre for PTSD [46] to assess the essential features of posttraumatic stress disorders as defined by DSM-IV.[47] It is used to provide categorical ratings of diagnostic status based on formal diagnostic criteria i.e., PTSD present or absent. The CAPS can be used to make a current (past month) or lifetime diagnosis of PTSD or to assess symptoms

over the past week. The CAPS interview contains Life Event Checklist of 17 items as a part of the trauma assessment of Criterion A, which can be completed by the patient to identify precipitating traumatic events. Items from 1 to 5 measure criterion B symptoms of DSM-IV, items from 6 to 12 measure criterion C symptoms, and items from 13 to 17 measure criterion D symptoms of PTSD. In addition to assessing the 17 PTSD symptoms, questions used to target the impact of symptoms on social and occupational functioning, overall response validity, overall PTSD severity, and frequency and intensity of five associated symptoms (guilt over acts, survivor guilt, and gaps in awareness, depersonalization, and de-realization). For each item, standardized questions and probes are provided. The most frequently used scoring rule is to count a symptom as present if it has a frequency score of 1 (scale 0 = 'none of the time' to 4 = 'most or all of the time') and an intensity score of 2 (scale 0 = 'none' to 4 = 'extreme'). Severity scores can also be calculated by summing the frequency and intensity ratings for each symptom. In the present study PTSD diagnosis was derived by the scoring rule Frequency ≥ 1/intensity ≥ 2/ Total severity ≥ 65.

It is applicable to all the adults for ages above 15 years. The full interview takes 25-45 minutes to administer. The CAPS has good psychometric properties across a wide variety of clinical population and research settings.[48] Inter-rater reliability is high, ranging from 0.92 to 1.00 for 'Frequency' ratings and 0.93 to 0.98 for 'Intensity' ratings; the global severity correlation was 0.89.[49]

Test-retest reliabilities range from .77 to .96 for the three symptom clusters and from .90 to .98 for the 17-item core symptom scale.[50] The CAPS demonstrates high internal consistency, with alphas for the three symptom clusters ranging from .85 to .87, and .94 for the total score. Strong convergent validity has been demonstrated against the Structured Clinical Interview for DSM-IV, PTSD module .83 and the PTSD Self Report Scale .73.[51]

Procedures

As reported earlier the sample for the present study comprised of two groups i.e., HIV-positive group and HIV-negative group. Thus the study was carried out in two phases, as per details given below:

Phase-I: The HIV-positive sample was approached through Hospitals in Khyber Pukhtunkhwa and Islamabad after taking formal permission from

the program director of National AIDS Control Program, National Institute of Health Islamabad, and the Headquarters of Provincial AIDS Control Program. Informed consent was taken from the directors of all the respective institutions and the confidentiality was assured for shared information. The doctors were contacted in PIMS (Pakistan Institute of Medical Sciences) and Antiretroviral Treatment Centre of Hayatabad Medical Complex to approach the number of diagnosed HIV-positive individuals. Subjects were randomly selected on the basis of demographics (age, gender, education) and were contacted; the informed consent form was signed for their willingness to participate in the study. Information was conveyed to each individual about the type and length of assessment, and the rapport has been developed. In the next step, in-depth structured interview was conducted focusing on the history, duration, intensity and causes of the problem, and all necessary information about the subject's illness was recorded. After this, Psychological assessment tools i.e., (Beck Depression Inventory-II, and Clinician Administered PTSD Scale among HIV-positive individuals were administered to each subject individually. At the end of administration of research measures HIV/AIDS individuals and concerned authorities were thanked for their cooperation and time.

In the second phase of the study, subjects from general population who were not suffering from HIV/AIDS were randomly selected on the basis of demographics (age, gender and education) from Islamabad and Peshawar city. Subsequent to obtaining informed consent of their willingness to participate and rapport development, structured clinical interview was conducted with each of the subject. After taking interviews, psychological tests (same measures which were applied to HIV-positive group) was followed with HIV-negative group individually.

Discussion

Findings from the present study indicate that HIV positive group scored significantly higher than HIV negative group on the variable of clinician administered PTSD scale ($t = 15.382$, $df = 198$, $p < .001$; Table 3) and beck depression inventory ($t = 15.800$, $df = 198$, $p < .001$; Table 2). These findings are consistent with our formulated hypothesis and with previous similar studies.[52]

The increased rate of PTSD and depression in individuals with life threatening illness like HIV/AIDS might be due to a combination of stress factors that they have to cope with. These includes not only the discovery of infection, fear of death but also the disease symptoms, its progression, re-experiencing prior HIV trauma, stigma and

discrimination in family and social interactions, loss of employment, as well as experiencing adverse effects from antiretroviral treatments.[53] In addition to the above discussed factors PTSD in HIV positive individuals may be as a result of when an infected individual experience recurrent intrusive thoughts of illness and death, may try to avoid activities, people and places which serves as reminders of the illness. The results are consistent to previous researches.[54]

Therefore, in terms of being HIV/AIDS, individuals suffering from posttraumatic stress disorders are also prone to having co-existing depression. Likewise it is demonstrated in previous studies that correlates of PTSD in recently diagnosed HIV positive individuals were significantly associated with both to the diagnosis of HIV/AIDS and with major depression.[55]

Despite these, individuals with HIV/AIDS find themselves shunned, avoided, and treated as ill and infect others may have witnessed themselves being ostracized and labeled as bad, the object of intolerance, as well as insensitivity and have discriminated against employment, education, and freedom of movement and confidentiality. Thus, demoralization stemming from stigma and discrimination results in PTSD and depression among them and they feel self blame, guilt and shame, worthlessness, as well as self imposed isolation.[56] Looked in this way lack of social support can be one of the reason for high rate of PTSD and depression in HIV positive individuals as compared to HIV negative individuals. Social approval is mostly associated with compliance to societal norms and standards. Individuals who have better education, job and life style and who are productive and economically supportive to their families are usually preferred and get high social approval. Thus being diagnosed as having HIV/AIDS can have adverse effects on individual's life. This induces a sense of hopelessness and despair about future which is further leads to depression and as illustrated in previous studies that hopelessness is the primary component of depression for many of HIV positive individuals.[57]

Conclusion

Chronic and life threatening physical illness such as HIV/AIDS, which is prolonged in duration in general; impair person's almost every area of functioning includes physical, psychological (cognitions, emotions, and behaviors), as well as social and occupational. Such a lethal illness as HIV/AIDS has a high co-morbidity of psychological disorders like: depression, and posttraumatic stress disorders. These psychological disorders results from testing for HIV antibodies, receiving HIV positive test results, and making life style adjustments living with HIV infection,

fearing the progression of one's own disease, fears of early life death as well as stigma and discrimination from family and friends. Findings of the present study suggest that having a lethal illness seriously damage one's level of functioning and provoke depression and PTSD especially when an individual perceive available negative social attitudes towards them, inadequate social support as well as loss of their bodily functions. Thus, it is concluded that depression and PTSD are co-morbid and infected individuals experience these disorders through out the course of illness, from the realization of being diagnosed to end stage and dying.

On the basis of findings from the present study, we can suggest that mental health professionals seriously need to work on HIV/AIDS patients' psychological impairment, and impaired level of functioning by formulating therapeutic interventions targeted to remove social stigma and discrimination attached to HIV infection and increase opportunities for social support and eliminate distress stemming from blame and condemnation by involving families and others to whom the infected individuals feel closed at this crucial time. These efforts will therefore, psychologically benefit people with such a complicated disease as well as impeding the risk of depression and posttraumatic stress disorders among them.

Limitations

It is important to acknowledge few limitations that the researcher confronted while conducting the current research. One of the limitations is the limited power of generalizeability of the findings due to the reason that the sample used in the present study is not large enough to represent the whole HIV infected population of Pakistan. Second, this study was also purposely restricted to the registered HIV infected individuals in HMC Peshawar and PIMS because of the scarcity of resources as well as lack of availability of HIV positive people which restrict to select sample based on convenience sampling instead of nationally representative one.

Most importantly, depending on heterogeneity and complexity of the sample the results may be biased by wide variations in their ethnicity, education, and socioeconomic conditions, and marital status as well as the cause of the disease transmission. The main weakness of the study was that qualitative research was shifted to confirm or reject the findings statistically. However, structured interview was conducted to collect the qualitative data but it was not fully advantageous to meet the objectives of the study.

Furthermore most of HIV/AIDS participants were reluctant to participate in the study due to the sensitivity of the issues regarding stigma and discrimination related to HIV/AIDS that has a tremendous

impact on the well being of an infected individual. Also they were unwilling to participate due to the lengthy duration of an interview schedule.

In addition the use of measurement instruments to assess, anxiety, depression, PTSD, suicide risk, and social functioning is also one of the limitations. As there are certain disadvantages to use these measures such as information gathered by these instruments might be effected by self consciousness of subjects, rapport development might became an issue, impression management (i-e., exaggeration, faking, and lying), and self deception (i-e., self favoring bias, self enhancement, defensiveness, and denial). Besides all these disadvantages, there are certain reasons to appreciate the use of these instruments as they include easy interpretability of score, richness of information, subject's motivation to report about the asked issue, and are practically efficient and inexpensive.

It is recommended that clinicians include an evaluation of PTSD and trauma in all HIV/AIDS patients of Pakistan. It is particularly important to be aware of the possibility of PTSD in women, and in those subjected to sexual violation or intimate partner violence. Furthermore, PTSD should be considered as a possible risk factor for suicidality and substance abuse in this population.

Result

Analysis of the data primarily included the means and standard deviations. To compare the results of both HIV positive and HIV negative groups on beck depression inventory and clinician administered PTSD scale, independent t-test was employed in the main study. All statistical analysis was carried out with the help of statistical software SPSS (Statistical Package for Social Sciences) and level of statistical significance adopted in this study was .001. The results of each hypothesis are explored in the remaining section. The findings are then discussed in relation to each of two hypotheses that were developed.

Table 1:
Descriptive statistics for age of participants in HIV positive and HIV negative group

Group	N	Mean	SD
HIV positive ind	100	35.81	6.872
HIV negative ind	100	33.47	7.337
Total sample	200	34.64	7.187

Table 2
Mean differences and t-value of HIV positive individuals and HIV negative individuals on Beck Depression Inventory (N = 200)

Group	N	M	SD	t	p
HIV positive individuals	100	32.86	10.392	15.800	.000
HIV negative individuals	100	12.35	7.779		

df = 198 ***p< .001

Table 2 shows the mean difference between HIV positive and HIV negative individuals on the scores of beck depression inventory. The figure shows that HIV positive respondents scored higher as compared to HIV negative respondents. This mean difference 3.00 is highly statistically significant at p< .001 levels.

Table 3
Mean differences and t-value of HIV positive individuals and HIV negative individuals on Clinician administered PTSD scale (N = 200)

Group	N	M	SD	t	p
HIV positive individuals	100	71.85	16.657		
HIV negative individuals	100	31.65	20.140	15.382	.000

df = 198 ***p< .001

Table 3 shows the mean difference between HIV positive and HIV negative individuals on the scores of clinician administered PTSD scale. The figure shows that HIV positive individuals scored higher as compared to HIV negative individuals. This mean difference 40.2 is overwhelming significant difference at p< .001 level.

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