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RESEARCH ARTICLE

PSYCHOLOGICAL STRESS AMONG ASYMPTOMATIC ACUTE HIV GROUP, CLINICALLY SYMPTOMATIC CONDITION GROUP AND AIDS INDICATOR CONDITION GROUP

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ABSTRACT

Clinicians who treat people with Human Immunodeficiency Virus (HIV) disease have long accepted the notion that stress affects immune function. The stress is the common Psychological disturbance among HIV infected people. Stress varies across stages of disease progression from HIV to AIDS. This article summarizes the large body of evidence examining whether perceived stress varies across Asymptomatic Acute HIV condition, Clinically Symptomatic Condition and AIDS Indicator Condition. A cross sectional research design is employed and Persons were classified as having asymptomatic, clinically symptomatic and AIDS according to case definitions established by the Centres for Disease Control and Prevention. The data is obtained from 480 participants and the level of perceived stress as influenced by the HIV/AIDS disease progression is analyzed. A one way ANOVA,*F* results showed that Asymptomatic acute HIV condition, Clinically symptomatic HIV condition and AIDS indicator groups are significantly differ in the level of perceived stress and Tukey's HSD post-hoc analysis indicated that Clinically symptomatic acute HIV condition group had exhibited statistically significant higher level of perceived stress than asymptomatic acute HIV condition group and significantly lower level of stress compared to AIDS indicator group.Implications of the findings are discussed in the context of psychological factors and services in India.

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INTRODUCTION

Studies on the psychological aspects of the human immunodeficiency virus (HIV) are rapidly increasing in number. These studies have documented the effects of factors such as stress, negative life events, stigma, anxiety, depression and a variety of socio-environmental factors on the course and progression of HIV to AIDS. Clinicians who treat people with HIV disease have viewed that stress affects immune function. In fact, this belief is nearly as old as the disease itself: providing counselling services to them to reduce the number of stressors in their life has been a advice since the time when the acquired immunodeficiency syndrome (AIDS) was known and we now have many studies which show that stress has an unenviable impact on immune function. More importantly, we now have studies which show that reducing stress has a beneficial effect on immune function. Faul-stich (1987) reported that HIV infection is a prominent source of emotional and physiological stress for those who are infected.

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Van Eck *et al*., (1996) reported that experiencing stressful events reduces immunity, contributes to increased symptomatology and fastens disease progression from HIV to AIDS. Perceived stress is anorganized concept with all indications of an etiology that is multi factorial. Stress in a deficit model in which demands made on an individual exceed the resources available at any given time. Stress can include physical, psychological, or environmental factors that can cause distress, because individuals facing the same stressful events may have very different subjective distress responses. Until recent years, HIV illness was characterized by a predominately downward trajectory that ended with death after months of debilitating Acquired Immune Deficiency syndrome (AIDS) defining diseases. Deeks *et al.*(1997); Low-Beer *et al*. (2000) reported that the advent in 1996 of the new highly active antiretroviral therapies (HAART) extended longevity, increased CD4 cell counts, decreased HIV viral load, and reduced the prevalence of AIDSopportunistic infections in many HIV-infected individuals. HAART has also created new challenges with important implications for mental health intervention. Threats regarding physical survival have to a large extent been replaced by the distress associated with

chronic illness. Though the new medications postpone HIV-related symptoms, they cannot completely remove the ever-present threat to life and physical condition. Furthermore, as Heckman (2003); Pakenham and Rinaldis, (2001) reported that HIV-infected individuals live longer, it is increasingly important for clinicians and researchers to better understand and improve life quality in this group. Thompson *et al.* (1996) argued that it is useful to distinguish the objective part of stressful events from the subjective experience of distress. It is important to know about the Psychological stress as influenced by their disease progression from HIV to AIDS. It definitely provide a predictable insight in to the effectiveness of medical professionals, behavioural scientists, and social workers for prevention of Psychological distress and other related psychological disturbances among HIV infected people.

Ammassari *et al*. (2004) Anxiety and depression are the most frequently identified psychological symptoms reported by persons with HIV. Empirical evidence has shown that the HIV population as a whole suffers from a high level of subjective distress such as anxiety, fear, depression, hopelessness, suicidal ideation and guilt (Passik, 1995; Baer, Dwyer and Lewitter-Koehler, 1988). Persons living with HIV face multiple stressful experiences, which tend to fluctuate over the course of time. HIV illness is itself a stressor. Many studies have indicated that symptomatic HIV patients reported poorer mental health and HRQOL than asymptomatic HIV patients (Bing *et al*. 2000; Lubeck and Fries, 1997). Physical symptoms have been shown to be associated with depressed mood, which has been found to relate strongly to HRQOL (Kemppainen, 2001; Schmitz and Crystal, 2000). It is also interesting to note that HRQOL scores do not always correlate with disease stage or CD4 count, and that symptoms can have a significant impact on the HRQOL (Franchi and Wenzel, 1998). In other words, symptoms may give us more insight into the effects of HIV disease on daily functioning than the clinical stage or the CD4 count. More recently, apart from the effects of symptoms, research on the HRQOL of HIV-infected individuals has moved on to explore the effect of psychosocial variables.

Specifically, this study attempted to explore whether these psychosocial stress factors had stronger associations with disease progression from asymptomatic to AIDS indicator condition. Most of the studies concerning the HRQOL and psychological stress of individuals infected with HIV have been done in developed countries. It cannot be assumed that the results generalize to patients in developing countries where there is a growing epidemic. For instance, geographic distance may not pose such a severe barrier to service access in a crowded city with a relatively developed public transport system. A recent survey World Health Organization (2014) reported that India has the third largest number of people living with HIV in the world - 2.1 million at the end of 2013- and accounts for about 4 out of 10 people living with HIV and India accounts for 51% of all AIDS-related deaths in the region. However, there are no previous studies on Indian patients systematically examining the possible factors associated with Psychological stress. Thus, this study was intended to document the relationship of Psychological stress with the disease progression of a sample of relatively asymptomatic Acute HIV Condition, Clinically symptomatic HIV condition and HIV Indicator condition group.

MATERIALS AND METHODS

Hypotheses

- Clinically symptomatic acute HIV Condition group will exhibit higher level of Psychological stress compared to asymptomatic acute HIV condition group.
- Clinically symptomatic acute HIV condition group will exhibit higher level of Psychological stress compared to AIDS indicator condition group.

Participants

This study employed a cross sectional research design in knowing the level of Psychological stress across HIV/AIIDS disease progression. Psychological stress operational zed by the participants' responses to Perceived stress scale and HIV phase i.e., Asymptomatic, Symptomatic and AIDS indicator groups as classified in Center for Disease Control and Prevention (CDC, 2001).

Asymptomatic, symptomatic and aids cases difination

Persons were classified as having HIV/AIDS according to case definitions established by the Centers for Disease Control and Prevention (Guidelines for national human immunodeficiency virus case surveillance including monitoring for human immunodeficiency virus infection and acquired immune deficiency syndrome, 1999) HIV-infected persons with a documented Centres for Disease Control and Prevention AIDS-defining event [i.e., diagnosis of an opportunistic illness (OI) or CD4 count < 200 cells/μL] were categorized as having been diagnosed with AIDS in the calendar event the earliest known AIDS defining event and CD 4 count <500 /μL were categorized as having been diagnosed with symptomatic acute HIV condition and CD4 count >500 cells /μL were categorized as having been diagnosed with asymptomatic acute HIV condition. The study participants consisted HIV infected people (N=480), Purposive convenient sampling technique is used to select participants representing the three stages of HIV/AIDS disease progression namely- asymptomatic acute HIV group (N=160), clinically asymptomatic condition group (N=160) and AIDS indicator Condition group (N=160). The participants are drawn from community care centres like SNEHADHAN, SUPPORT, ACCEPT, KNP+, which are situated in and surround Bangalore city and also HIV+ patients who comes for ART treatment for District ART centers and link ART centers in Karnataka.

Table 1. Showing the distribution of the sample

	A Asymptomatic, Acute HIV. (CD4 count >500 cells/μL)	B Symptomatic Conditions, not A or C (CD4 count <500 >200 cells/μL)	C AIDS-Indicator Conditions (CD4 count <200 cells/μL)	Total
Total	160	160	160	480

Inclusion criteria

- People who have been medically diagnosed as HIV+ infected by the ART centres.
- People who are able to respond (those who are not in chronically condition) to the questionnaires.
- Both men and women in the age group of 20-45 years.

Measures

Information schedule: This schedule was developed to elicit detailed information regarding age, gender, type of religion, educational level, occupational status, and three stages of HIV (obtained from medical officials/Competent ART counsellors), duration of living with HIV and other demographic details.

Perceived Stress Scale (PSS): Developed by Sheldon Cohen, (1988) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way.

Evidence for Validity: Higher PSS scores were associated with (for example): failure to quit smoking, failure among diabetics to control blood sugar levels, greater vulnerability to stressful life-event-elicited depressive symptoms more colds.

Procedure

After finalizing the information schedule and assessment techniques the subjects who were fulfilled the criteria were met personally. The purpose of assessment was explained to them on obtaining their consent then the assessment sessions are planned. In Order to facilitate the smooth conduct of interview, first the patients who are visiting the ART centres were taken for the study. Depending on the availability of leisure time and health condition of the subjects the interviews were held. The assessment was conducted in absolute privacy. To maximize frankness the subjects were assured of confidentiality and anonymity of responses and information revealed during the sessions. The assessment was done on an individual, one to one basis with the researcher administering all the questionnaires personally. The information schedule and questionnaire was individually administered and subject's responses were noted down. Items were repeated in case of difficulty in comprehending them. The same procedure is followed for both literate and illiterate subjects each session lasted for approximately 10 to 20 minutes and sessions were further continued till the full relevant data is gathered.

Analyses of Results

The aim of this study was to understand and describe the level of psychological stress among asymptomatic acute HIV condition, Clinical symptomatic condition and AIDS indicator condition groups, it was hypothesized that Symptomatic acute HIV Condition group will exhibit higher level of perceived stress compared to clinically symptomatic and AIDS indicator condition groups, the obtained data was analyzed by using descriptive statistics such as Mean and SD. In order to examine the significant mean differences across three groups a one-way ANOVA was calculated and in continuation of the statistical procedure to examine the pair wise comparison A Tukey's HSD post-hoc analysis was used and the results are been presented in the order to test the hypotheses followed by the discussion part.

Table 1. Shows the mean, standard deviation and a ANOVA statistic on perceived stress among sample groups belongs to Symptomatic acute HIV group, clinically symptomatic HIV group and AIDS indicator group

Variable	Death Anxiety				
	N	Mean	SD	F	P
Asymptomatic acute HIV group	160	15.87	4.47	18.31	.001
Symptomatic acute HIV group	160	18.38	4.21		
AIDA indicator group	160	18.34	4.01		
Total	480				

Table shows the mean score and standard deviation on perceived stress of asymptomatic acute HIV group, symptomatic acute HIV group and AIDS indicator group. Symptomatic acute HIV group has obtained greater mean score *(M*=18.38*, SD*=4.21*)* on perceived stress compared to asymptomatic acute HIV group *(M*=15.87*, SD*=4.47*)* and AIDS indicator group has obtained lesser mean score *(M*=18.34*, SD*=4.01) compared to symptomatic acute HIV group. In comparing significant mean differences between groups a ANOVA is calculated and the obtained F (2, 477*)* = 18.31*, p < .01.*

From the above description we can infer that the clinically symptomatic HIV condition group has revealed greater level of perceived stress compared to the asymptomatic acute HIV group and AIDS indicator group. And the sample of AIDS indicator group has revealed greater level of perceived stress compared to the asymptomatic acute HIV group but less than symptomatic acute HIV condition group.

Table 2. Shows the multiple comparisons of three groups on perceived stress using post hoc tukey's HSD test

SE HSD	Multiple comparison			
Phase	Phase	Mean difference	Std error	P
Asymptomatic	Symptomatic	-2.50*	.47	.01
	AIDS	-2.46*	.47	.01
Symptomatic	Asymptomatic	2.50*	.47	.01
	AIDS	.03	.47	.99
AIDS	Asymptomatic	2.46*	.47	.01
	Symptomatic	-.03	.47	.99

*. The mean difference is significant at the 0.05 level.

Post-hoc analyses were conducted given the statistical significant omnibus ANOVA test, specifically Tukey's HSD test were conducted on all possible pair wise contrast. The following pairs of groups were found to be significantly different *(p* < .05*)*. Group 1 (asymptomatic acute HIV condition group; *M*=15.87*, SD*=4.47*),* and group 2 (clinically symptomatic acute HIV condition group; *M*=18.38*, SD*=4.21*)* andgroup 1 and group 3 (AIDS indicator group;*M*=18.34*, SD*=4.01*)*. In other words, asymptomatic acute HIV condition group had exhibited statistically significant lower level of

perceived stress than clinically symptomatic and AIDS indicator groups. And the following pairs of groups were not found to be significant (p>.05). Group 2 (clinically symptomatic acute HIV condition group) and group 3 (AIDS indicator group). The AIDS indicator group had exhibited statistically significant higher level of perceived stress than asymptomatic acute HIV condition group and it is not statistically differ than clinically symptomatic acute HIV condition group on the level of perceived stress.

Hypotheses Testing

The hypothesis 1 that clinically symptomatic acute HIV Condition group will exhibit higher level of Perceived stress compared to asymptomatic acute HIV condition group and the results indicating statistically significant mean differences. The findings supports to the H1 and Hypothesis 2 which stated that clinically symptomatic acute HIV condition group will exhibit higher level of perceived stress compared to AIDS indicator condition group. The mean differences are statistically not significant; the Symptomatic condition group is not significantly different on the level perceived stress when compared with AIDS indicator group. Hence there is no sufficient evidence to support H2. The overall findings showed that the level of death anxiety is more in symptomatic and AIDS indicator groups than asymptomatic condition group.

DISCUSSION

The present study hypothesized that clinically symptomatic acute HIV Condition group will exhibit higher level of perceived stress compared to asymptomatic acute HIV condition group (Hypothesis 1) and clinically symptomatic acute HIV condition group will exhibit higher level of perceived stress compared to AIDS indicator condition group (Hypothesis 2). Findings of the present study supported to the first hypothesis and not supported to the 2nd Hypothesis. In the present study it is revealed that symptomatic acute HIV condition group has greater level of perceived stress, the reasons may be that they experience symptoms of the disease, First symptoms of immune system dysfunction become evident during the early symptomatic stage of infection. This period is also referred to as AIDS-related complex (ARC). The symptoms and conditions that develop during this period resemble but are not as severe as symptoms that define the diagnosis of AIDS. In contradictionto the present findings a study conducted by Kurdek and Siesky (1990) by usingseronegative controls too, reporting that asymptomatic subjects demonstrated worse psychological functioning including Stress when compared to symptomatic and seronegative controls.

These asymptomatic subjects reported greater psychological distress and lower optimism despite the worse health profile exhibited by the symptomatic group. The reasons could be the data from symptomatic patients in this study were analyzed as a whole and were not classified into AIDS but in the present study, symptomatic condition group was separated from AIDS indicator group and found that symptomatic acute HIV group alone has exhibited the greater amount of stress compared to asymptomatic condition group and another limitation they utilized a small sample size. Both of these critiques of the methodology limit the power of these findings. Another study which is contrast to the present findings conducted by Chuang, Devins, Hunsley, and Gill (1989) found that asymptomatic patients experienced greater psychological disturbances than patients diagnosed with AIDS. Whereas, in the present study it is found that AIDS indicator group exhibited greater level of stress compared to asymptomatic acute HIV condition group, the reasons could be the increased psychopathology in AIDS indicator group.

Implications: This study provided some important implications. First, by knowing the level of Perceived stress among asymptomatic HIV condition group, Symptomatic acute HIV condition group and AIDS indicator group attempts can be made to reduce the level of stress and interns improve their mental health. Second, the findings help us to plan interventional programs to the targeted group to enhance the quality of life.

Conclusion

Clinically symptomatic condition and AIDS indicator condition groups have exhibited greater level of perceived stress when compared to asymptomatic acute HIV condition group.

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