ISSN NO. 2320-5407

Journal homepage: http://www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH

RESEARCH ARTICLE

The effect of Cognitive Behavioral Interventions on Mental health and death anxiety among HIV Patients.

Dr. Meenakshi Narkhede.[1], Dr. Bharat Mimrot[2], Dr. Madan Kanade[3], Dr. H. Narke.

1. Professor, Department of General Medicine, SBH Government Medical College, Dhule.
2. Professor Psychology, NKSPT's Arts Science and Commerce College Badapur, Jalna, Professor Psychology Kannad.

Manuscript Info

Manuscript History:

Received: 14 November 2015
Final Accepted: 22 December 2015
Published Online: January 2015

Key words:
cognitive behavioral interventions, mental health, death anxiety.

Corresponding Author

Dr. Meenakshi Narkhede.

Abstract

The diagnosis of having HIV infection can produce strong emotional reactions in the individual. Initial feelings of shock and denial can turn to fear, guilt, anger, sadness, and a sense of hopelessness. Some people even have suicidal thoughts. They might feel helpless and fear illness, disability, and even death. Support from family and friends can be very helpful at these time along with professional help. HIV and mental health are deeply correlated. It has been studied that in most cases, poor mental health makes a person more vulnerable to HIV. On the other hand, the disease also has direct effect on the patient's mental health. HIV patients who experience an inordinate fear of death may be routinely avoiding fear-evoking cues (images, thoughts, physiological fluctuations, and situations) associated with death. The effect of cognitive behavioural interventions on mental health and death anxiety among HIV patients was the aim of this study. Methods: Total 390 HIV infected patients on anti-retroviral treatment for more than 6 months were selected Coronell Medical Index (CMI) heath questionnaire by N.N.Wig , Dwarka Prasad and S.K.Verma for mental health and Death anxiety scale (DAS) Hindi version by Upinder Dhar, Savita Mehta and Santosh Dhar questionnaires were used for assessment. After Pre and post cognitive behaviour interventions cognitive restructuring, structural relapse prevention, structured problem solving were selected as cognitive behavioral interventions on selected HIV patients collected data was analyzed. Conclusions-Cognitive behavioural interventions significantly improved mental health and death anxiety in HIV patients.

Introduction:-

Mental health problems can strike anybody, but people with HIV are more likely to experience a range of mental health issues. Most common are feelings of acute emotional distress, depression, and anxiety, which can often accompany adverse life-events. HIV also can directly infect the brain, causing impairment to memory and thinking. In addition, some anti-HIV drugs can have mental health side effects.

The diagnosis of having HIV infection can produce strong emotional reactions in the individual. Initial feelings of shock and denial can turn to fear, guilt, anger, sadness, and a sense of hopelessness. Some people even have suicidal thoughts. They might feel helpless and fear illness, disability, and even death. Support from family and friends can be very helpful at these time along with professional help.

Depression is a serious medical condition that can be paralyzing to sufferers. It is twice as common in people with HIV as in the general population. Depression is characterized by the presence of most or all of the following symptoms: low mood, apathy, fatigue, inability to concentrate, loss of pleasure in activities, changes in appetite and weight, trouble sleeping, low self-worth, and, possibly, thoughts of suicide[2]. HIV infection and AIDS affect all aspects of a person's life.

The World Health Organization defines mental health as "a being of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community".

HIV and mental health are deeply correlated. It has been studied that in most cases, poor mental health makes a person more vulnerable to HIV. On the other hand, the disease also has direct effect on the patient's mental health.

The physical/medical impacts of HIV/AIDS in terms of opportunistic infections may not be as debilitating as the psychological impact, this may be due to the fact that the opportunistic infections can be adequately treated while anti retroviral drugs can be taken to reduce viral load. Whereas, psychological impacts are more difficult to handle, these come in forms of societal stigmatization, inadequate social support and lowered self-esteem. This is confirmed by the findings of Perry, Jacobsberg, and Fishman (1990) that the psychological assessment of physically asymptomtic people at risk of AIDS both before and after serological notification had significant decreases in multiple measures of distress after notification among seronegative individuals. Mental health of PLWHA is also affected by the discrimination by health workers against PLWHA, Kayode, Adeyemo, Owoaje, and Omotunde (2000) found that health care workers discriminate against PLWHA during clinical practice and this makes them to experience severe emotional and social problems. Therefore, HIV and mental health are a two way order, entwined with each other. HIV prevalence in mentally disturbed patients and out patients is 23%, while for the rest of the population; the percentage is just 0.4%. This is because, people with mental illness are more prone to indulge in highly risked behavioral activities than the general population.

As per studies the prevalence of mental illnesses in HIV-infected individuals is substantially higher than in the general population. HIV tends to be concentrated in highly vulnerable, marginalized and stigmatized populations; in particular, sex workers, men who have sex with men, drug users and prisoners have higher levels of mental health disorders than the general population. Increased psychological distress among people with HIV infection is common. Studies in both low- and high income countries have reported higher rates of depression in HIV-positive people compared with HIV negative control groups.

A number of studies have explored the relationship between HIV transmission and mental illness and indicate that HIV prevalence is higher for psychiatric patients than the general population. They have also shown that psychiatric patients have a greater risk for HIV infection. Research further suggests that risk increases with disorder severity as shown in a Columbia University study in which patients with more severe psychiatric symptoms were three times more likely to have multiple sexual partners than those with milder symptoms. Early identification and treatment of mental health and substance abuse problems can significantly improve HIV treatment adherence and clinical outcomes.

Death anxiety is the fear and apprehension of one's own death. It is the neurotic fear of loss of the self which in intense state parallels feeling of helplessness and depression[3]. Man's awareness of one's own death produces anxiety which can only be dealt with by recognizing one's own individuality. Yet when the actual time comes, and the individual faces death alone, the psychological reactions appear to be remarkably similar.

Death anxiety is an abnormal fear of dying. A person suffering from death anxiety becomes afraid, anxious or unable to function when they think of, talk about, read about, see on television or in any way hear or experience anything associated with dying.

In general, symptoms of death anxiety may include nausea, being unable to catch your breath, shaking, dry mouth, excessive sweating, heart palpitations, trouble thinking clearly, loss of control, feeling detached from reality, anxiety attacks and hyperventilating .anxiety and depression are the most frequently identified psychological symptoms reported by persons with HIV (Kalichman & Sikkema, 1994)[4]. 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 (Dilley, Pies, & Helquist, 1989; Kooner et al., 1989, Hintze, Templer, Cappelletty, & Frederick, 1993). Elevated rates of panic, obsessive-compulsive (body-scanning compulsions), and generalized anxiety disorders in the HIV-infected population have been reported (Treisman, Fishman, Lyketsos, 1994). Rumination concerning physical appearance (Miller, 1990), compulsive checking for new signs of disease progression (Maj, 1990; Ostrow, 1990), and excessive vigilance and exaggerated reactions to harmless bodily signs

are widely observed (Kessler, 1988). Past research has provided strong evidence for the existence of death anxiety in the HIV population. (Franks, Templer, Cappelletty, & Kauffman, 1990; Hintze et al., 1993; Hayslip, Luhr, & Beyerlein, 1991; Catania, Turner, Choi, & Coates, 1992)[4.]

Cognitive behavior therapy (CBT) is a process of teaching, coaching and reinforcing positive behaviors. CBT helps people to identify cognitive patterns or thoughts and emotions that are linked with behaviors. Cognitive-behavioral therapy is a combination of cognitive and behavior therapies that are directive, time-limited, structured, and place great emphasis on homework exercises. While cognitive therapy emphasizes the role of cognitive processes in the origin and maintenance of psychological disorders, behavior therapy focuses on principles of learning theory and the role of reduced reinforcement in the creation and maintenance of these disorders. In cognitive therapy, individuals learn to identify and monitor distorted, negative thinking, to become aware of the relationship between such thoughts and negative assumptions about oneself and of the association between thoughts and feelings. Individuals also learn to apply techniques to challenge these thoughts. In behavior therapy, individuals are taught to track the frequency of targeted behaviors and to understand the relationship between these behaviors and their antecedents and consequences. Furthermore, individuals learn techniques to increase or decrease particular events, and are taught skills such as problem solving, relaxation, and assertiveness. Both cognitive therapy and behavior therapy assume that psychological problems can be alleviated by teaching individuals new skills to identify negative thoughts, form adaptive thoughts, and alter maladaptive behavior patterns[5].

In the present study adherence counseling, cognitive restructuring, structural relapse prevention, breathing exercises, structured problem solving were selected as cognitive behavioral interventions on the HIV infected population.
Cognitive restructuring: A cognitive-behavioral therapy technique used to identify and correct negative thinking patterns. The technique involves altering negative automatic thoughts that occur in anxiety-provoking situations by replacing them with more rational beliefs. As thoughts are challenged and disputed, their ability to elicit anxiety is weakened.

Structured Relapse Prevention: Structured Relapse Prevention (SRP) is a cognitive behavioral, manual-based counseling approach that is used in a variety of settings. SRP is designed for people with moderate to severe substance dependence, and is typically delivered in eight to 12 group or individual counseling sessions. Relapse Prevention Therapy (RPT) is a cognitive-behavioral approach to the treatment of addictive behaviors that specifically address the nature of the relapse process and suggest coping strategies useful in maintaining change (Marlatt & Gordon, 1985; Parks, Marlatt, & Anderson, 2001). It is based on the idea that addictive behaviors are acquired, over-learned habits with biological, psychological, and social determinants and consequences. Engaging in an addictive behavior typically provides immediate rewards that increase pleasure and/or decrease pain. In other words, people engage in addictive behaviors to "feel good" (enhanced pleasure) or to "feel better" (self medication of pain) although both motives can exist at the same time. The rewards of following addictive behaviors serve to maintain their excessive frequency, intensity, and duration, despite the delayed negative consequences, which can be quite severe and long lasting.

Structured problem solving: Our mental problem-solving resources lie in our two brain hemispheres. Both perform reasoning, remembering, communication, and problem solving. But they do them differently and share their results, one is better at logic and the other is better at intuition. The left- and right-brain hemispheres (LH and RH) receive the same sensory information simultaneously but process it according to different protocols. Each is aware of the other through their adjoining corpus callosum. LH controls language and logic in most individuals. Technologists are influenced more by their LHs and artisans more by their RHs. RH is better at visualization of spatial relationships and the use of metaphors. Having no language, RH is at a disadvantage to LH. LH may veto RH ideas. We often ascribe the "gift" of problem solving to creative people. Creative person is someone who can process in new ways information directly at hand, "a person having a new point of view."

Material and Methods:-

The present study was conducted in the antiretroviral (ART) centre which runs under National AIDS Control organization (NACO) by Maharashtra State AIDS Control Organization (MSACS). All the patients enrolled under ART centre and require antiretroviral treatment as per NACO Guidelines are provided free antiretroviral drugs.
Statement of the problem: "To study the effect of cognitive behavioral interventions on mental health and death anxiety among HIV patients."

Hypothesis tested in the study: To attain the objectives of this study, following hypotheses (H) had been put forth for testing. H1.Level of death anxiety would be reduced after the intervention cognitive restructuring. H2. Level of mental health would be improved after cognitive restructuring.H3.Level of death anxiety would be reduced after the intervention structured relapse prevention.H4 Level of mental health would be improved after structured relapse prevention.H5 Level of death anxiety would be reduced after the intervention structured problem solving. H6. Level of mental health would be improved after structured problem solving.

Population and sample

A purposive sample of HIV infected patients diagnosed to have HIV infection and registered in the antiretroviral treatment centre was selected. The sample size was based on population proportion of 81 percent and confidence level of 95 percent, with absolute precision of 5 percent points to have sufficient variation in the population characteristics (e.g., sex, education, economic status) that may influence adherence. Both male and female HIV infected patients of 18 to 55 years of age, taking anti-retroviral treatment for more than 6 months who could understand, read and write Marathi and Hindi language were selected. Diagnosis of HIV infection was confirmed under ICTC- Integrated counseling and testing centre of a tertiary care Hospital in Aurangabad, Maharashtra, India. Pretest questionnaire were filled by these patients and the same sample of population underwent cognitive behavioral interventions, Coronell Medical Index (CMI) heath questionnaire by N.N.Wig , Dwarka Prasad and S.K.Verma for mental health and Death anxiety scale (DAS) Hindi version by Upinder Dhar, Savita Mehta and Santosh Dhar questionnaires after which posttest questionnaire were filled. Those who gave consent to the questionnaire, filled pretest, posttest, questionnaire and underwent all the interventions as specified were included in the study. Total 390 out of 400 patients fulfilled the criteria's of selection and underwent all the interventions as per the plan of the study. Those patients not fulfilling all the above criteria, seriously ill patients, those who were lost to follow up and failed to undergo planned sessions of CBT interventions were excluded from the study.

Variables under study: Dependent variables were mental health and death anxiety. Independent variables were cognitive behavioral interventions like cognitive restructuring, structural relapse prevention and structured problem solving.

Study design: Pretest and posttest study to compare participant groups and measure the degree of change occurring as a result of treatments or interventions. Cognitive behaviour interventions applied were - Cognitive restructuring, Structured relapse prevention, Structured problem solving.

Tools of data collection- 1. Coronell Medical Index (CMI) heath questionnaire by N.N.Wig , Dwarka Prasad and S.K.Verma. Hindi version was used to assess Mental health of these patients. Validity as an Indicator of Health: A number of studies have demonstrated the validity of the CMI as an indicator of health status, using different methods of handling the responses and various dimensions of health. The Hindi translated version was correlated against original English form. Correlations between the scores on English and Hindi ranged between0.77 to 0.87. Death anxiety scale (DAS) - Hindi version by Upinder Dhar, Savita Mehta and Santosh Dhar having reliability 0.87 and validity 0.93, was used to measure death anxiety in these patients. Reliability-The split half reliability coefficient was = 0.87. Validity-In order to determine validity from the coefficient of reliability (Garrett, 1981), the reliability index was calculated. The later has indicated high validity on account of being 0.93.

Data collection- This study was conducted in three sessions:-

First session- All the selected 390 HIV infected patients attending antiretroviral centre were subjected to fill above mentioned questionnaires. Every patient was interviewed by the investigator and all the questionnaires were checked for completeness. They were called every month for collection of their medication and cognitive behavioral interventions.

Second session - Out of these 390 patients three groups of 130 patients each were made randomly. The first group of 130 patients was subjected to the intervention, cognitive restructuring, second group of 130 patients underwent structured relapse prevention and to the third group of 130 patients, structured problem solving was applied. All 390 patients underwent all three interventions. Adherence counseling was done by the ART counselor to every patient as a part of protocol by National AIDS control organization. Every patient had to visit ART centre once in a month to collect their monthly quota of medication and selected cognitive behavioral interventions which were administered by the investigator. Every session of intervention lasted for one hour for every patient. All the patients were given booklets written in local language by the investigator which included- 1) Part1-containing education about the HIV

virus and natural history of HIV infection and AIDS. 2) Part2- containing information regarding cognitive behavioral interventions selected for them. They were given the homework of reading it everyday preferably in the morning or the time suitable for them. Every patient was asked to bring the booklet every time they visited investigator.

Third session -All the patients who completed first and second sessions satisfactorily were administered posttest questionnaires. The questionnaire was reapplied to the same sample and then were assessed for change in their behavior.

Cognitive behavioral interventions:-

1. Cognitive restructuring: The procedure followed was as follows. Step I - To identify the specific cause of the anxiety, patients were interviewed in detail to find out their irrational thoughts, beliefs. Step II - The therapist helped the patient dispel the irrational thoughts that provoke Anxiety. With the help of education material like charts, lectures, television educational programs, by giving live examples as role models and roll plays and take home assignments these patients were helped to change their behavior. Step III - To convert the anxiety-provoking thought into something that, instead, induces relaxation. The final goal of therapy is to give the patient the tools he needs to remain calm under difficult circumstances. Deep breathing exercises were taught to every patient. Patients were taught how they can change their negative and irrational thoughts into positive and constructive thinking. Every patient underwent 12 sessions of one hour duration.

2. Structured relapse prevention: A number of basic principles and procedures underlie the Gorski Cenaps Model of relapse prevention therapy (developed by Terence T. Gorski. Published 2007 by herald publ. In independence, mo. Written in English). Each principle forms the basis of specific relapse prevention therapy procedures. It was used as per the following principles and procedures to develop appropriate treatment plans for relapse-prone patients. The following format for a relapse education sessions was followed: Educational presentation lecture, film, or videotape (30 minutes) , Educational exercise conducted in dyads or small groups (15 minutes) , Large group discussion (15 minutes) , Post-test session and review of correct answers (15 minutes).

3. Structured problem solving:-Some simple steps suggested by Carroll 7 and Mynors-Wallis 8 were used to guide patients. Identify the problem (try to break it down) and define it. • Step back from the problem and try to view it as an objective challenge. • Brainstorm possible solutions (realistic and unrealistic). • Think about each solution in practical terms, and evaluate the pros and cons. • Decide on the best solution (and a second, "back-up" solution). • Put the solution into action. • Evaluate how effective it was and whether it can be improved. All these steps with their detailed explanation were written in local language by the investigator for all the patients. The patients were asked to read and follow it.

Statistical analysis:-

Data analysis: Statistical analysis was done using dependent T test and the data was computed using EPI info version 6. T tests were used to assess significance between pretest and posttest groups. A P-value of < 0.05 was considered significant. Pearson's correlation was used to find relationship between death anxiety, mental health and adherence to ART.

Results and discussion:-

On statistical analysis hypothesis were tested and following results were obtained which were compared with other similar studies. On extensive search of journals this study could not be matched with any published study where above mentioned types of interventions are studied together to find the effect mental health and death anxiety in HIV infected patients. So an attempt is made to correlate findings of this study to similar research on the topic in a broad view.

Hypothesis 1: Level of death anxiety would be reduced after cognitive restructuring. Anxiety and depression are the most frequently identified psychological symptoms reported by persons with HIV. In the present study Death anxiety was prevalent in 44.88 % of population before intervention (175 patients out of 390 total study population), however after the intervention death anxiety prevalence reduced to 27.69 % (108 patients out of 390 total study population). A score of > 7.05 in the DAS was used for establishing the presence of death anxiety.Total study population underwent cognitive restructuring as a cognitive behavior intervention. It was observed that there was

statistically significant difference between pre and post intervention group at 95 % confidence Mean-1.76, SD-2.056, t-9.766.

For this hypothesis paired t test was applied to the data using SPSS software.
Table No.1Table shows Mean, Standard deviation, t values for pretest and posttest total scores of effect of cognitive restructuring on Death anxiety.

Table No. 1.1Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean	t value
Pair 1	DAS Pretest	6.2154	130	2.62364	.23011	9.766**
	DAS Posttest	4.4538	130	2.89108	.25356	

Table No.1.2 Paired sample test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	DASA1 - DASA2	1.76154	2.05658	.18037	1.40466	2.11841	9.766	129	.000

The results of the present study (Table No.1) show that the effect of cognitive restructuring is statistically significant at df (degree of freedom) 129; the t value is 9.766 which is significant at 0.01 level, $p<0.01$. As per the table, the means of Death anxiety scale scores before and after intervention are 6.2154 and 4.4538 respectively. The results support hypothesis that the level of death anxiety would be reduced after the cognitive restructuring.

Franks et al. (1990) studied males afflicted with AIDS, and found greater death anxiety among person with AIDS when compared to HIV negative controls[6]. Kurdek & Siesky (1990) were the first to utilize seronegative controls, reporting that asymptomatic subjects demonstrated worse psychological functioning when compared to symptomatic and seronegative controls. These asymptomatic subjects reported greater death anxiety, psychological distress and lower optimism despite the worse health profile exhibited by the symptomatic group[7]. It was hypothesized that people having HIV positivity have irrational beliefs and negative thoughts. So cognitive restructuring was chosen as an intervention. When posttest population was interviewed they found this intervention to be very helpful in changing their thoughts and behavior. One of a patient Laxman was very worried about the future of his family members. He used to think that " If I have this disease at a very young age of 27 what will happen to his wife, daughter and a son of 2 yrs old after he die". That had caused him sleepless nights and anxiety. When he underwent cognitive restructuring he received detailed education about the disease with therapy. When he understood that this disease can be kept under control and now with the help of antiretroviral treatment can be managed just like diabetes and hypertension he was convinced and was relieved of his anxiety. It was observed that female patients who had

lost their husbands who suffered serious illness (AIDS or opportunistic infections) used to think that their fate will also be like their husband. During intervention they were helped to overcome this thought.

Similarly many patients narrated their stories how they could change their negative thoughts to positive ones and how much comfortable they are after therapy. One of the patient who participated in the study, a highly educated man had seen death of his friend who was also HIV infected. So every time he used to think that he will also die as his friend. During every visit of intervention he was told about the nature of disease and how different patients suffer from different stages of disease, how mortality is related to the level of immunosupression and how every person has different type of immune response to fight against a infection. He was also shown patients who were severely immune depressed and now living healthy life after treatment.

Hypothesis 2: Level of mental health would be improved after the intervention cognitive restructuring.
As it is confirmed in many studies, since the diagnosis of HIV infection a patient has to undergo a psychological turmoil and hence is predisposed to different emotional and mental illnesses. Emotional problems are among the most common symptoms in HIV patients with up to 98.6% prevalence as reported by Wig N, Sakhuja A, Agarwal SK, et al (March 2008) in a cross-sectional design with convenient sampling of 138 HIV-positive patients of North India.

Using mental health test questionnaire and a MHT score of >30, the prevalence of poor mental health in the study population was found. Before intervention the prevalence of poor mental health was 62.8 % (245 patients out of total 390 study population), and after the intervention it reduced to 20 % (78 patients out of total 390 study population).

In the present study different aspects of emotional distress like inadequacy, depression, anxiety, sensitivity, anger and tension were studied with the help of CMI Mental health test questionnaire, before and after cognitive behavior interventions (CBI). Total 390 patients underwent cognitive restructuring as a cognitive behavior intervention. In the present study it was observed that cognitive restructuring as a CBI was significantly effective in improving the overall mental health of the patients but CBI like cognitive restructuring and structures problem solving had more significant effect.

The average MHT score before cognitive restructuring was 24.83 and that after restructuring was 19.66. This difference was statistically significant, at 95% confidence level when analysed using paired t test

Table No.2 Table shows Mean, Standard deviation, t values for pretest and posttest total scores of effect of cognitive restructuring on Mental health of HIV infected patient

Table no. 2.1 Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean	t value
Pair 1	MHT1	24.8308	130	14.52404	1.27384	11.017**
	MHT2	19.6615	130	12.65068	1.10954	

Table No. 2.2 Paired sample test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	MHT1 - MHT2	5.16923	5.34998	.46922	4.24086	6.09760	11.017	129	.000

As observed in table no.2 there is significant difference in the means of scores of mental health test before and after intervention at df 129 t value is 11.017 P<0.01. The means of scores of death anxiety changed from 24.83 to 19.66 before and after cognitive restructuring respectively. This supports the hypothesis that level of mental health would be improved after cognitive restructuring.

In a meta-analysis of cognitive-behavioral interventions on HIV-positive persons' mental health and immune functioning, Crepaz N, Passin WF, Herbst JH, Rama SM, Malow RM, et al (2008) evaluated the efficacy of cognitive-behavioral interventions for improving the mental health and immune functioning of people living with HIV. Significant intervention effects were observed for improving symptoms of depression (d = 0.33), anxiety (d = 0.30), anger (d = 1.00), and stress (d = 0.43). They concluded that CBIs are efficacious in improving various psychological states of people living with HIV[8].

Hypothesis 3: Level of death anxiety would be reduced after the intervention structured relapse prevention.-Total 390 study population underwent structured relapse prevention, the Death Anxiety Scale a score reduced from a mean of 5.93 to 4.23, which was statistically significant.

Table No.3 Table shows Mean, Standard deviation, t values for pretest and posttest total scores of effect of structured relapse prevention on death anxiety

Table No.3.1 Paired Samples Statistics

Before and After Structured relapse prevention		Mean	N	Std. Deviation	Std. Error Mean	t value
Pair 1	DASA1	5.9385	130	2.69007	.23594	12.048**
	DASA2	4.2308	130	2.76898	.24286	

Table No.3.2 Paired sample test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	DASA1 - DASA2	1.70769	1.61603	.14174	1.42726	1.98812	12.048	129	.000

The results of the present study (Table No.3) show that the effect of structured relapse prevention on death anxiety is statistically significant at df (degree of freedom) 129; the t value is 12.048 which is significant at 0.01 level, p<0.01. As per the table, the means of Death anxiety scale scores before and after intervention are 5.9385 and 4.2308 respectively. The results support hypothesis that the level of death anxiety would be reduced after the structured relapse prevention. Cognitive–behavioral relapse prevention helps clients through the process of relapse recovery by focusing on cognitive, behavioral, and lifestyle choices that might be changed or reinforced to help the client prevent relapse (Dr. Marlatt).

Patients who were found to be addict to alcohol, smoking and / or tobacco along with nonaddict patients underwent all the sessions of structured relapse prevention. Addiction to Intravenous drug use was not found in the study population probably most of the patients were from rural and remote areas. But investigator recommends further study on this subject.

As the presence of perversion and sexual addiction in the study population is beyond the scope of this study it was not included, but investigator recommends further research on this subject.

Hypothesis 4: The level of mental health would be increased after the intervention structured relapse prevention. In the present study all the patients underwent structured relapse prevention as a cognitive behavior intervention to find out its effect on improving mental health.
Table No.4 Table shows Mean, Standard deviation, t values for pretest and posttest total scores of effect of structured relapse prevention on mental health of HIV infected patients.

Table No. 4.1 Paired Samples Statistics

Before and After Structured relapse prevention		Mean	N	Std. Deviation	Std. Error Mean	t value
Pair 1	MHT1	28.5385	130	10.57945	.92788	9.908**
	MHT2	22.2154	130	9.69215	.85006	

Table No. 4.2 Paired sample test.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	MHT1 - MHT2	6.32308	7.27661	.63820	5.06038	7.58577	9.908	129	.000

As observed in the table no.4 there is significant difference in the means of scores of mental health test before and after structured relapse prevention at df 129, t value is 9.908 P<0.01. The means of scores of death anxiety changed from 28.5385 to 22.2154 before and after structured relapse prevention respectively. This supports the hypothesis that level of mental health would be improved after structured relapse prevention.

In a meta-analysis of cognitive-behavioral interventions on HIV-positive persons' mental health and immune functioning, Crepaz N, Passin WF, Herbst JH, Rama SM, Malow RM, et al(2000). They concluded that CBIs are efficacious in improving various psychological states of People Living With HIV (PLWH). The SRP approach helps a client to anticipate substance use triggers for the coming week and identify and commit to a plan of action. Relapse prevention goals include, but are not limited to: working on a substance use goal of abstinence or reduction, within an abstinence-based goal, having fewer and shorter-lasting slips, using less of the problem substance if any, and having fewer negative consequences associated with substance use, recognizing the impact of substance use on mental health, learning and recognizing early warning signs for mental health relapse, developing an action recovery plan and putting it into practice in the "real world," in between SRP sessions, which aim to support the maintenance of change.

Hypothesis 5.Level of death anxiety would be reduced after the intervention structured problem solving.
Certain thoughts and beliefs about death are common. In exploring this area, it is helpful to review clients' personal experiences with death. Helping the client move toward more balanced views of these issues may help them cope more calmly with the prospect of death. Total 390 study population were approached by the structured problem solving approach. With the help of investigator and the therapist they were interviewed and asked to frame their problems. They were helped and taught to find out solutions to their problems.

Table No. 5 Table shows Mean, Standard deviation, t values for pretest and posttest total scores of effect of structured problem solving on death anxiety.

Table No. 5.1 Paired Samples Statistics

Before and After structured problem solving		Mean	N	Std. Deviation	Std. Error Mean	t value
Pair 1	DASA1	5.7538	130	2.78996	.24470	10.119**
	DASA2	3.5692	130	2.70784	.23749	

Table No. 5.2 Paired sample test.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	DASA1 - DASA2	2.18462	2.46144	.21588	1.75749	2.61174	10.119	129	.000

The results of the present study (Table No.5) show that the effect of structured problem solving is statistically significant at df (degree of freedom) 129; the t value is 10.119 which is significant at 0.01 level, $p<0.01$. As per the table, the means of Death anxiety scale scores before and after intervention are 5.7538 and 3.5692 respectively.

Quinn and Reznikoff (1985) explored the relationship between death anxiety and sense of purposefulness in life and perceptions of time. What they found was those who felt they had a lowered sense of purposefulness to their lives had both a higher risk of death anxiety and sensitivity to the future[9].

When patients participated in the present study were asked about their problems every patient had some or the other problem disturbing their mind. One of the patients in this group had HIV positive wife and a son who was not tested for HIV infection. He had a problem of not getting enough strength to test his son. So every time he was afraid of his and his son's future. He was unable to enjoy life. This patient was dealt with by the investigator and his he was given an approach to the solution of this problem. During intervention he tested his son who turned out to be negative. This situation was observed by the investigator in many of these patients and it is very much necessary to personally and completely support these couples to get their children tested for HIV infection.

Few of the patients who had problem that they will have a short life span and what will they be able to do for their family? These patients were told that "There is no guarantee of a life of even normal persons, as death is the truth and everyone has to die some or the other day. So it's not that because you are HIV positive you will die early!. Also they were shown that how antiretroviral treatment has improved life span and quality of life of HIV positive patients.

Some patients who could not overcome the fear of death anxiety were very stubborn and thought that it is not possible to find cure for HIV and they will not be able to live to complete their family responsibilities like marriages of their children.

Some patients had a problem that they were worried about the future of their family, thinking that if they become ill they will not able to earn and what is the purpose in living vegetative life and add to the burden on parents. So these patients were dealt with structured problem solving to change their behavior.

Hypothesis 6-Level of mental health would be improved after structured problem solving. All the patients who were subjected to structured problem solving.

As observed in the table no.6. there is significant difference in the means of scores of mental health test before and after structured problem solving at df 129, t value is 10.426; P<0.01. The means of scores of death anxiety changed from 26.0538 to 21.0615 before and after structured problem solving respectively. This supports the hypothesis that level of mental health would be improved after structured problem solving.

Table No. 6Table shows Mean, Standard deviation, t values for pretest and posttest total scores of effect of structured problem solving on mental health of HIV infected patients.

Table No.6.1 Paired Samples Statistics

Before and After structured problem solving		Mean	N	Std. Deviation	Std. Error Mean	t value
Pair 1	MHT1	26.0538	130	14.22483	1.24760	10.426**
	MHT2	21.0615	130	12.63976	1.10858	

Table No.6.2 Paired sample test.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	MHT1 - MHT2	4.99231	5.45950	.47883	4.04493	5.93968	10.426	129	.000

In the present study depression and anxiety related to the disease, were dealt with by finding out the causes of it in the patient of this group with the help of problem solving approach. It helped many patients to be adherent to medication. Major causes of depression and anxiety were related to the disclosure of their status to their friends, relatives, worry about the future of their children and parents. Few patients had suicidal thoughts in the initial sessions of the intervention. Investigator observed that especially those patients having no family support and when wife and children were also positive for HIV infection had more suicidal thoughts. While dealing with female patients it was found that they were anxious of transmitting their illness to rest of the family members. Also they were more worried about the future of their children if they die. These patients were dealt with step by step and during every session they underwent. Few patients who had absentee from their job had a problem of issue of certificates of their illness. Their problems were also dealt with by the investigator. One of the patients was suffering from HIV and tuberculosis, as he was a daily earner and was not having support of his parents, it was not possible for him to earn. Investigator motivated patients wife to start a small business of making and selling tea, after doing that she could earn at least to take care of their daily expenses. There are many such examples where solutions were offered to these families to solve their financial, psychological, even familial problems.World Health Organisation has also recommended a structured problem solving approach to be considered as a treatment for persons with acts of self-harm in the last year, if there are sufficient human resources.

Conclusions of the study- On analysis of the data following conclusions are drawn. Death anxiety was reduced and mental health was improved in the study population after cognitive behaviour interventions like cognitive restructuring, structured relapse prevention and structured problem solving.

Recommendations for further research:-

Further multicentric studies with large number of sample are suggested to confirm findings of this study.

Limitations of the study

Considering the randomized selection of the study population maturation and history are major problems for internal validity in this design, whereas the interaction of pretesting and treatment is a major threat to external validity.Along

with adherence counselling different cognitive behavioural interventions were used simultaneously, so the affectivity of each of these separately needs to be investigated.

References:-

1. https://www.asapservices.org/page.aspx?pid=876 Carter M. Adherence. Information series for HIV-positive people. NAM. (2005) Available at: http://www.aidsmap.com

2. http://www.educatingwomen.org/hiv-and-mental-health/

3. Princy and Kang, Tejpreet Kaur (2010). Thantaphobia (Death anxiety) as related to related to religiosity : A case of elderly women, Adv. Res. J. Soc. Sci., 1 (2) : 140-144.

4. Jeffrey W. Braunstein (March 2004). "An Investigation of Irrational Beliefs and Death Anxiety as a Function of HIV Status". *Journal of Rational-Emotive and Cognitive Behavior Therapy*, www.ResearchConsultation.com, vol. 22, pp. 21-38.

5 http://www.health.gov.bc.ca/library/publications/year/2007/MHA_CognitiveBehaviouralTherapy.pdf

6 Franks, K., Templer, D. I., Cappelletty, G. G., Kauffman. (1990). Exploration of Death Anxiety As a Function of Religious Variables in Gay Men with and without AIDS. Omega, 22, (1), 43-50.

7 Kurdek, L. A. & Siesky, G. (1990). The Nature and Correlates of Psychological Adjustment in Gay Men with AIDS-Related Conditions. Journal of Applied Social Psychology, 20, (10), 846-860.

8 ,Crepaz N, Passin WF, Herbst JH, Rama SM, Malow RM, et al ; Meta-analysis of cognitive-behavioral interventions on HIV-positive persons' mental health and immune functioning. Health Psychol. 2008 Jan;27(1):4-14. doi: 10.1037/0278-6133.27.1.4

9 Quinn PK, Reznikoff M. The relationship between death anxiety and the subjective experience of time in the elderly; Int J Aging Hum Dev. 1985;21(3):197-210.