

**SELF EFFICACY AND RELIGIOSITY AS DETERMINANTS OF
COGNITIVE BEHAVIOURAL THERAPY TREATMENT
OUTCOME IN SUBSTANCE USE DISORDERS**

Oluwatosin B. Adekeye* and Taiwo L. Sheikh

Department of Psychiatry
Ahmadu Bello University Teaching Hospital, Zaria, Nigeria

ABSTRACT

The study examined the effectiveness of self efficacy component of the health action process approach (HAPA), and religiosity in the treatment of substance use disorders. Results indicated that belief leading to the adoption, initiation and maintenance of health behaviours must be explicitly conceived by patients as a process that consists of at least a motivation phase and volition phase, leading to positive outcomes in compliance and abstinence maintenance for the treatment of substance use disorders. However if patients do not believe in their capability to perform the desired action, they would fail to adopt, initiate and maintain it leading to frequent relapses. Using group cognitive-behaviour therapy among male patients, self efficacy and religiosity were found to be effective components of cognitive behaviour therapy in substance use disorders as this led to high compliance and sustained abstinence over a six month assessment period, when compared with patients who did not have this approach.

KEY WORDS: health action process approach, self efficacy, religiosity, cognitive behaviour therapy, substance use disorders

INTRODUCTION

Substance use disorders or disorders due to psychoactive substance use refer to conditions arising from the abuse of alcohol and psychoactive drugs. It involves a maladaptive pattern of substance use although not outright dependence, leading to clinically significant impairment or distress as evidenced by one or more of the following during a one year period: recurrent substance use causing a failure to fulfil work, school, or family obligations, recurrent

substance use in situations where it is physically hazardous, recurrent legal problems related to substance use, continued substance use despite having persistent or recurring social or interpersonal problems caused or made worse by the use of the substance (Weitin 2004).

Gureje, Degenhardt, Olley et al. (2007) in studying the epidemiology of substance use and substance use disorders in Nigeria during the early 21st century, found that alcohol was the most commonly used substance, the next most common were sedatives, and cannabis.

Males were more likely than females to be users of every drug group investigated with male preponderance being particularly marked for cannabis. Prevalence of both alcohol and tobacco use was highest among middle aged adults. Moslems were much less likely to use alcohol than persons of other faiths, but no such association was found for tobacco. Alcohol was found to be the most commonly used psychoactive drug in Nigeria.

An international perspective (Africa, Asia, Australia, Europe, and South America) on alcohol use among college students by Karam, Kyri, and Salamoun (2007) found that college students in many countries were at elevated risk for heavy drinking, with serious immediate health risks, such as drink driving and other substance use; and longer term risks such as alcohol dependence. The prevalence of hazardous drinking in Australasia, Europe and South America appears similar to that in North America, but is lower in Africa and Asia.

The nature of substance use disorders involving a maladaptive pattern of use and frequent relapse makes it imperative to study self efficacy and religiosity as it affects treatment outcomes. Overcoming addictive behaviours such as substance use, alcohol consumption, and smoking poses a major challenge for those who are dependent on those substances as well as for professional helpers. Perceived self efficacy was however found to predict outcomes of controlled - drinking programmes Sithartan and Kavanagh (1990). An assessment of self-efficacy has been published by Haaga and Stewart (1992), who developed an "articulated thoughts technique" to measure recovery self efficacy after a set back from quitting smoking.

The construct of perceived self efficacy represents one core aspect of social cognitive theory Bandura (1992, 1997). While outcome expectancies refer to the perception of the possible consequences of one's actions, perceived self efficacy refers to personal action control or agency. A person who believes in being able to produce a desired effect can conduct a more active and self determined life course. Health specific self efficacy is a person's optimistic

self belief about being capable to resist temptations and adopt a healthy lifestyle. Based on the social-cognitive theory of Bandura (1997), a new health behaviour model, the (HAPA) health action process approach was developed by Schwarzer (1992, 1999, 2001).

The health action process approach suggests that the adoption, initiation, and maintenance of health behaviours must be explicitly conceived as a process that consists of at least a motivation phase and a volition phase. The latter might be further subdivided into a planning phase, action phase, and maintenance phase. It is claimed that perceived self-efficacy plays a crucial role at all stages along with other cognitions (Bandura, 1997). For example, risk perceptions serve predominantly to set the stage for a contemplation process early in the motivation phase but do not extend beyond. Similarly, outcome expectancies are chiefly important in the motivation phase when individuals balance the pros and cons of certain consequences of behaviours, but they lose their predictive power after a personal decision has been made. However, if one does not believe in one's capability to perform a desired action, one will fail to adopt, initiate and maintain it.

Perceived self efficacy involves people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self efficacy beliefs determine how people feel, think and motivate themselves and behave. (Aspinwall & Taylor, 1997).

Tate, Wu, McQuad, Cummins, Shniver, Krenek and Brown (2008) examined life stress and self efficacy as predictors of time of relapse for 113 adults comparing two psychotherapy interventions (integrated cognitive behaviour therapy and 12- step facilitation therapy) found lower self efficacy as a predictor of earlier relapse in combination with stressful life events. Oei, Haking, and Phillips (2007) in studying general self-efficacy and drinking refusal self-efficacy in predicting drinking behaviour found that overall, drinking refusal self-efficacy and general self-efficacy was a significant predictor of alcohol assumption. Hasking and Oei (2007) Looked at the interac-

tions between venting emotions, negative expectancies and drinking refusal self-efficacy in terms of the cognitive and behavioural mechanisms thought to underlie drinking behaviour, found that venting emotions interacting with drinking refusal self-efficacy predicts the volume of alcohol consumed.

Miller, Davies and Greenwald (2000) found low levels of religiosity to be associated with adolescent onset of substance use and abuse. Pullen, Modrcin-Talbot, West, Muenchen (1999) investigated the relationship between alcohol and drug abuse by adolescents and frequency of religious service attendance and found that as attendance at religious services increased, alcohol and drug abuse decreased. Rostosky, Danner and Riggle (2007) studied religiosity as a predictive factor against substance use in young adulthood and found that Increase in religiosity reduced the odds of binge drinking by 9%, marijuana use by 20%, and cigarette smoking by 13%.

In the treatment for alcohol and drug dependence, the goal of cognitive behavioral therapy is to teach the person to recognize situations in which they are most likely to drink or use drugs, avoid these circumstances if possible, and cope with other problems and behaviors which may lead to their substance abuse.

Longabaugh and Morgenstern (1999) found cognitive-behavioural coping skills training as being among the most effective approach for treating alcoholic patients. Treatment effectiveness was more pronounced when it was delivered within the context of a comprehensive treatment program and when offered to patients with less severe alcohol dependence. Kadden (2002) conceptualized the cognitive-behavioural approach in which addictive behaviour is considered to be learned behaviour acquired through the processes of pavlovian and/operant conditioning. As such they can be modified by the application of learning based interventions. Wright, Basco and Thase (2005) stated that an important aspect of the CBT model is to help patients recognize that cravings and urges are often associated with the activation of relevant beliefs about drugs and alcohol abuse. Cognitions about substance

abuse can occur almost instantaneously in response to relevant cues. Galanter and Kleber (2004) conclude that cognitive-behavioural behaviour and motivational therapies should be a component of all substance abuse clinician's repertoires.

This study aims to test the predictability of self efficacy and religiosity as components of cognitive behaviour therapy in the treatment of substance use disorders and its determination of relapse prevention. Would the combination of self efficacy and religiosity sustain the gains of psychotherapy in preventing relapse?

Where relapse is sustained, how long would it last and at what cost?

METHOD

Participants

A total of 30 male participants with a mean age of 17.6 years participated in the study. The participants were purposively selected based on the ICD 10 diagnostic criteria for substance use disorders. Substances used were a combination of cigarettes, alcohol, cannabis, codeine, and Rohypnol. They were randomly assigned into two groups, a treatment and no treatment group consisting of 15 participants each.

Instruments

The following psychometric instruments were used to collect data:

The General Self Efficacy Scale GSE: A 10-item instrument developed by Schwarzer and Jerusalem (1993) was used to assess self efficacy associated with perceived ability to overcome the use of psychoactive substances. It reflects an optimistic self belief that one can perform a difficult task, while also facilitating goal setting, effort investment, persistence in the face of barriers and recovery from setbacks. It is an operative construct, related to subsequent behaviour and therefore is relevant for clinical practice and behaviour change. The responses were scored with the aid of the scoring key provided by Schwarzer and Jerusalem (1993).

Alcohol and Smoking cessation Self Efficacy Scale: This is a four item addition to the general self efficacy scale, used to assess alcohol and smoking cessation self efficacy. It was developed by Sitharthan, Kavanagh (1990) and Haaga and Stewart (1992). Responses were scored with the aid of the scoring key provided by Sitharthan and Kavanagh (1990) and Haaga and Stewart (1992).

Religious Orientation Scale: A 20 item self report scale by Allport and Ross (1967). The responses were scored with the aid of the scoring key provided by Straynorn (1990).

Attitude scale: This was used measure the attitude of care-givers towards substance use disorders.

Key Informant Interview: An interview guide to assess the response and understanding of family members to the patients with substance use disorders

Focus group discussion guide: A guide to assess the description by patients of treatment outcome after psychotherapy.

Design

A 2-independent group pre-post design was used. The independent variable was cognitive behaviour therapy and the dependent variables were self efficacy and religiosity.

Procedure

Pre-treatment Phase: The three instruments, GSE, Alcohol and Smoking cessation self efficacy, and Religiosity, were administered to the participants after establishing rapport as they came into the hospital. Their consent was sought for participation in group interaction.

Treatment Phase: There were 15 participants, all male, randomly assigned to the treatment group with self efficacy and religiosity as components. They were individuals with similar problems, (substance use disorder) and were willing to participate in the group. Sessions included a motivation phase (risk perception and outcome expectancies) and a maintenance phase where self efficacy, religious beliefs and practice were strengthened. The group had the goal of achieving complete

abstinence with regards to alcohol and smoking. Cognitive behaviour therapy was the principal treatment mode with components of building self efficacy and religiosity, the participants had 15 sessions.

Post-treatment Assessment Phase: They were also 15 participants assigned to the treated group and 15 to the untreated group who had only cognitive behaviour therapy without self efficacy and religiosity. The three tests were administered in the same order to the two groups.

Data Analyses

The SPSS 15 was used to analyse the quantitative data (GSE, ASE, SSE and REL) while the qualitative data (KII, and FGD) from the psychotherapeutic sessions were analysed using atlas ti 5.0.

RESULTS

The socio-demographic characteristic of the participants in the study is presented in Table 1.

All the participants were males, 36.7% being 18 years old, 70% Muslim and 30% Christian, 40% secondary school leavers, 20% still in secondary school, 20% had no formal education and 20% were university undergraduates.

To determine the concurrent, divergent and convergent validities of the instruments, Pearson product moment statistics was used to inter-correlate the scores of the participants in the three measures. This is presented in the correlation matrix in Table 2 below.

Table 2 shows positive correlations between GSE and ASE (0.29); GSE and REL (0.43), all others were negative correlations.

To determine the effects of psychotherapy on perceived self efficacy, alcohol efficacy, smoking self efficacy and religiosity, the pre and post treatment mean scores and standard deviations of the treated and untreated groups were computed. The results are presented in Table 3.

The results in Table 3 show that the treated group had higher post-test than pre-test scores,

Table 1: Socio-demographic characteristics of the sample (N=30)

Categories	n	%
Age		
15	2	6.7
16	5	16.7
17	6	20.0
18	11	36.7
19	2	6.7
20	3	10.0
21	1	3.3
Sex		
Male	30	100
Female	0	0
Religion		
Christian	9	30
Muslim	21	70
Education		
No formal education	6	20
Secondary education	6	20
Secondary school leaver	12	40
Undergraduate	6	20
Family type		
Monogamous	7	23.3
Polygamous	15	50.0
Divorced	4	13.3
Dead parent	4	13.3

Table 2: Correlation matrix of the 3 psychological measures

Measure	GSE	ASE	SSE	REL
GSE				
ASE	0.29			
SSE	-0.09	-0.45		
REL	0.43	-0.15	-0.62	

Table 3. Pre-treatment and Post-treatment Mean score and Standard Deviation of treated and untreated groups in each measure

Measures	Treated				Untreated			
	Pre-test		Post-test		Pre-test		Post-test	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
GSE	13.5	1.3	35	1.1	13.1	1.1	15.1	1.9
ASE	4	0.4	10	0.7	4.1	0.9	4.1	0.6
SSE	6.4	0.6	14	0.5	5.7	0.6	5.4	1.2
REL	17.2	4.2	20.4	4.8	19.8	4.7	19.5	4.4

the untreated group however had insignificant changes in test scores.

In order to determine the effect of therapy, the post-treatment scores were subtracted from the pre-treatment scores to obtain the gain scores for the two groups. The mean scores and standard deviations for the gain scores are presented in Table 4.

Table 4 indicates higher mean gain scores in the treated group as compared to the untreated group.

The factors accounting for success of therapy is shown in Table 5.

Table 5 indicates that family support and understanding combined with improved perceived ability to stop drug use, increased positive thoughts to do without drugs, improved ability to reject outside influence to use drugs and improved religiosity were factors that aided treatment outcome, preventing relapse.

DISCUSSION

The results presented in Table 1 indicated that the mean age of the participants was 17.6 years, they were all males, 30% were Christians and 70% were Muslims. This could be due to the fact that the research was carried out in Zaria which is predominantly Muslim.

Regarding level of education; 20% had no orthodox education but had attended Islamic school, 20% were at various stages of secondary education, 40% had just graduated from secondary school and 20% were university undergraduates. All participants used a combination

Table 4: Mean score and standard deviation for the gain scores of the treated and untreated groups

Measures	Treated group (n=15)		Untreated group (n=15)		t
	Mean	SD	Mean	SD	
GSE	21.4	1.59	8.76	6.89	1.58
ASE	13.6	8.03	1	0.75	4.92
SSE	11.6	7.13	1	0.76	1.33
REL	10.3	6.82	1.9	2.61	0.06

Table 5: Factors indicating success of therapy

S/No	Factors	Rating	
		Group A	Group B
1	Family support	Very high	Low
2	Family understanding	Very high	Low
3	Improved ability to stop drug use	High	Low
4	Improved positive thoughts to do without drugs	Very high	Low
5	Improved ability to reject outside influence to use drugs	Very high	Low
6	Improved religiosity	Low	Low

of cigarettes, alcohol, cannabis, codeine, and Rohypnol, with cigarettes starting first.

Family type showed that 50% were from polygamous families, 23.3% from monogamous families, 13.3% divorced/separated and 13.3% had lost one parent. The households were usually quite large with extended families, a number of servants with the one parent usually the father figure working away from home most of the week only to return at weekends.

The correlation matrix showed that there appeared to be positive correlation coefficients among some of the measures, the GSE and ASE (0.29); the GSE and REL (0.43). This suggests that they both measure the same pattern of perceived self efficacy on one hand and alcohol related self efficacy on the other hand. Sitharthan and Kavanagh (1990) found self-efficacy to be a predictor in outcomes of controlled drinking programmes. The general self efficacy scale also correlated positively with the religiosity scale. Danner and Riggle (2007) while studying religiosity as a predictive factor against substance use in young adulthood and found that Increase in religiosity reduced the odds of binge drinking by 9%, marijuana use by 20%, and cigarette smoking by 13%.

A boost in general self efficacy and religiosity proves an important factor in the treatment of substance use.

The impact of therapy involving self efficacy, and religiosity in cognitive-behaviour therapy is clearly measured by the mean scores of the treatment group indicates a higher General self efficacy (GSE) after the therapy, with a score of 13.5 at pre-test and 35 at post-test. On the ASE (Alcohol self efficacy scale) pre-test mean score was 4 while the post-test mean score was 10, an increase in alcohol self efficacy after therapy. The smoking self efficacy (SSE) improved from 6.4 at pre-test to 14 at post-test after therapy. The religiosity mean scores increased after therapy from 17.2 to 20.4 for the treated group. The untreated group however did not show much change in their scores on all the scales. The treated group had a higher self efficacy, feeling more confident that they could execute the responses necessary to earn reinforcers. They also had a greater resistance to stress which helped them to sustain improvements 6 months after discharge from the hospital. When compared with the untreated group who had cognitive-behaviour therapy but self

efficacy and religiosity were not included in the therapy, the untreated group sustained improvements (abstinence) for only two months after therapy and parents and caregivers reported a lot of conflict in trying to monitor the patients at home, which was not the case with the treated group.

The construct perceived self efficacy refers to one core aspect of social cognitive theory where the individual believes that he is able to perform behaviours that should lead to expected outcomes, which in this study was sustained abstinence after discharge from the hospital. Outcome expectancies on the other hand refer to the perception of the possible consequences of one's action. Participants after therapy perceived abstinence as a possibility, a goal that was attainable and necessary for a drug free life. They believed in being able to produce a desired effect and that they could conduct a more active and self-determined life course when they left the hospital. They had a health specific self efficacy; an optimistic self-belief about being able to resist temptations to adopt a healthy life style. This was predicted on the gain scores of the treated participants with GSE; 21.4, ASE; 13.6, SSE; 11.6, and REL; 10.3. The untreated group had GSE; 8.76, ASE; 1, SSE; 1, and REL; 1.9.

Oei, Haking, and Phillips (2007) found general self-efficacy a significant predictor of alcohol assumption. Miller, Davies and Greenwald (2000) also found low levels of religiosity associated with adolescent onset of substance use and abuse. The increase in mean scores of the treated group pre-treatment to post-treatment shows the effect of the components building self efficacy generally and religiosity in therapy on substance use disorders when compared to the untreated group. Longabaugh and Morgenstern (1999) had found cognitive-behavioural coping skills training as being among the most effective approach for treating alcoholic patients. The inclusion of general self efficacy would help the individual perceive the risks, setting the stage for a contemplation process towards positive outcomes. It also helps the individual believe in

his capability to perform the desired action of not using drugs.

Risk perceptions, outcome expectancies, and self efficacy lead the individual to developing goals, which further lead to planning, which would involve initiative, maintenance and recovery, before final disengagement (Schwarzer, 1999). Cognitive factors in substance use disorders suggest that expectancies develop before people start using a particular drug as a result of parents and peers drug use, advertising and media figures who model drug use. Some individuals are likely to start using a particular drug because they believe it will have positive effects; Durand and Barlow (2003). Challenging expectancies, emphasizing the recognition, and changing maladaptive beliefs during treatment help to initiate and maintain treatment outcomes Weitin (2004). Patients had reported more positive thoughts, believing that they could do without drugs, and feeling more competent about their ability to do without drugs and withstand peer influence.

Health belief plays a very important role in treatment outcome as it refers to cognitions about health held by patients and professionals. The interaction between belief and emotional response to health threat also affect their health-related behaviour; Hagger and Orbell 2003. The health beliefs which contribute to the evaluation of the threat are those about personal susceptibility to the threat and those about the likely severity of the consequences of that threat. Beliefs in the effectiveness of the health behaviour are comprised of beliefs about the perceived benefits of that behaviour and beliefs about the latter often proving to be a particularly potent predictor of whether or not the health behaviour occurs. Health beliefs are also related to emotional and behavioural responses to illness Davey 2005.

Other factors assessed by the group discussion indicated that for the treated group, family support played a very important role in treatment outcome; family understanding towards patients was also seen to play a significant role by patients in treatment outcome. Patient's ability to stop the use of drugs had also improved as a result of therapy. The

patients also reported improvements in their ability to reject outside influences to go back to drug use. Improvements were also noticed in other areas of the patient's functioning; Matthews and Walker 2005. Family attitudes played a major role in support for substance use disorders (constant monitoring, psychological, emotional and social support) which proved an important factor for outcome of substance use disorders, feeling positive about the outcome. The attitude scale indicated 75% of the patient's families in the treated group were supportive to patients with substance use disorders in the treatment group, 20% of the patient's family were not supportive and 5% were indifferent. This was due to involvements of parents in sessions periodically, where these sessions served as education for the parents on the treatment procedure and an assessment of family dynamics (interpersonal relationships, communication and stressors), building a structure into the family, while establishing a command structure as frequent absence of the father figure led to on compliance with rules by the clients due to cultural influences where the mother is limited in the control of a son in the house. Preparatory post hospital care sessions were also held with family members to further strengthen the gains of hospital care. This was particularly important as frequent relapse rate prior to the introduction of this intervention mode was linked to supply of the drugs by house boys, drivers and other workers in the hose hold who were also either abusing these substances or considered it as a means of livelihood. In the untreated group, 15% of the patient's families had a positive attitude and were supportive while 85% were not supportive. The parents felt they had been through so much with the patients, they had lost their property as this had been sold by patients, had constant contact with the law as a result of their patient's drug problem, and they had tried to help by counselling the patients and this had not yielded much result. The study therefore recommends the building of the individuals health self efficacy, and religiosity to increase compliance and sustain abstinence in substance use disorders.

REFERENCES

- Allport, G.W., & Ross, J.M., (1969). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*, 5, 432-433.
- American Psychiatric Association. (2000). Diagnostic and Statistical Manual of Mental Disorders (4th ed. Text revision). Washington, DC: Author.
- Aspinwall, L., & Taylor, S. (1997). A Stitch in time: self-regulation and proactive coping. *Psychological Bulletin*, 121, 417-436.
- Bandura, A. (1992). Self-efficacy Mechanism in Psychobiologic Functioning. In R. Shwarzer (ED), *Self-efficacy: Thought Control of Action* (pp355-39). Washington, DC: Hemisphere.
- Bandura, A. (1997). *Self-efficacy: The exercise of Control*. New York: Freeman
- Davey, G. (2005). *Encyclopaedic Dictionary of Psychology*. Hodder London, Arnold.
- Durand, V.M., & Barlow, D.H. (2003). *Essentials of Abnormal Psychology*. (3rd ed). Toronto, Wadsworth.
- Galanter, M., & Kleber, H.D. (2004). *Textbook of substance abuse treatment*, Blackwells.
- Gureje, O., Degenhardt, L., Olley, B., Uwakwe, R., Udofia, O., Wakil, A., Adeyemi, O., Bohnert, K.M., & Anthony, J.C., (2007) Nov 2; 91 (1): 1 – 9.
- Haaga, D.A.F., & Stewart, B.L., (1992). Self-efficacy for Recovery from a Lapse after Smoking Cessation. *Journal of Consulting and Clinical Psychology*, 60, 24-28.
- Hagger, M.S., and Orbell, S. (2003). A Meta-analysis Review of the Common-sense Model of Illness Representations. *Psychology and Health*, 8, 141-184.
- Hasking, P.A., & Oei, T.P., (2007). Alcohol Expectancies, Self-efficacy and Coping in the Alcohol – dependent Sample. *Addict Behaviour*, 32 (1): 99 – 113.
- Kadden, R.M., (2002). Cognitive-behaviour therapy for substance dependence: coping skills training. Unpublished work.
- Karam, E., Kypri, K., & Salamoun, M., (2007) *Curr Opin Psychiatry* 20(3): 213 – 221.

- Longabaugh, R., & Morgenstern, J., (1999). Cognitive-behavioural coping-skills for alcohol dependence: current status and future directions. *Alcohol Research and Health*, 23, 78 – 79.
- Matthews, J.R., & Walker, C.E., (2005). *Your Practicum in Psychology: A Guide for Maximizing Knowledge and Competence*. American Psychological Association. Washington DC.
- Miller, L., Davies, M., & Greenwald, S., (2000). Religiosity and substance use and abuse among adolescents in the national co morbidity survey. *Journal of American Academy of Child and Adolescent Psychiatry*. 39(9): 1190-1197.
- Oei, T.P., Hasking, P., & Phillips, L., (2007). A comparison of general self-efficacy and drinking refusal self-efficacy in predicting drinking behaviour. *American Journal of Drug and Alcohol Abuse*. 33(6): 833-841.
- Pullen, L., Modrcin-Talbott, M.A., West, W.R., & Muenchen, R., (1999). Spiritual high vs high on spirits: is religiosity related to adolescent alcohol and drug abuse? *Journal of Psychiatric and Mental Health Nursing* Feb; 6(1): 3-8.
- Rostosky, S.S., Danner, F., & Riggle, E.D., (2007). Is religiosity a predictive factor against substance use in young adulthood? Only if you're straight! *Journal of Adolescent Health*. 40(5): 440-447.
- Schwarzer, R. (1992). Self-efficacy in the adoption and maintenance of health behaviours: Theoretical approaches and a new model. In Schwarzer, R. (Ed), *Self-efficacy : Thought control of action* (pp 217-243). Washington, DC: Hemisphere.
- Schwarzer, R. (1999). Self-regulatory processes in the adoption and maintenance of health behaviours. The roles of optimism, goals and threats. *Journal of Health Psychology*, 4, 115-127.
- Schwarzer, R. (2001). Social-cognitive factors in changing health related behaviours. *Current Directions in Psychological Science* 10, 47-51
- Schwarzer, R., & Renner, B., (2000). Social-cognitive predictors of health behaviour: Action self-efficacy and coping self-efficacy. *Health Psychology*, 19, 487-495.
- Sitharthan, T., & Kavanagh, D.J., (1990). Role of self-efficacy in predicting outcomes from a programme for controlled drinking. *Drug and Abuse Dependence*, 27, 87-94.
- Tate, S.R., Wu, J., McQuad, J.R., Cummings, K., Shniver, C., Krenek, M., & Brown, S.A., (2008). Co morbidity of substance dependence and depression: Role of life stress and self-efficacy in sustaining abstinence. *Psychology of Addictive Behaviours*,. 22(1): 49-57.
- Weitin, W. (2004). *Psychology: Themes and Variations*. Belmont, CA: Wadsworth/Thomson.
- Wright, J.H., Basco, M.R., & Thase, M.E., (2005). *Learning cognitive-behaviour therapy: An illustrative guide*. Washington, DC: American Psychiatric Press.