



## **EFFICACY OF RATIONAL EMOTIVE THERAPY IN THE MANAGEMENT OF DEPRESSION IN HIV INFECTED WOMEN**

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### *Abstract*

*The present study was designed to explore the efficacy of rational emotive behaviour therapy in the management of depression among HIV infected women. Random sample of 50 HIV infected women were selected for the study. The selected sample were allocated to experimental (N=25) and control groups (N=25). Quasi experimental one group pretest post test control group design was chosen for the study. Hamilton Depression Scale was administered to assess depression before and after the intervention. Rational Emotive Behavioral Therapy (REBT) was employed as the intervention to the experimental group. Appropriate statistical tools were used to test the hypotheses. The result revealed that there is a significant decrease in the level of depression among HIV infected women after REBT.*

Keywords: depression; REBT; HIV/AIDS; HIV infected women

### **Introduction**

The present study was aimed to alleviate the mental suffering i.e. depression experienced by HIV infected Women. Depression is a dangerous mental illness manifested with many symptoms like insomnia, loss of appetite, isolation, suicidal tendency, and disgusted social functioning, persistent sadness, feelings of inadequacy, hopelessness, unworthiness, dejection, gloom, rumination, and general apprehension. Keeran (2010) noted depression also result from self-defeating life patterns. Ferrari et al. (2013), Moussavi et al. (2007), Reddy (2010), and WHO (2008) argue depression is now a most prevalent illness that burdens world's population. Without adequate and inappropriate treatment may cause the symptoms of depression last for weeks, months, or even years. However, appropriate therapeutic approaches helped

patients to overcome from depressive symptoms, facilitated for better coping skills and lead to a well adjusted life (David et al., 2004; WHO, 2016).

The leading cause for death of women between the age group of 25-44 is HIV/AIDS which is the third cause among various diseases (Centre for disease control and prevention (CDC, 1998). This life killing disease spreads through the main two routes such as sharing of needles by injections and heterosexual intercours (Baum, Ravenson, & Singer, 2001).

Women are vulnerable community in India causes infection of HIV, since safe sexual practices cannot be insisted by them. Moreover, there are many factors underlying in this life threatening disease. Biologically, there is a greater likelihood of HIV infection passing from men to women in unprotected sexual relations than from women to men. WHO (1993) reported that women are more likely than man to be infected with HIV through heterosexual intercourse reasoned biological, epidemiological and social. HIV transmission from male to female is eight times greater than from female to male transmission (Padian, Shiboski, Glass, & Vittinghoff, 1997). In most of the cultures, women play a subordinate role and male partners force women for sexual intercourse, violent in sexual intercourse, sexual abuse, rape may cause rupture in vaginal tissue and bleeding results in HIV infection. Lack of knowledge in use of contraceptives, un-use of and refuse to use condoms by male partner also the reasons for transmission from male to female. Besides, cultural reasons underlying in this issue are economic dependency, illiteracy, dominance of men, physically less strength than man, poor knowledge on sexual practices and health care and young marriages leads women to precarious social position. Women are submissive in nature controlled and dominated by her primary family partner and social freedom for man is much higher than women in India. Women are considered as the subordinate to man legally, socially, economically and sexually. This suppresses their rights to suggest or to insist for safe sexual practices. And the belief among males that the use of contraceptives is the responsibility of women and a man can have a multiple sexual partners. HIV transmission is predicted also by the factors culturally determined sex roles and negotiation of safer sex is ignored (Amaro, 1995). In some culture, practices like having anal sex to preserve women virginity that endanger to HIV infection due to unprotected intercourse (Parker, 1987). To enhance the sensation for enjoyment during vaginal intercourse some women use intravaginal irritants such as herbs and hydroxides to dry the

mucosa which ease the HIV infection and other STDs (Baum, Ravenson, & Singer, 2001).

An enormous burden has come up in the worldwide health care system due to the swelling that took place in the incidence of HIV infection throughout. The health care worker faces a small, but definite risk of post-exposure transmission of the disease.

World Health Organization (2009) reported persons living with HIV worldwide were 33.3 million and women 15.9 million. According to 2006 report of National AIDS Control Organization (NACO), supported by UNAIDS and WHO, indicate that national adult HIV prevalence in India is approximately 0.36%, which corresponds to an estimated 2 million to 3.1 million people living with HIV in the country. In Asia, during 2008, approximately 4.7 million people were affected with HIV. Approximately 2.5 million people in India were living with HIV in 2006, with national adult HIV prevalence of 0.36%. Although the proportion of people living with HIV is lower than previously estimated, India's epidemic continues to affect large numbers of people. The revised estimates are based on an expanded and improved surveillance system, and the inclusion of the results of the recent national household survey in the estimation process contributed significantly to the revised estimates. Over 100000 people were tested for HIV in the survey which was the first national population based survey to include a component on HIV.

Prevalence trends in India vary greatly between states and regions. Even in the four southern states (Andhra, Pradesh, Karnataka, Maharashtra, and Tamil Nadu) where the large majority of people infected with HIV are surviving. HIV prevalence varies and the epidemic tends to be concentrated in certain districts. Reported adult HIV prevalence in six states included in the recent national population-based survey varied from 0.07% in Uttar Pradesh, to 0.34% in Tamilnadu 0.62% in Maharashtra, 0.69% in Karnataka, 0.97% in Andhra Pradesh and 1.13% in Manipur. Prevalence in all other states together was 0.13%. An earlier analysis of sentinel surveillance data also showed that HIV prevalence in southern states overall was about five times higher than in northern states in 2000-2004. However, pockets of high HIV prevalence have also been identified in states where overall prevalence is generally low, warning against complacency.

Data from the expanded 2006 sentinel surveillance show stable or declining prevalence among pregnant women in Tamilnadu, Maharashtra, Karnataka, and Andhra Pradesh, but high HIV prevalence among injecting drug users and men who have sex with men in a few states. Outside of the north-east of the country, where the use of contaminated drug injecting equipment is a key risk factor, HIV appears to be spreading mainly as a result of unprotected sex between sex workers and their clients, and their respective other sex partners.

### *Depression and HIV/AIDS*

Depression is a serious condition that impairs the cognition, thought and feeling of everyday life. Depressive patients also exhibit withdrawal, suicidal ideation, poor social participation and memory loss. Almost in all countries irrespective of their income status, depression are misdiagnosed, incorrectly diagnosed and non depressive patients are administered/prescribed antidepressant drugs (World Health Organization, 2016).

Depression is associated with rapid multiplication of viruses, impairment in the immune system, infections in glands and infections in skin and also in large lymph nodes. There are numerous empirical studies evidenced that depression is one of the most prevalent psychiatric problem found in HIV-positive individuals. Segurado and Malbergier (2010) conclude that major depression is highly prevalent among women living with HIV. People living with HIV (PLWH) exhibit high prevalence of depressive disorder, estimated as 1.99-fold higher when compared to their seronegative counterparts (Ciesla & Roberts, 2001). Depressive disorders are prevalent among individuals with HIV infection (Penzak, Reddy, & Grimsley, 2000).

The prevalence of depression in HIV infected clinical population is ranged from 22% to 38% (Kelly et al., 1998; Wagener et al., 1996). Patients whose age above 35 years are more likely to suffer from depression, confusion, fatigue, anxiety, insomnia, pain and emotional control and are correlated with depression (Hoffman, 1997). HIV often can be accompanied by depression-a mental disorder that can affect mind, mood, body and behavior. HIV-positive women are at higher risk for depression than HIV-negative women, due to the compounding factors of medical illness and social marginalization (Catz et al., 2002). The frequency of current major depressive episode among HIV-positive women ranges from 4.5% to 29% (Brown & Rundell, 1993; McDaniel et al., 1995). The prevalence of past depressive episodes was slightly higher among

the symptomatic women (50%) than among the asymptomatic women (46.7%). Various studies have estimated the lifetime prevalence of depression in these individuals to range from 22% to 45% (Penzac, Reddy, & Grimsley, 2000). A correlational study by Wagner et al. (2010) revealed that HIV stigma and HIV positive women are correlated, similarly anxiety and lower educational level and higher anxiety were associated with higher HIV stigma.

A meta-analysis of ten studies conducted by Ciesla and Roberts (2001) revealed that the prevalence of depression in HIV positive individuals was 1.99 times more than uninfected individuals. Depressive women had higher HIV viral load than non-depressed ones (Mello et al., 2010). Evans et al. (1998) revealed that depressive symptoms are associated with HIV disease and negative effect with quality of life. And this infection contributes in developing depression through a group of characteristics which are unique in altering mood directly or indirectly (Evans, Staab, Ward et al., 1996). Correspondingly, depression also contributing in faster decline of CD4+ counts results in more complex HIV symptoms and disease progression among women (Hewitt et al., 2001; Anastos et al., 2000). Depression causes in increasing the immunodeficiency which stumbles the medicinal effects in controlling the infection. Depression affects the immune system in different ways (Zaharia et al., 2000; Schleifer et al., 1999; Miller et al., 1999). Patterson, Semple, Temoshok et al. (1995) and Paterson, Swindells, Mohr et al. (1999) argued that depression associated with deleterious effects in the immune function and medication compliance in HIV patients. CD8+ cell plays an important immune response mechanism that controls the HIV replication associated with stress and depression cause quantitative decline of these cells, ultimately increasing the viral loads in depressive patient was encountered (Leserman et al., 1997; Cruess et al., 2003). Commonly encountered problem among women with HIV is pain due to disease and treatment side effects often associated with depression (Jeyarajan & Chandra, 2010). Thus, depression among HIV infected women is inevitable, which leads to other psychological and physiological illness such as suicide, immune deficiency, adherence to treatment, social functioning and other physical illness.

High incidence of depression and anxiety further aggravates the complication. Besides pharmacotherapy, supportive psychotherapy has an important part to play in the treatment of those patients who interpret their symptoms to be reaction to the diagnosis of HIV infection. The relationship

between HIV infection and depression are generally complex and difficult to assess (Basu, Chwastiak, & Bruce, 2005; Fulk, Kane, Philips, Bopp, & Hand, 2004). This may be due to the fact that signs and symptoms of depression listed in Diagnostic and Statistical Manual of Mental Disorders IV (DSM IV) criteria are similar to signs and symptoms of HIV infection itself (Oley, Seedat, & Stein, 2006). Depression is prevalent among women living with HIV is evident due to various reason. Women are particularly vulnerable since they are faced with specific burdens when living with HIV. They often feel isolated and experience shame, stigma, anxiety and feelings of ambivalence and, in addition, are challenged in their roles as caregivers, mothers and wives (Chung & Magraw, 1992). Comparatively HIV women are depressed than non HIV infected women, no symptoms of depression was identified among non HIV infected women and but it is still under diagnosed and undertreated (Antakly de Mello & Malbergier, 2006). Diagnosis and management of depression is an important factor for optimal outcome of HIV/AIDS patients. Safe and effective treatment of major depression, one of the most common co-morbid conditions in individuals infected with HIV, significantly lowers morbidity and mortality of HIV disease (Vardhana & Laxminarayanan, 2007). Besides other underlying factors, it may be possible to prevail it with a cognitive based behavioral intervention program.

#### *Rational Emotive Behaviour Therapy (REBT) and depression*

REBT is a form of cognitive behavior therapy developed by Albert Ellis in the middle of 1950s to treat various psychological disturbances, especially depression, anxiety disorders, including obsessive compulsive disorder, agoraphobia, specific phobias, generalized anxiety, posttraumatic stress disorder, etc. According to the theory of REBT, depression stems from a combination of irrational beliefs, demandingness and self-downing in particular (Macavei, 2005). The cause for all such disturbances is the belief system one who holds which is basically irrational. This irrational belief system manifests negative effects; this negative outcome is modifiable by changing the belief system of the individual. Irrational beliefs, a central idea in cognitive theory and therapy, have been shown to play a primary role in numerous disorders, including depression and anxiety (Haaga, Dyck, & Ernst, 1991; Beck, Rush, Shaw, & Emery, 1979; Chadwick, Trower, & Dagnan, 1999). Depression is one of the negative emotional effects experienced by people, caused due to the

belief system they hold. Vernon (2007) pointed out that REBT has been used for a variety of problems such as depression, test anxiety, parenting, hyperactivity, assertion and other problems among children and adolescents. REBT is effective in the reduction of test anxiety (Egbochuku, Obodo, & Obadan, 2008). Combined with behaviour counselling, REBT was found to be effective in dealing with depression and suicidal thoughts (Achebe, 1982). REBT can be effective in prevention of psychopathology. REBT has been found to be effective in the treatment of test anxious students (Yoloye, 1988; Warren, 1984).

Subjects exposed with REBT and control group significantly differed in the level of general anxiety and examination anxiety (Olusakin, 2000). Several experiments are evidenced that REBT was found to be more effective in behaviour adjustment (Nanka, 2002).

To alleviate the depressive symptoms, REBT approach was undertaken in the present investigation and literature pertaining to REBT and its application to various psychological disturbances was incorporated. Among those disturbances depression is one of the major problems faced by patients with HIV. The following paragraph narrates the literature evidences in detail.

A Meta analysis examination of efficacy of REBT performed by Engles et al. (1993); Lyons and Woods (1991) indicates REBT is useful for a large range of clinical diagnosis and clinical outcomes, efficient in clinical and non clinical populations, for a wide group of age between 9 to 70 years and for both the gender. In addition to that individual and group REBT doesn't show any difference, level of training of the therapist, increased number of sessions were positively correlated with results of REBT intervention and better outcomes. Since, this study was limited to clinical diagnosis, another meta-analysis was conducted by focusing specific psychological disturbances i.e. anxiety and depression.

Another meta-analysis was conducted by Bridges and Harish (2010) on the role of irrational belief in depression and anxiety. The article reviewed 25 empirical works on irrational beliefs assessment and identifies 25 scales and techniques. The authors conclude with recommendations which would strengthen empirical cohesion and precision in the measurement of irrational beliefs. The study was limited to the identification of scales and techniques and there was a dearth of interventional studies of REBT on depression. The below mentioned literatures provide support to the present problem of investigation.

Maryam, Mousavinik and Basavarajappa (2012) studied the irrational beliefs and depression among infertile women in India. Purposive sample of 40 infertile women diagnosed by a specialist were recruited for the study. Irrational belief and depression was assessed using appropriate scales. The result revealed that irrational beliefs were significantly correlated with depressive symptoms. The authors suggested for counseling and psychotherapy services in the infertility centers to reduce the psychological pressures on couples facing infertility.

Similarly, an experimental study conducted by Najafi, Jamaluddin, and Lea-Baranovich (2012) to identify the effectiveness of group REBT in reducing irrational belief among two groups of Iranian adolescent girls living in Malaysia. The results revealed that the treatment was effective in both groups, comparatively more effective in the 12-14 year old group. The authors recommended utilizing group REBT for helping adolescents who are living in foreign countries facing different psychological problems such as depression and anxiety.

Group counseling based REBT was found to be effective in changing the subject's belief system from irrational to a rational, helped to develop future objective, develop positive emotion such as reducing depression, having a more constructive behavioral expectation and did not cause harm to self and others, being able to accept reality whereby the subject was guided to make a right and positive expectation towards the event that took place around her (Nasir, Bistamam, & Nasir, 2009). Another experimental study carried out by Abosi (2004) indicates that students counseled with REBT significantly achieved better academic achievement motivation than the control group students. Likewise REBT was applied to other psychological variables such as conduct disorder and self concept.

Kumar (2009) examined the impact of rational-emotive behaviour therapy on adolescent students with conduct disorder. The investigator hypothesized that the REBT Psychotherapy would have a positive impact on adolescents' conduct disorder symptoms. The result revealed that the treatment decreased the symptoms of conduct disorder and REBT was found to have a positive impact on conduct disorder and other emotional and behavioral disorders co-morbid with conduct disorder experienced by adolescents. Owuamanam, Ajidahun, and Owuamanam (2012) attempted to enhance the self concept of Adolescents in Nigeria through the two techniques i.e. client



centered therapy and rational emotive therapy revealed RET was found to be effective than client centered therapy.

In spite of enormous research evidence regarding effectiveness of REBT on various psychological variables, a study conducted by Vekateshkumar, Mahigir, and Karimi (2012) to examine the effect of REBT on pain intensity among cancer patients in Iran. The result revealed that there was a significant difference found between experimental and control groups and no difference was found between male and female patients.

Numerous investigations have been conducted to manage depression whereas the present investigation pinpointed the literatures pertaining to various techniques employed for treating depression and REBT for other psychological problems. Other forms of behaviour therapies such as mindfulness therapy, logo therapy, cognitive behaviour therapy, systematic desensitization, are also found to be efficacious in managing mental illness like depression. Usual ways of treating depressive patients are pharmacotherapy and psychotherapy; single intervention will be less effective than combined treatments (Treisman, Angelino, Hutlon, Hsu, & Lyketsos, 2005).

#### *Need for the study*

Literature evidences that suicidal rate of women worldwide are high in number and HIV infected women suffer from depression. Women are vulnerable community in India, need to be saved from such consequences. Hence, they are the back bone of the family need to be cared for their children and take care of their household duties. Moreover, unprotected and unsafe sexual intercourse will pave way to spread the disease and give birth to a HIV infected child. As noted earlier, depression is more among HIV infected women cause to suicide and other complications. HIV positive women were significantly more likely to marital dissatisfaction, history of forced sex, domestic violence, depressive symptoms and husband's extra marital sex compared to HIV negative women (Gupta et al., 2008). HIV infected women had low quality of life (Kohli et al., 2005). Hence, the HIV infected women was taken as sample purposively. Despite there are other approaches to manage depression REBT was taken as tool to find its efficacy in managing depression.

## **Objectives**

### *Major objective*

To Evaluate the Effectiveness of Rational Emotive therapy to manage Depression.

### *Specific objectives*

1. To assess the Level of Depression among HIV infected Women;
2. To employ rational emotive therapy to experimental group participants;
3. To assess the level of depression before and after rational emotive therapy;
4. To identify the effectiveness of rational emotive therapy on depression.

### *Hypotheses*

H<sub>1</sub>: There is no significant difference between experimental group and control group before REBT;

H<sub>2</sub>: There is no significant difference between before and after REBT among experimental group;

H<sub>03</sub>: There is no significant difference between before and after REBT among control group;

H<sub>04</sub>: There is no significant difference between experimental and control group after REBT.

## **Method**

### *Participants*

The sample of the present study comprised of 50 HIV infected females identified from Mother Theresa HIV Research Institute located in Erode, Tamil Nadu, India. Their age ranged between 18 to 55 years, 16 of them belongs to nuclear family and rest of them was from joint family. Among them 41 were married and 9 were widow. The selected sample of participants was randomly assigned to experimental (N=25) and control group (N=25) respectively.

### *Measures*

The following measures used for data collection.

*Personal Data Profile.* Personal data profile was developed by the present researchers. The tool comprised the following information of the

individual: 1. Age, 2. Occupation, 3. Educational Status, 4. Marital Status 5. Family Type, 6. Husband's Job, 7. Number of Children, 8. Number of Abortions, 9. HIV Infection among Children, 10. Family Income and 11. Infection through Sexual Intercourse with Husband/Blood Transfusion.

*The Hamilton Rating Scale for Depression.* The Hamilton Rating Scale for Depression by M. Hamilton (1960). The scale contains 21 items of which only 17 are used to give a total score of severity. The items are concerned with symptoms of illness and not with traits of personality. The four items are excluded because they occur too infrequently. The questions are divided into 2 groups-Specific Symptoms and Somatic Symptoms. Specific symptoms measure the following aspects i.e depressed mood, guilt, suicide, insomnia - initial, middle, delayed, work and interests, retardation, agitation and anxiety. Under somatic symptoms the following aspects were measured viz., gastrointestinal, general, genital symptoms, hypochondrias, loss of insight, loss of weight, diurnal variation, depersonalization and derealisation, paranoid symptoms, obsession symptoms, helplessness, hopelessness and worthlessness. It has a 3 grade items and 5 grade items. For items with 3 grade it is a 3 point scale-absent-0, doubtful-1, present-2. For items with 5 levels the last level is split into 3 grades of mild-2, moderate-3 and severe- 4. Validity of the scale has been compared with clinical "global judgment". The inter rater reliability was 0.88 and therefore this sets an upper limit to validity measured in this way. Reliability for the total score ranges from 0.87 to 0.95. Reliability for individual items ranges from 0.45 to 0.78.

#### *Research design*

The research design herein adopted for the study was quasi experimental pre test post test control group design. Hamilton rating scale for depression was administered to assess the level of depression before and after rational emotive behavior therapy. As an intervention REBT was administered for a period of six sessions and the time duration of each session was sixty minutes. The control group was underwent the routine procedure whereas the experimental group was took part in REBT sessions. The efficacy of REBT intervention was ascertained comparing experimental and control groups after six sessions.

### *Interventional procedure*

#### *Rational Emotive Behaviour Therapy*

The REBT approach follows A-B-C-D-E sequence of procedure to change the irrational belief into rational beliefs. Albert Ellis (1977, 1985) uses a simple A-B-C-D-E sequence to explain his ideas.

A: Activating Event – the behavior exhibited by individuals which is basically negative or undesirable.

B: Belief System - the behaviour is the outcome of the belief system of the individual which is basically irrational.

C: Consequence - producing problem to the individual him/her self and to the surrounding.

D: Disputing - Confronting with the individual to convert the irrational belief as rational.

E: Effect - is the changed behavior from negative to positive after confrontation against the irrational beliefs.

In the REBT therapeutic process therapists utilize a forceful cognitive mythology. One of the cognitive therapeutic techniques in the REBT is disputing irrational beliefs. This is accomplished by the therapist disputing the client's irrational beliefs and teaching the clients to change these beliefs on their own. Another cognitive technique is cognitive homework. With cognitive homework clients were expected to list out their problems, look for their irrational beliefs ("shoulds", "oughts", and "musts"), and dispute them. This is also accomplished by applying the A-B-C-D-E model of therapy to the problems encountered by clients. Changing one's language is another techniques used by REBT therapists. It involves changing the way we talk to ourselves (Kottler & Brown, 1996).

The REBT sessions was employed for a period of one hour per day for each client once in a week for six consecutive weeks. The participants were encouraged to reveal their feelings, analyze them and an alternative opinion was given with which their conflicts were disputed.

For example, she believes that she had done some unacceptable offence in her previous life. So that she suffers from this disease due to guilty consciousness and formation of irrational belief system. Praying, feeling guilty for her disease, blaming others and was manifesting depressive behaviors, exhibiting high anxiety symptoms frequently and being anxious about the future consequences that are yet to come. These beliefs are irrational and need to be changed.

## THERE WERE A FEW IRRATIONAL BELIEFS LIKE

In spite of being morally so good, God has punished only me.  
I am punished because I have behaved cruelly to one of my relative.  
I am punished because of my offence.

## DISPUTING AN IRRATIONAL BELIEF

- Therapist* How are you feeling now?  
*Patient* I had done some unforgivable sin in my life that is why I suffer in this disease AIDS  
*Therapist* Why do you say like this?  
*Patient* I don't know. But I think I had done something wrong or bad.  
*Therapist* You mean to say, that is the reason why you infected with HIV.  
*Patient* Yes. Otherwise I might marry someone else who was healthy and I would have had no chance to get HIV.  
*Therapist* So, you think you got HIV only through your husband.  
*Patient* No, Not because of my husband and it's all due to my fate.  
*Therapist* You mean to say that all the people who have got HIV in this. Hospital and other hospitals have the same fate?  
*Patient* No, not like that.  
*Therapist* You mean that all people who think like you will get HIV/AIDS.  
*Patient* I am confused.  
*Therapist* How did it happen?  
*Patient* Because of my husband.  
*Therapist* So, you believe your husband is having some illegal contact with somebody.  
*Patient* No.  
*Therapist* How do you have this? So what about his history?  
*Patient* He met with an accident before 5 years. That time he received 10 units of blood from a blood bank. After that only he got HIV.  
*Therapist* You mean to say that your husband got HIV because of Blood transfusion?  
*Patient* Yes.  
*Therapist* What do you think about your sin?  
*Patient* I don't know.  
*Therapist* Do you agree that AIDS is a disease like diabetes and hypertension.  
*Patient* Definitely yes, because diabetes will continue until one's death and also proper medication, the amount of blood sugar level can be controlled.  
*Therapist* So, Do you believe that AIDS is one of the major diseases like diabetes which will continue lifelong and is not Curable?  
*Patient* No, in Diabetes no one will think about one's character. But in AIDS everybody is evaluating the person's character.  
*Therapist* Do you believe that persons having good character will not suffer from AIDS?  
*Patient* No, because I and my husband have good character but still we suffer from AIDS through unprotected blood transfusion.  
*Therapist* Now, how will you face your future?  
*Patient* From today onwards I will be determined and focused and will work for my rehabilitation sincerely. I will get back my normal health, family and social status.

The researcher worked on disputing the beliefs by talking to the patients about the HIV infection, spreading ways and prevention which had educated them on the nature of their irrational beliefs and about being practical and rational in their thoughts and actions. The “Effect” of the REBT technique had made a remarkable change in the overall perception of stress of the patients after which they cooperated for the psychological acceptance of reality.

Similarly, all participants were encouraged to talk about their irrational beliefs and conflicts and were treated with REBT.

## Results

Table 1. Depression among experimental and control groups before REBT

Groups	N	Mean	S. D.	M. diff.	C. R.	Sig.
Experimental	25	35.28	4.963			
Control	25	34.56	4.647	0.720	0.529	NS

Note: NS = Not Significant

The table 1 shows the significant difference between experimental and control groups before REBT. By comparing the mean scores of depression before REBT there is no significant difference found between these groups, since the two groups are found to be homogeneous. Thus, the hypothesis H<sub>1</sub> “There is no significant difference between experimental and control group before REBT” was accepted.

Table 2. Depression among experimental group before and after REBT

Condition	N	M	S. D.	M.D	C. R.	Sig.
Before intervention	25	35.28	4.963			
After intervention	25	22.96	8.806	12.32	2.699	**

Note: N= Number of participants; M=Mean; S.D=Standard Deviation; C.R=Critical Ratio

\*\* p<.01 = 2.678

The table 2 shows the significant difference between before and after REBT of the experimental group. The result reveals that the mean depression score is found to be decreased after REBT. Hence, the intervention REBT has played a significant influence in decreasing the level of depression. Critical ratio also evidenced that there is a significant difference between before and

after REBT. Thus, the hypothesis H<sub>2</sub> “There is no significant difference between before and after REBT among experimental group” was rejected.

Table 3. Depression among control group before and after intervention

Groups	N	Mean	S. D.	M. diff.	C. R.	Sig.
Before intervention	25	22.96	8.806			
After intervention	25	20.24	6.180	2.720	1.265	NS

Note: NS = Not Significant

The table 3 shows the significant difference between control group before and after REBT. The result shows that there is no significant difference in the mean scores of depression before and after REBT. Though there is no significant decrease in the level of depression it was found that there is a slight decrease observed in the control group after REBT. This might be due to influence of any extraneous factors and routine treatments. Thus, the hypothesis H<sub>3</sub> “There is no significant difference between before and after REBT among control group” was accepted.

But comparing depression score of experimental group and control group after REBT, it is clearly shows that there is a significant difference indentified. Because, the experimental group participants underwent REBT along with routine treatments. Hence, the REBT contributed much more than the routine procedure in the experimental group.

Table 4. Depression among experimental and control groups after intervention

Conditions	N	Mean	S. D.	M. diff.	C. R.	Sig.
Experimental Group	25	34.56	4.647			
Control Group	25	20.24	6.180	14.32	9.260	**

The table 4 shows the significant difference between experimental and control groups after REBT. The result shows that there is a significant difference between experimental group and control group, since the two groups are found to be heterogeneous. The control group was not participated in the REBT intervention and experimental group participated in the REBT. Therefore, the level of depression was reduced among experimental group participants and not in the control group. Thus, the hypothesis H<sub>4</sub>, “There is no significant difference between experimental and control group after REBT” was rejected.

After testing all four hypotheses mentioned above experimentally proved REBT facilitate in reducing depression. According to REBT theory, the root cause of any psychological disturbance is due to an individuals' belief system. Disturbances and psychological symptoms of depression are the activating events caused due to irrational belief system patients hold. Disputing with appropriate rational meanings, thought patterns of individual and change in the belief system produces an effect such as reduction in the level of depression, promotion in the physical health and quality of life etc. Depression is a major psychological condition that affects an individual's immune system and sometimes identified as a major threat for life. For example, suicidal ideation. Identifying and approaching depression in REBT model among HIV infected women reduces the risk of early death, suicide, isolation, shame, stigma, anxiety and to promote immune response mechanism and quality of life. To achieve optimal outcome from treatment of HIV infected patients, it is noteworthy to consider depression is one of the major factor to be identified and treated parallel with the routine treatment for AIDS. Depressive patients with HIV positive patients exhibited more viral load than HIV positive patients without depression. Managing depression is associated with treatment effectiveness among HIV positive patients. Therefore, reducing depression among HIV infected women applying REBT contribute in reducing the level of depression by identifying, analyzing, disputing and altering the belief system of patients.

#### *Discussion*

As far as the testing of hypotheses concerned, findings from the analysis indicate that the level of depression significantly reduced after REBT. From the hypothesis  $H_1$  it is clearly understood that both the experimental and control groups were drawn from the same population, therefore the two groups are homogeneous before REBT. Hence, the hypothesis  $H_1$  is accepted.

The result of the hypothesis  $H_2$  shows that there is significant difference observed in the experimental group before and after REBT. Application of model REBT for a period of six weeks made a significant influence in reducing the level of depression. Therefore, the hypothesis  $H_2$  is rejected. While comparing the control group under two conditions i.e., before and after REBT, there is no significant difference observed since control group was subjected only to routine procedure and no special intervention was applied like REBT.



Thus, the null hypothesis  $H_{03}$  was accepted. Similarly, the null hypothesis  $H_{04}$  was rejected. Hence, there is a significant difference observed between experimental and control groups. Experimental group exposed to REBT intervention and the control group exposed to only the routine intervention, the groups are considered as heterogeneous. So, there is a significant difference found between these two groups. Although, no empirical evidence presented in connection with REBT and depression there are studies other than depression are being cited.

The result herein obtained is in line with the studies conducted by Abosi (2004) academic achievement motivation; (Olusakin, 2000) general anxiety and examination anxiety; (Nanka, 2002) behaviour adjustment; Kumar (2009) conduct disorder; Vekateshkumar, Mahigir, and Karimi (2012) pain intensity; Owuamanam, Ajidahun, and Owuamanam (2012) self concept; Maryam, Mousavinik, and Basavarajappa (2012) irrational beliefs among infertile women; and Najafi, Jamaluddin, and Lea-Baranovich (2012) REBT in reducing irrational belief among two groups of Iranian adolescent girls living in Malaysia. Contrary to the studies mentioned above, O' Brain and Fassinger (1993) pointed out a few studies are evidenced that no change or little change was observed with the application of REBT. Similarly, depression is also one of the common and major psychological disturbance occurs due to irrational beliefs; therefore depression can also be managed by applying REBT.

#### *Limitations and suggestion*

The present study comprised only women participants that limit the generalization of HIV infected persons with depression. The major methodological limitation herein encountered was the non probability sampling technique, as well the interaction effect between experimental and control group could not be controlled. Nevertheless, the intervention in the study employed was found to be effective in alleviating depression. Hence, REBT is one of the psycho-therapeutic techniques employed by psychologists to manage various psychological problems. Eliminating irrational beliefs and inculcating rational beliefs in clients with depression applying REBT technique that promotes notable change in the belief system of the client and prevent him/her from ill effects.

### **Conclusion**

Depression is correlated with the belief system one who holds that determine the nature, intensity and its severity also. Particularly, irrational and negative belief system one who holds in his mind caused to suffer much more than any other factors. REBT is one of the tools that help to change the irrational belief as rational. Hence, modifying one's belief system through REBT model helps overcome many psychological difficulties such as depression and anxiety. The study result envisaged application of REBT helped resolving clients with depressive symptoms and facilitate to promote psychological wellbeing. This program was highly beneficial to women who participated and prevented from many negative effects that occur due to depression.

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