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Editorial

GYNAE – C – PSYCH – OLOGY : NEED OF TODAY

K. S. Sengar

Since the inception of the concept of Community living every society had talked about the complex understanding of psychology of women. The Women Health and specially Women Mental Health has always remained a matter of negligence. The reason may be their complicated emotionality and confinement, poor exposure of social issues in frontline as core stakeholder, less participation or opportunities in decision making process etc. But with the untiring effort of some social reformer as Raja Ram Mohan Rai, Dayanand Saraswati and others who put their whole life for the upliftment of the conditions of women through improving their social, economical and educational conditions especially in Indian society. Apart for this since recent past with advent of newer communication means and technological developments, the females have also been empowered /well equipped and had developed confidence to step together with the developing society in every field from warfare and technology to agriculture. They have now become a biggest workforce in the all sectors and contributing significantly in building of economy of any country.

Even after the remarkable advancement in information technology when all the information is easily accessible to every/any one at any/every time and the health advice is accessible for all through satellite clinics and telemedicine, but certain issues are still remaining unresolved. As it is always considered that Ob/ gyn. is extremely complex and problematic speciality. The reasons may be the Women's Medicine is never discussed neither within Gynaecology nor out of it. The reasons may be - 1) incapability to perceive the determined factors reflect about them 2) not wanting to admit the existence of these facts 3) the interest, convenience and beliefs that dominate Women's medicine. The Women Medicine deals with gynaecology, obstetrics and obstetric surgery. These all three are technically very different medical speciality. Clinical Psychology is relevant in all three branches as the psychology of gynaecology deals the issues related to consciously or unconsciously projected dynamics of patients and gynaecologist as well in building therapeutic relationships of either

gender. The psychosocial and cultural factors play a significant role in dealing the patients of and / by any gender. The medicine is practiced in many different ways by men and women with different personalities, attitude and beliefs and the several kind of projection, fantasies, beliefs and resistances appear on both side (client and clinician as well) affect the gynaecologist's patient relationships. Women frequently project on male gynaecologist their problems concerning men and the way they view male sex similarly male gynaecologists can also project on the patients their problem regarding women as well as the peculiar way they view the female sex and by that gynaecologist-patient's therapeutic relationship often acquires very "neurotic pattern". The fact is that in Women's Medicine the fundamental for patient's to be "in tune" for strong therapeutic relationship. The psychological dynamics of therapeutic relationship often remains at subconscious or unconscious level not only on the part of patient but also the part of male or female doctors. The clinical psychologist can play a significant role in orienting and evaluating the emotionality, projections of dynamics and reflection of their behaviour towards each other by gynaecologist and patient as well and building strong therapeutic relationship needed for better recovery.

For the issues related to Gynaecology women still remain hesitant to disclose and good amount of significant information remains undisclosed which is essential to deal the problem faced by individual. In the area of health especially Mental Health in Indian scenario the women are less priority beneficiary/stakeholder as evidenced by various national and international reports. Unfortunately, the majority of women with mental health issues including those who are pregnant and postpartum failing to receive adequate treatment for their mental health sufferings (Poleshuk, 2013). When issue relate to sexuality, reproduction, prepartum, postpartum, menstruation, menopause, prenatal, perinatal and infertility it becomes more complex. The scenario in world is almost same. No females are preferring to be examined their genitalia by

male gynaecologist except their husband who has been bestowed this right by virtue of entering in the holy institution “marriage”. They believe that any male inspecting a female’s genitalia would be violating the SACRED husband and wife intimacy-which they both believe GOD recognized. The condition in India is little more critical. The Asian females still not very clear where to seek the help when matter related to psychological issues of Gynaecological area comes. May be because of value laden thinking and culturally loaded thought and behaviour impede them not to visit any other professional except Gynaecologist preferably of the same gender. Moreover, many Ob/gyn (Obstetrics/ gynaecology) feel ill equipped to talk with their patients regarding emotional and safety issues related to intimate relationship and sexual activity. Hence, the services of clinical psychologist/ women's health psychologist may be useful in providing the support and intervention, gathering the information, relationship, physically and emotionally safe contact, pregnancies prevention, sexual functioning and communication. The clinical psychologist Women Health Psychologist can fill the gap by providing consultation to service providers(Ob/gyn) about the guidelines of how to assess and address the sexual dysfunctions (Armstrong, 2011).

The Women's Medicine (Ob/Gyn) providers increasingly have been called upon to address identification, assessment, prevention and treatment of behavioural health concerns as part of their mission to deliver reproductive health care. But researches consistently show that Ob/gyn practices fail to address, treat women's behavioural health needs adequately, including anxiety, depression, eating disorder and substance abuse etc. Ob/gyn service providers generally focus on the women health care needs and they often have a primary focus on developmental issues such as menstruation, initiation of contraception, pregnancy, child birth and menopause. The challenges often seen in combination with these transitional period - such as unintended pregnancies, infertility, pregnancy loss, chronic illness and pain, mood, sleep difficulties, caregiving challenges, interpersonal trauma

and poverty can leave ob/gyn providers feeling uncertain and overwhelmed as to how to respond to complexity of their patient's needs. Today the service providing system in any area is overwhelmed with newer technological developments and in the area of Women's Medicine the "patient centered, comprehensive, coordinated, and accessible health care delivery model" is the requirement of present era. The clinical Psychologist can provide their services in screening, consultation, psychotherapeutic engagement, provision of psychotherapy, collaboration, facilitation of patient- service provider relationships, education and research.

In practice many cases have been reported that due to fear of breaking celibacy or fear of painful vaginal insertion or a strong fixated thinking that God/Goddess will become angry if one will break virginity and mishappening will take place in life of self and/or family or fear of delivering child or.....

Because of such irrational fear/thought the female partner is often avoiding the sexual encounter with her counterpart. Some cases have also been reported with the complaint of uncooperativeness or complete denial of sexual encounter compelled by the irrational thought, fear of producing child which is very painful act / exercise which may not tolerated by them. Apart from the traditional mental and sexual disorders with the revolutionary changes in information technology and growing awareness about the issues related to mental health, sexuality and reproductive science has explored newer dimension and today it is established fact that role of mental health professionals especially clinical psychologists has become significant in the areas which were considered to be reserved for one or other specific speciality of medical stream e.g. Obs. & Gynaecology (even other medical professionals are not considered competent to help the client), Oncology etc.

Menstruation is another complicated and difficult transitional phase in life of women. Though, onset of menstruation does not always cause significant difficulty to everyone but for some menstruation is complicated period with multiple

physical and emotional problems. Premenstrual Dysphoric Disorder (PMDD), chronic pelvic pain, stiffness and painful sensation on breast, hot flashes, tenderness and many more symptoms may appear in females during menstruation period. Though, the antidepressant is the choice of medicine to treat the PMDD but efficacy of that is still questionable. Cognitive behaviour therapy has proven its efficacy in treatment of PMDD and also to help them to identify triggers of their irritability, reduce their dysphoria, improve their mood and effectively communicate with others about their needs.

Approximately 14% of pregnant women and 13-34% of postpartum women expressing clinically significant depression and anxiety and some time psychosis too (Lan Carter et al., 2010). In such circumstances service provider (Ob/gyn) find themselves ill equipped to handle these problems and even identifying these problems. The clinical psychologist/ Women's health psychologist can provide psychotherapy/counselling to women and their families who find themselves that they are depressed or suffering with their feelings beyond what obstetrician /gynaecologist (Ob/gyn) can offer. Support and psychotherapy can ease the transition and help to work toward betterment. The clinical psychologist can also help women and couple to explore their feelings, reframe their expectation, explore their resources and support as needed and prepare for anticipating change. Clinical Psychologist can also play a crucial role in working with women, their partners and professionals(Ob/gyn) to provide treatment and reduce the risk of pain, depression, anxiety and other emotional sufferings during pregnancy or postpartum period. Psychotherapy (CBT/ IPT and Mindfulness therapy) may be targeted to reduce the negative feelings about self and world, becoming mother, coping with new role with a partner or other family member, maintaining proper body image, enhancement of self esteem, attending self care and nurturing partner's relationship.

History of physical, emotional and social abuse is significantly correlated with pelvic pain and post traumatic stress disorder and some time in some cases also causes reproductive problems. The

cases reported in the clinics disclose the fact that developed the idea not to produce the child at least female child because of the fear that same incidence may happen to her also.

In such circumstances clinical psychologists can offer significant remedial measure by participating in meeting with family and service providers to discuss their concern and goal. The clinical psychologist is well equipped and well suited to emphasize the concept of interdependence and its effect on the physical and emotional well being and to offer various psychological measures to improve the functioning and reduce the stress and pain interference. CBT and interpersonal psychotherapy has proven its use / worth in managing chronic pain/ pelvic pain (Poleshuk, 2010; Paras et al., 2009).

The pregnancy loss is devastating and painful experience in life of women and causes stressful reactions, psychological trauma and sometime long lasting symptom of anxiety, stress and grief. It is also painful for Ob/ gyn as they have to communicate for such devastating information to parents. Supplying such bad news may cause some unwanted reactions to parents. The obstetricians may also experience grief, sadness and guilt because some time they develop the idea that even after all efforts they are unable to help the couple. In such circumstances too clinical psychologist/women health psychologist can provide intervention and support and help them to overcome from loss and sufferings, grief reactions and re-establish the interpersonal relationship to both parents (couple) and service provider as well.

The menopause specially late perimenopause is a significant transition in life of women which increases the vulnerability of various mental health issues/problems. Women may face various vasomotor symptoms such as hot flashes or night sweats and / or depression. They also find poor social support as children leaving home, ailing parents, aging and other life transition may be associated with menopause. Psychotherapy will be very appropriate treatment if there is significant life changes /losses (Bormberger & Kravitz, 2011).

Psychotherapy can help to develop coping in women and strategies to manage vasomotor symptoms and sleep disruptions. Psychotherapy can also help to develop hopes, dreams for future reducing the fear and developing, negotiation/strengthening more satisfying relationship with their partners.

Prior consultation with clinical psychologist / cognitive therapist, women health psychologist may help to manage the post-partum issues and make labour room entry less painful and better marital relationship. Change in cognition will develop the acceptance of consequences of labour room and help to develop understanding that becoming mother is more pleasurable and happy movements for a women when compared to the pain and suffering of labour room. The hypnotherapy before going to labour room has been significantly effective in reducing pain, suffering, fear and preparing them to accept new role and cope with new responsibilities in women before/during delivery of the child.

Many women present to ob/gyn practitioners in need of behavioural health treatment, yet their needs are often missed. Common health issues seen in ob/gyn practices such as problem with menstruation, pregnancy, and menopause - are closely linked with behavioural health especially women struggling with the physical and mental health and implication of interpersonal trauma. Hence, Ob/gyn practices benefit from having a Clinical Psychologist/ Women Health Psychologist in their health care team to offer screening, engagement, assessment, consultation, treatment and health promotion to women's health patients and consultation and support to Ob/gyn practitioners to improve research and training as well.

The integration of behavioural health into primary care and Ob/gyn is innovation with many positive effects. The role of clinical psychologist in the area of Women's Medicine, specifically regarding the implementation of psychological, psychosocial interventions as psycho-social care and to understand and manage various stressor and other psychological symptoms that of women's reproductive health problems; to provide optimal individualized care and to enhance treatment

compliance cannot be undermined. Women in Ob/gyn (obstetrics & gynaecology) setting experience high level stress as they juggle multiple roles including working and care for children, elderly parents and other family members. They also may experience interpersonal difficulties such as intimate partners violence, intimate communication and issues related to sexuality. A clinical psychologist can provide an important perspective and understanding of the numerous factors and reproductive health issues including post traumatic stress disorder, depression, prepartum anxiety, stress and other mental health issues.

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Research Article

Effect of Neuro-Feedback Training on Cognitive (Executive) Function in Obsessive Compulsive Disorder (OCD)

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Abstract

The present pre- post design study aimed to assess the efficacy of Neuro-feedback training in improving cognitive (Executive) function of patients having Obsessive Compulsive Disorder (OCD). Based on inclusion and exclusion criteria, a total of 50 obsessive compulsive patients were selected. Twenty five of them were randomly assigned to experimental group and 25 were assigned to control group. The 25 patients in experimental group received neuro-feedback (EEG-biofeedback) intervention plus treatment as usual (TAU) and 25 of them in the control group received treatment as usual (TAU) only. After establishing rapport and the explaining the purpose of the study details of the socio-demographic data were gathered. Y-BOCS Checklist, Y-BOCS or Yale-Brown Obsessive Compulsive Scale, Wisconsin Card Sorting Task, (WCST) were administered for baseline assessment. Experimental group received 20 sessions of alpha theta protocol (40 minutes per session on average 5 sessions per week along with TAU. After the completion of 4 weeks (approximately) both groups were assessed again by Y-BOCS, WCST. Again after two weeks the experimental group was assessed using above mentioned tests and rating scales. The findings showed improvement in cognitive (executive) function in patients in experimental group receiving EEG-Biofeedback in comparison to control group.

Key Words: Cognitive rehabilitation, Biofeedback, EEG Neuro-feedback Training, alpha EEG Training, theta EEG Training

Neurofeedback, also called electroencephalogram (EEG) biofeedback or neurotherapy. Neurofeedback training is brainwave biofeedback. Research has shown that many kinds of psychological difficulties are associated with problems in activation (over-activation, under-activation or disturbed coordination) in various areas of the brain. Obsessive-compulsive disorder is an anxiety disorder where obsessions are defined as ideas, thoughts, images and impulses that enter the participant's mind repeatedly and compulsions are repetitive stereotyped behaviour that are performed in response to an obsession in order to ignore or suppress such thoughts (Andrews, 2003).

Findings suggest cognitive impairment on tasks of spatial working memory, spatial recognition and motor slowing suggestive of a syndrome of frontal-subcortical dysfunction with prominent executive function impairment in OCD patients (Purcell et al.,1998). OCD patients show deficit in the area of attention, problem solving, working memory, set shifting and response inhibition (Rao et al., 008). Dittrich and Johansen (2013) have reported significantly impaired performance of OCD group in comparison to healthy participants in decision making

and executive functioning. EEG studies have reported medial frontal hyperactivity in OCD (Koprivova et al., 2011). Authors recommended that these consistent results based on EEG source localization are of practical interest for therapeutic intervention.

Based on review of literature we hypothesised that EEG Neurofeedback should be effective in the management of OCD. EEG Neurofeedback has been found effective in management of cognitive deficits in other conditions, e.g., alcohol dependence (Ghosh et al., 2014). Reiner et al. (2014) have also found significant improvement in cognitive functioning in theta EEG training group indicating a clear relationship between memory consolidation and theta Neurofeedback.

Published research assessing the efficacy of Neurofeedback training in Obsessive-Compulsive Disorder is limited. Zoefel et al. (2011) in their study took 12 participants (23.7±2.3 years) in the Neurofeedback training (NFT) and 10 in the control group (22.1±3.8 years) in their final sample. The participants in the NFT received five sessions within 1 week by means of EEG (electroencephalogram) Neurofeedback dependent on the current upper alpha amplitude. They tested cognitive ability on the first and fifth session by a mental rotation test. In the study

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individually determined upper alpha was increased independently of other frequency bands. They found that enhancement of cognitive performance was significantly larger for the Neurofeedback group than for a control group who did not receive feedback. Thus, the findings showed individually determined upper alpha frequency band in EEG (electroencephalogram) Neurofeedback parameter resulted in enhancement in cognitive performance.

In view of dearth of studies on efficacy of Neuro-feedback Training on Cognitive Function (Executive Function) in Obsessive Compulsive Disorder, the current study is being undertaken to explore the effect of Neuro-feedback on Cognitive function (Executive) in Obsessive Compulsive Disorder.

METHOD

Sample:

A sample of 50 patients was selected from the in-patient and out-patient departments of Central Institute of Psychiatry (CIP) for the current study. Among the total number of patients 25 were randomly assigned for neuro-feedback (EEG-biofeedback) intervention plus treatment as usual (TAU) and 25 of them were assigned for (TAU) only. The patients having diagnosis of Obsessive-Compulsive Disorder as per ICD-10 DCR (WHO 1992), both sexes (male & female), age range between 18 to 50 years, giving informed consent for being part of the study, OCD with only co-morbidity of depression, minimum level of 8 years of education were included. Patients having history of any chronic physical illnesses, organic brain syndromes, and substance abuse/dependence, OCD with poor insight, psychotic symptoms or other psychiatric illness except depression were excluded.

Measures:

The following tools have been administered in the study.

Socio-demographic & Clinical Data Sheet:

A socio-demographic & clinical data sheet will be used to get some primary information regarding socio demographic variable.

Y-BOCS Checklist (Wayne Goodman, 1989):

The Checklist asks the patient to indicate whether or not s/he has specific types of obsessions or compulsions. The checklist groups obsessions and compulsions into broad categories of symptoms.

Y BOCS or Yale-Brown Obsessive Compulsive Scale (Wayne Goodman, 1989):

Y BOCS scale consists of 10 items rating scale to evaluate the severity of illness in individuals with obsessive-compulsive disorder (OCD). Items are rated on a 0 to 4 scale (0=one and 4=extreme).

Wisconsin Card Sorting Task, (WCST) Heaton, (1981):

The WCST was developed by Berg et.al, (1948). The WCST provides objective scores of overall success and also for specific sources of difficulty on the task (eg inefficient initial conceptualization, perseveration, failure to maintain a cognitive set, and inefficient learning across stages of the test). A WCST deck is made up of 128 response cards, and 4 stimulus cards. Each stimulus card has a different number, color, and shape of symbol.

Multi Channel Biofeedback Device:

Multi channel Biofeedback Device developed by thought technology Ltd. consists basically of biograph infiniti multimedia software & procomp infiniti Encoder Hardware as encoding & processing devices will be used for the study. It can give real time computerized biofeedback & data acquisition. The encoder is able to render a wide & comprehensive range of signs used in clinical observation & biofeedback thought technology's advanced design and active electronic sensors meet rigorous standards for instrument accuracy, sensitivity, durability and ease of use. All sensors are completely non invasive & require little or no preparation for use. Present study was done using EEG-Z.

Procedure:

This is a hospital based on pre-post design prospective study. The study was approved by the ethics committee of Central Institute Psychiatry (CIP). For the purpose of intervention, 50 patients with diagnosis of Obsessive Compulsive Disorder (OCD) as per ICD 10/DCR (WHO, 1992) criteria were randomly selected from CIP, Ranchi, Jharkhand, India on the basis of inclusion and exclusion criteria for both groups. Informed consent was obtained from all participants of this study. Afterward they were randomly assigned to the EEG -biofeedback plus Treatment as Usual of CIP group (experimental group; 25 participants) and Treatment as Usual -only group (control group; 25 participants). After establishing rapport and the explaining the purpose of the study the

details of the socio-demographic data were gathered. Y-BOCS Checklist, Y-BOCS or Yale-Brown Obsessive Compulsive Scale, Wisconsin Card Sorting Task, (WCST) were administered for baseline assessment. The participants received 20 sessions of alpha theta protocol (40 minutes per session on average 5 sessions per week) in the treatment of patients with Obsessive Compulsive Disorder. Participants in the Experimental group received EEG Biofeedback sessions along with TAU. EEG-Biofeedback was performed on EEG biofeedback system (Procomp+/Biograph programme-Thought Technology Ltd (2006) version- 3.0 (SA7500) keeping one electrode active. Participants in control group received only treatment as usual (TAU). After the completion of 4 weeks (approximately) both groups were assessed again by Y-BOCS, WCST. Again after two weeks the experimental group was assessed by the above mentioned test and rating scale.

STATISTICAL ANALYSIS

Student's t test and Chi Square were used to complete the demographic and clinical characteristics of the two groups. The Cognitive (Executive function) was compared and analyzed using repeated measure ANOVA.

RESULTS

Table 1 shows comparison of age and education between experimental and control group. Mean age of experimental group was 32.68 (±7.94) years and mean age of control group was 28.24 (±7.18) years. Mean education of experimental group was 13.04 years (±2.68) and mean education of control group was 12.28 years (±2.31). There was significant difference noted in age of experimental and control group. Age was found to be significantly higher in experimental group compared to control group.

Table 1: Comparison of Socio demographic Variables (Continuous) between the Two Groups.

Variables	Group 1 Experimental Group Mean ± SD	Group 2 (Control Group) Mean ± SD	t	df	p
Age (in years)	32.68±7.94	28.24±7.18	2.07	48	.044*
Education (in years)	13.04±2.68	12.28±2.31	1.08	48	.285

*p≤0.05

Table 2 shows frequency and percentage of sex,

religion, marital status, occupation, socio-economic status and habitat between both groups. It was found that 36% (9) participants were males and 64% (16) participant were females in experimental group and 48% (12) participant were males and 52% participant were females in control group. The table also shows 92% participants were Hindus while in control group 76% were Hindus and 24% belonged to others. There were 68% married participants and 32% unmarried participants in experimental group and in control group 60% participants were married and 40% were unmarried. The table also shows 20% participants were employed whereas 80% were unemployed in experimental group and 24% participants were employed while 76% participants were unemployed in control group. The table reveals 92% participants belonged to middle class and 84% participants belonged to middle class in control group. The table also reveals 84% participants belonged to urban background in experimental group while in control group 32% participants belonged to rural background whereas 68% participants belonged to urban background.

Table 2: Comparison of Socio demographic Variables (Categorical) between the Two Groups

Variables		Group- 1 Eperimental N=25) (%)		Group-2 Control N=25) (%)		x ²	df	p
Sex	Male	9	36%	12	48%	0.39	1	0.158
	Female	16	64%	13	52%			
Religion	Hindu	23	92%	19	76%	2.38	1	0.099
	Other	2	08%	6	24%			
Marital Status	Married	17	68%	15	60%	0.55	1	0.196
	Unmarried	8	32%	10	40%			
Occupation	Employed	5	20%	6	24%	0.11	1	0.252
	Unemployed	20	80%	19	76%			
Socio economic Status	Lower	2	8%	4	16%	1.69	1	0.163
	Middle	23	92%	21	84%			
Habitat	Rural	4	16%	8	32%	1.75	1	0.113
	Urban	21	84%	17	68%			

Table 3 shows comparison of mean duration of illness between experimental group and control

group. There was no significant difference found between groups with regard to duration of illness. Table also shows comparison of mean age of onset of illness between both groups and no significant difference was found between two groups with regard to age of onset of illness.

Table 3: Comparison of Clinical Variables (Continuous) between the Two Groups:

Variables	Group -1 (Experimental Group) Mean ± SD	Group -2 (Control Group) Mean ± SD	t	df	P
Duration of Illness (in yrs.)	7.62 ±7.42	5.28±3.96	1.38	48	0.171
Age of Onset (in yrs.)	25.08±8.10	23.32±7.60	0.79	48	0.433

Table 4 shows frequency and percentage of past psychiatric history, past medical history, family history of medical illness, family history of psychiatric illness and handedness between both groups.

Table 4: Comparison of Socio demographic Variables (Discrete) between the Two Groups:

Variables		Group 1 (Experimental Group)		Group 2 (Control Group)		X ²	df	p
		Frequency(n)	(%)	Frequency(n)	%			
Past Psychiatric History	Significant	0	0%	0	0%	0.312	1	0.50
	Not significant	25	100%	25	100%			
Past medical History	Significant	0	0%	0	0%	0.312	1	0.50
	Not significant	25	100%	25	100%			
Family history of Medical Illness	Significant	11	44%	9	36%	0.564	1	0.19
	Not significant	14	56%	16	64%			
Family history of Psychiatric Illness	Significant	8	32%	8	32%	1.00	1	0.23
	Not significant	17	68%	17	68%			
Handedness	Right	24	96%	25	100%	0.312	1	0.50
	Left	1	4%	0	0%			

The table reveals no significant history of past psychiatric illness in experimental group and control group. There were also no significant past medical history in experimental group and control group. The table also reveals 44% participants had family history of medical illness in experimental group whereas 36% participants had family history of medical illness in control group.

Table 5 shows that score on YBOCS reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.827 with observed power of 1.

Table 5: Comparison of Scores of Y-BOCS across Different Time Points of Assessment in the Experimental Group Receiving Neurofeedback:

YBOCS	Time A Baseline	Time B (after Four Weeks) Mean ± SD	Time C (after Six Weeks) Mean ± SD	F	p	Effect size Partial Eta Squared	Observed Power	Post hoc
	25.36 ±4.36	15.12 ±4.13	14.20 ±4.0	1918.74	.001***	0.827	1	A>B, A>C

WCST total perseverative error reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.321; with observed power of 0.989. The Table also shows that score on WCST total nonperseverative error did not reduce significantly at time B and Time C compared to time A. The Table also shows that scores on WCST conceptual level response reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.303 with observed power of 0.982.

The Table also shows that scores on WCST categories completed reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.288; with observed power of 0.962. The Table also shows that score on WCST failure to maintain set reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.159 with observed of 0.698

Table 6: Comparison of Scores of Cognitive Functions (WCST) Across Different Time Points of Assessment in the Experimental Group Receiving Neurofeedback:

WCST Total Trials	Time A Baseline	Time B (after Four Weeks) Mean ± SD	Time C (after Six weeks) Mean ± SD	F	p	Effect Size Partial Eta Squared	Observed Power ^a	Post hoc
	124.64 ± 7.27	119.36 ± 16.91	122.20 ± 13.03					
WCST Total Correct	68.76 ± 12.04	75.64 ± 13.44	76.80 ± 9.11	3.71	0.036*	0.134	0.622	B > A C > A
WCST total Perceverative Responses	43.68 ± 20.70	27.28 ± 13.94	29.12 ± 13.26	11.84	0.001***	0.330	0.992	A > B A > C
WCST total Perceverative Error	36.44 ± 15.47	24.24 ± 12.17	25.28 ± 10.45	11.36	0.001***	0.321	0.989	A > B A > C
WCST Total Non-Perceverative Error	20.48 ± 7.83	18.36 ± 7.64	17.44 ± 5.62	1.94	0.154	0.075	0.334	
WCST Conceptual Level Response	51.08 ± 19.01	65.36 ± 14.90	65.52 ± 8.99	10.43	.001***	0.303	0.982	B > A C > A
WCST Categories Completed	3.20 ± 1.95	4.20 ± 1.44	4.48 ± 0.15	09.69	.001***	0.288	0.962	B > A C > B
WCST Failure to Maintain Set	1.00 1.10	2.04 ± 1.51	1.7 1.15	04.33	.022*	0.159	0.698	B > A C > A

*p<0.05 ; ***p<0.001

WCST: Wisconsin Card Sorting Task

Table 7 shows comparison of WCST scores between two groups at baseline. It reveals that there

was no significant difference in scores of WCST at baseline.

Table 7: Comparison of Scores of WCST at Baseline of Assessment between the Experimental and the Control Groups:

	Experimental Group	Control Group	t	p
wcst.t.trial.B	124.64	125.96	0.527	0.601
Wcst.t.correct.B	68.76	64.12	1.323	0.192
Wcst.p.res.B	43.68	46.64	0.454	0.652
Wcst.p.err.B	36.44	38.96	0.526	0.602
Wcst.np.err.B	20.48	22.88	0.877	0.385
Wcst.con. resp.B	51.08	46.44	0.934	0.355
Wcst.cat.comp.B	3.20	2.52	1.494	0.142
Wcst.fail.set B	0.96	1.60	1.644	0.107

- wcst.t.trialB: west total trials at baseline
- Wcst.t.correctB: west total correct at baseline
- Wcst.p.resB: west total perceverative responses at baseline
- Wcst.p.err.B: west total perceverative error at baseline
- Wcst.np.errB: west total non perceverative error at baseline
- Wcst.con.respB: west conceptual level response at baseline
- Wcst.cat.compB: west categories completed at baseline
- Wcst.fail.setB: west failure to maintain set at baseline

Table 8 shows comparison of WCST scores between two groups after treatment. It reveals that there was significant difference in wcst.t.correct1 (p<.05), wcst.np.err1 (p<.05), wcst.con.resp1 (p<.05), wcst.cat.comp.1 (p<.05) post intervention.

Table 8: Comparison of Scores of WCST Post Intervention between the Experimental and the Control Groups:

	Experimental Group	Control Group	t	P
wcst.t.trial 1	119.36	123.64	1.016	0.315
Wcst.t.correct 1	75.64	67.40	2.213	0.032
Wcst.p.res1	27.28	34.60	1.661	0.103
Wcst.p.err.1	24.24	29.96	1.611	0.104
Wcst.np.err1	18.36	24.60	2.294	0.026
Wcst.con.resp1	65.36	52.12	2.996	0.004
Wcst.cat.comp.1	4.20	2.88	2.896	0.006
Wcst.fail.set1	1.96	1.54	1.030	0.308

- wcst.t.trial1: west total trials post intervention
- Wcst.t.correct 1: west total correct post intervention

- West.p.res1: wst total perseverative responses post intervention
- West.p.err1.: wst total perseverative error post intervention
- West.np.err1: wst total non perseverative error post intervention
- West.con.resp1: wst conceptual level response post intervention
- West.cat.comp1: wst categories completed post intervention
- West.fail.set1: wst failure to maintain set post intervention

Table 9 shows effect of EEG-Biofeedback and change in psychopathology as compared in experimental and control group. Group psychopathology interaction reveals that there was significant interaction in WCST.fail.set with experimental group showing better efficacy as compared to control group. (F=4.08, P=.04). The effect size for WCST.fail.set was mild. (partial eta square = .080).

Table 9: Comparison of Pre and Post Intervention Scores of Various WCST Test between Experimental and Control Groups.

		F	p	Partial eta Squared	Observed Power
WCST. t. trials	Time	5.27	.026	.099	.614
	Group	.845	.363	.017	.147
	Time x Group	.800	.376	.016	.142
WCST. t. correct	Time	5.944	.019	.110	.666
	Group	4.74	.034	.090	.569
	Time x Group	.746	.392	.015	.135
WCST. p. res	Time	17.751	.000	.270	.985
	Group	1.347	.251	.027	.206
	Time x Group	.417	.521	.009	.097
WCST. p. err.	Time	20.103	.000	.295	.992
	Group	1.391	.244	.028	.212
	Time x Group	.458	.502	.009	.102
WCST. np. error	Time	.014	.907	.000	.052
	Group	.014	.907	.000	.052
	Time x Group	1.282	.263	.026	.199
WCST, con.resp	Time	13.253	.001	.216	.946
	Group	5.474	.024	.102	.630
	Time x Group	2.460	.123	.049	.336
WCST. cat.comp.	Time	8.824	.005	.155	.829
	Group	6.452	.014	.068	.445
	Time x Group	1.954	.169	.039	.278
WCST. fail.set	Time	3.456	.069	.068	.445
	Group	.111	.741	.002	.062
	Time x Group	4.083	.049	.080	.508

Table 9 shows effect of EEG-Biofeedback and change in psychopathology as compared in experimental and control group. Group psychopathology interaction reveals that there was significant interaction in WCST.fail.set with experimental group showing better efficacy as compared to control group. (F=4.08, P=.04). The effect size for WCST.fail.set was mild. (partial eta square = .080).

- wst.t.trial: wst total trials
- Wst.t.correct : wst total correct
- Wst.p.res: wst total perseverative responses
- Wst.p.err.: wst total perseverative error post intervention
- Wst.np.err: wst total non perseverative error
- Wst.con.resp: wst conceptual level response
- Wst.cat.comp: wst categories completed
- Wst.fail.set: wst failure to maintain set

DISCUSSION

The current study is being undertaken to explore the effect of neuro-feedback on cognitive function (executive) in obsessive compulsive disorder. In the present study we have found that the score on YBOCS reduced significantly at time B (after treatment) and Time C (follow up) compared to time A (baseline). The effect size for this change was 0.827 with observed power of 1.

The findings also showed that score on WCST total correct reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.134 with observed power of 0.622. The score on WCST total perseverative response reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.330 with observed power of 0.992. The scores on WCST total perseverative error reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.321; with observed power of 0.989. The scores on WCST conceptual level response reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.303 with observed power of 0.982. The scores on WCST categories completed reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.288; with observed power of 0.962. The score on WCST failure to maintain set

reduced significantly at time B and Time C compared to time A. The effect size for this change was 0.159 with observed of 0.698.

The comparison of WCST scores between two groups at baseline revealed that there was no significant difference in scores of WCST at baseline. The comparison of WCST scores between two groups after treatment revealed that there was significant difference in *wcst.t.correct1* ($p < .05$), *wcst.np.err1* ($p < .05$), *wcst.con.resp1* ($p < .05$), *wcst.cat.comp.1* ($p < .05$) post intervention. Significant improvement in the cognitive function (executive function) after EEG neurofeedback training is in accordance with the previous studies reporting improvement in patients of other conditions also (Ghosh, et al., 2014; Reiner et al., 2014).

The effect of EEG-Biofeedback and change in psychopathology as compared in experimental and control group. Group psychopathology interaction reveals that there was significant interaction in *WCST.fail.set* with experimental group showing better efficacy as compared to control group ($F=4.08$, $P=.04$). The effect size for *WCST.fail.set* was mild. (part The findings of the present study are similar to that of Zoefel et al. (2011), who have also found that individually determined upper alpha frequency band in EEG (electroencephalogram) neurofeedback parameter resulted in enhancement in cognitive performance.

CONCLUSION

The treatment of any illness is aimed not only at providing symptomatic relief but also, returning the patient to his optimum level of his functioning. The findings of the present study showed improvement in cognitive (executive) function after EEG-Biofeedback training in Obsessive Compulsive patients. The current study revealed that neurofeedback (electroencephalogram (EEG) biofeedback) can be used as a clinical intervention for improving functions and maintaining the durability of such gains. Study should be replicated on larger sample with longer follow-up. Improvement in cognitive functions through EEG neurofeedback should be assessed across subgroups of obsessive compulsive disorder.

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Research Article

Application of Self-Regulatory Executive Function (S-REF) Model in Psychopathology Formulation of Patients with Anxiety Disorders

Soheli Datta*¹ and Sanjukta Das²

ABSTRACT

The S-REF model of psychological disorder (Wells & Mathews, 1994) integrates information with the purpose of understanding the meta-system involving voluntary control of cognition, procedural knowledge and interactions among different levels of information processing. In anxiety disorder, the locus of explaining the symptoms is in their psychopathology formation. The present study aims to explore the application of S-REF model in psychopathology formulation among Generalized Anxiety Disorder (GAD), Social Phobia and Mixed Anxiety & Depressive Disorder. The sample consisted of 6 patients, including 2 from each group, on whom, Meta-Cognition Questionnaire (MCQ) (Cartwright-Hatton & Wells, 1997), Presumptive Stressful Life Event Scale (PSLES) (Singh et al., 1984), and Thematic Apperception Test (TAT: Morgan & Murray, 1935), were administered along with clinical interviews. Psychopathology formulation for each of the 3 groups was formulated with the S-REF model using the chief complaints of the patients, scores obtained from MCQ and PSLES and meta-cognitive components from TAT narratives. Findings indicate that psychopathology formation takes place through various inputs from the family and environment which form a meta-system in an individual including meta-beliefs about the self and meta-plans about dealing with the incoming stress which monitors the cognitive style and cognitive attentional syndrome leading to cognitive and emotional problems, the output manifestations being the symptoms.

Key Words: Metacognition, Anxiety, Psychopathology, Life events

INTRODUCTION

Metacognition describes a range of inter-related factors comprised of cognition that monitors, controls, and appraises the products and process of awareness and thereby shapes what we pay attention to and the factors that enter consciousness. The concept of metacognition describes a range of interrelated factors that are comprised of any knowledge or cognitive process that is involved in the interpretation, monitoring, or control of cognition. This can be explained by the basic model, called the Self-Regulatory Executive Function Model (S-REF; Wells & Mathews, 1994, 1996; Wells, 2000). It offers an account of the cognitive and metacognitive factors involved in the maintenance of emotional disorders in the presence of stressful life events.

The model proposed that the emotions of anxiety and sadness are basic internal signals of a discrepancy in self-regulation and of threats to well-being. Such emotions are normally of limited duration because the person engages in coping

strategies to reduce threats and control cognition. Psychological disorders results from the maintenance of such emotional responses and are maintained because of the individual's thinking style (their meta-beliefs) and strategies (their meta-plans). The unhelpful style, found in such disorder is called the Cognitive Attentional Syndrome (CAS), consisting of worry, threat monitoring, unhelpful thought control strategies, and other forms of behaviour that prevent adaptive learning. The CAS is the result of erroneous metacognitive beliefs that control and interpret thinking and feeling states. Thus, the individual who is prone to activate this response pattern is more likely to show a persistence of anxious arousal and to develop repeated panic attacks. Such a pattern will support the growth of beliefs about the uncontrollable and harmful consequences of anxiety. According to the S-REF model (Wells & Mathews, 1994), worry elaborates memory representations of the stressor and leads to greater accessibility of threat, which results in the escalation of perceived

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stress. The S-REF theory (Wells & Matthews, 1994, 1996) of emotional disturbances seem to suggest that metacognitive theory could be relevant to understanding the link between perceived stress and negative emotion.

Over the past few decades, researchers have witnessed a surge in psychological research on implicit and underlying cognitive processes, in a variety of research areas including memory (Squire, 1992), learning (Cleermans, in press), and in social cognition (Bargh, 2005). Common to these different areas of research is an attempt to assess processes that are not readily captured by conscious introspection, assessment techniques and tools or cannot easily be controlled, but that nevertheless influence behaviour to a great extent. Attempting to assess these implicit processes involved in psychopathology is in itself not new, and goes back to Freud's free association methods and the use of projective tests (Mc Clelland, Koestner, & Weinberger, 1989). They illustrated that underlying cognition measures may be important for increasing understanding of a variety of types of psychopathology and thereafter, much of the clinically relevant work has occurred in the anxiety and mood disorders field where it was found that the locus of explaining the symptoms is in their psychopathology formation.

In Generalized Anxiety Disorder, anxiety is generalized and persistent but not restricted to, or even strongly predominating in, any particular environmental circumstances. There are complaints of continuous feelings of nervousness, trembling, muscular tension, sweating, light-headedness, palpitations, dizziness, and epigastric discomfort. Individuals suffering from Social Phobia often fear being humiliated, embarrassed, or judged negatively in social situations and may fear that they will behave inappropriately or possibly be scrutinized by others. Clark and Wells (1995) assume that individuals with social phobia activate a series of negative beliefs about themselves as social subjects when they are faced with social situation. Mixed anxiety and depressive disorders is characterized by dysphoria combined with other depressive and anxiety symptoms that are sub-threshold for a diagnosis of a primary affective or anxiety disorder.

The clinical picture of anxiety disorders involves a variety of symptoms and characteristic

signs. These signs and symptoms are associated with marked social or occupational dysfunction. It has been found that negative beliefs about worry is highest among Generalized Anxiety Disorder which might be due to the fact that worrying can create its own problems that contribute to the need for further worrying in order to cope, and contribute to the strengthening of negative beliefs about thought processes (Wells, 1994a, 1995). It is least in Mixed Anxiety and Depressive Disorder and is still lesser among Social Phobia (Datta, Das & Dogra, in press) which might be because Social phobia is characterized by persistent fears of negative evaluation in social interactions and performance situations (APA, 2000) and is not free floating in other situations. Negative belief about thoughts is highest among Generalized Anxiety Disorder than the other groups, namely social phobia and mixed anxiety depressive disorder, where, Generalized Anxiety Disorder can be characterized as a high negative metacognition problem, with nonspecific combinations of health and social worry (Datta, Das & Dogra, in press). This is, consistent with the S-REF (Self Regulatory Executive Function) model (Wells & Matthews, 1996), beliefs that thoughts were uncontrollable or dangerous, and that thoughts need to be controlled, were associated with more Post-Event Processing. Positive beliefs about worry is mostly in social phobias than in the other anxiety disorder groups, and might be assumed that positive beliefs about worry are the starting point for the development of excessive worry in social phobia (Datta, Das & Dogra, in press). Positive beliefs about worry was found to be least among Generalized Anxiety Disorder as they report less positive reasons for worrying (Borkovec & Roemer, 1995; Datta, Das & Dogra, in press), and that proneness to pathological worry characteristic of Generalized Anxiety Disorder is associated with negative beliefs about worry (Cartwright-Hatton & Wells, 1997; Wells & Papageorgiou, 1998).

The present study is aimed at formulating psychopathology formation based on the S-REF model of psychological disorders and how it gets influenced by several psychosocial factors (namely, metacognition and stressful life events) of patients suffering from Generalized Anxiety Disorder, Social Phobia and Mixed Anxiety and Depressive Disorder.

Thereby, a focus on the 3 clinical disorders has been taken into concern for theoretical purpose on the basis of metacognitive components of patient's narratives, clinical complaints and clinical ratings. Everyday experience suggests that people perceive their surroundings differently from one another and implying to individual differences in perception. Differences in perception are related to anxiety features, like, worry, tension and apprehensiveness. Given the breadth of these relationships, it seems likely that anxiety would also be related to differences in the ways in which people view their surroundings. Knowledge of differences in clinical presentation is important for developing interventions and evaluating treatment outcome as well.

METHOD

The present study aims to explore the application of S-REF model in psychopathology formulation among Generalized Anxiety Disorder (GAD), Social Phobia and Mixed Anxiety & Depressive Disorder.

Sample:

The clinical groups were obtained from the Out Patient Departments (OPD) of hospitals of West Bengal, and also obtained from the University of Calcutta, Department of Psychology, Clinical Psychology Unit; their diagnosis being confirmed by the respectable doctors attending their respective OPD and are under medical consultation. The patients diagnosed by clinicians with the disorders were approached and consent from them was taken. Moreover, co-morbid conditions on the basis of testing were ruled out and thereby, a sample of subjects was considered in the present study. Altogether the sample consisted of 6 subjects including 2 patients in each of the groups having GAD, Social Phobia and Mixed Anxiety and Depressive Disorder.

Inclusion-Exclusion Criteria:

Patients who were

- Suffering from Mixed Anxiety and Depressive Disorder, Generalized Anxiety Disorder and Social Phobia since a considerable period and diagnosed by the psychiatric consultants and is currently under treatment using ICD 10,
- Attending OPD of psychiatry of local medical colleges and hospitals of West Bengal

- Having a treatment history and are under medical consultation
- Understands either Bengali or English and comprehends the test materials adequately and responds to it were included in the group.

However, patients who had

- Any other significant physical disability
- Confusing report and doubt about co-morbidity of any psychological and neurological problems
- Past psychiatric illness and confusing
- Non-corroborative and inconsistent data given by patients or informants were excluded from the group.

Description of the Tools :

Patients were asked to give their consent on collection of data and were informed about no foreseeable risk and discomfort in the process of this study. All the information collected would be kept confidential and will only be used for research purpose without disclosing the identity of the participant. Thereafter, they were asked to voluntarily participate in the study. A semi structured proforma to assess the socio-demographic details was administered along with the other tools of measurement

The Metacognition Questionnaire (MCQ); Hatton & Wells, (1997):

This questionnaire was devised by Cartwright-Hatton and Wells, (1997) to assess individual differences in positive and negative beliefs about worry and intrusive thoughts, meta-cognitive monitoring and judgement of cognitive energy. MCQ consists of 5 replicable factors, namely, Positive Beliefs about Worry, Negative Beliefs about Worry Focusing on Uncontrollability and Danger, Negative Beliefs about Thoughts, Low Cognitive Confidence and Cognitive Self-Consciousness assessed by 65 items in total. Internal Consistency (Cronbach's alpha) for subscales is 0.72-0.89. Stability as assessed by test-retest coefficients across a 5-week time interval range between 0.76 and 0.89 for the individual subscales.

Presumptive Stressful Life Event Scale (PSLES); Singh et al., 1984):

It consists of 51 life events having a test-retest reliability of 0.73

The Thematic Apperception Test (TAT); Morgan & Murray, 1935):

It is a technique for the investigation of the dynamics of personality, as it manifests itself in interpersonal relations and in the apperception or meaningful interpretation of the environment. Inter-rater reliability often exceeds the 0.80 to 0.85 range. A test-retest correlation of 0.30 is found along, though internal consistency is low. Inter-rater reliability varies with studies from 0.30 to 0.90.

Procedure :

For the present study, a sample of 6 individuals was taken into consideration who has a treatment history of Mixed Anxiety and Depressive Disorder, Generalized Anxiety Disorder and Social Phobia, The subjects were selected on the basis of the inclusion/exclusion criteria after getting their consent. The nature of the research was explained to them. They were asked to volunteer for the study and it was assured that their responses will be strictly confidential and it would not be used in any other way apart from using it in the present study. Administration of the tools was done individually by the researcher. The sample included 3 groups, one, who are presently experiencing Generalized Anxiety Disorder (n=2) second who are having Social Phobia (n=2) and Mixed Anxiety and Depressive Disorder (n=2). Comparisons of the obtained scores were made among the sample of Mixed Anxiety and Depressive Disorder, Generalized Anxiety Disorder and Social Phobia (Datta, Das and Dogra, in press). Thereafter, patient's consent about administration of Thematic Apperception Test was taken. Psychopathology formation for each of the 3 groups was formulated with the S-REF model using the chief complaints of the patients, scores obtained from MCQ and PSLES (Datta, Das & Dogra, in press) and meta-cognitive components from TAT narratives, for an idiosyncratic understanding and conceptualization of the patients, their clinical problems and formation of psychopathology.

Analysis of Data:

Qualitative analysis was done using the presenting complaints of the patients, narrations of the Thematic Apperception Test and also the findings from the quantitative analysis (Datta et al., in press). Metacognitive components from these findings were then used for the purpose of psychopathology formulation using the S-REF model of Metacognition.

For each of the 3 groups, 2 patients were administered with Thematic Apperception Test, the common and agreed upon findings by the interpreters were then included in the study.

RESULTS AND DISCUSSION

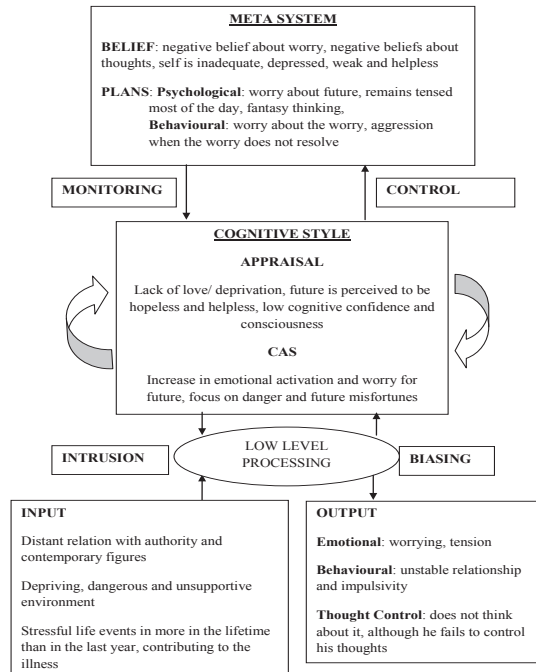
The chart below shows the components of the S-REF model of metacognition based upon the presenting complaints of the patients and the findings on Thematic Apperception Test narratives, and Quantitative Analysis of Meta Cognitive Questionnaire and Presumptive Stressful Life Event Scale scores (Datta, Das & Dogra, in press) for the 3 clinical groups

Components	Generalized Anxiety Disorder	Social Phobia	Mixed Anxiety and Depressive Disorder
Input	Distant relation with authority and contemporary figures, along with depriving, dangerous and unsupportive environment. Stressful life events has been found to be more in the lifetime than in the last year	Distant relation with authority and contemporary figures was perceived, along with, depriving environment. Critical comments mainly came from the family and environment	Distant relation with authority and opposite sex contemporary figures was perceived. Significant stressful life events is more in the life time than in the last year, contributing to the long term symptoms Self is perceived to be inadequate, depressed, and weak, with both positive and negative belief about worry along with lower cognitive confidence
Meta-belief	Negative meta belief about worry, negative beliefs about thoughts, along with self was perceived to be inadequate, depressed, weak and helpless	The self is perceived to be inadequate, depressed, weak and helpless, feels getting freeze while talking, would not organize properly, greater negative belief about worry	Psychological: engages in thinking Behavioural: worries about events, aggression directed towards self and others,

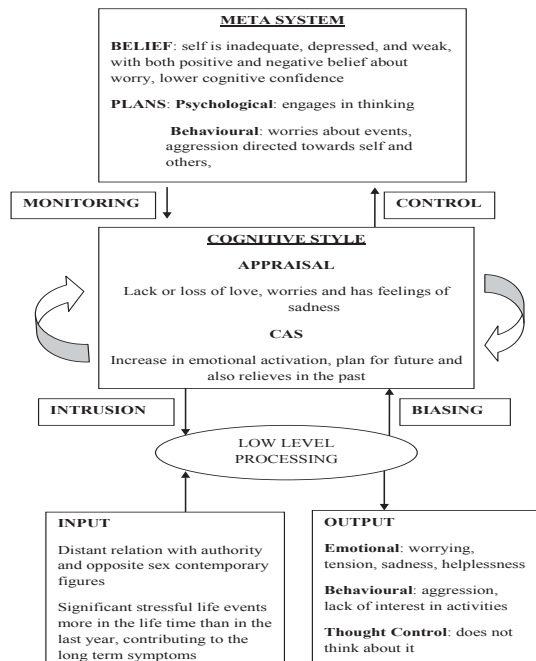
Meta-plans	Psychological: worry about future, remains tensed most of the day, fantasy thinking	Behavioural: worry about the worry, aggression when the worry does not resolve	Psychological: anxiety related to self and how to deal with environmental deprivation
	Behavioural: worries about events, aggression directed towards self and others,	Behavioural: aggression when the worry does not resolve or avoidance behaviour	Psychological: engages in thinking
Cognitive Appraisal	Lack of love/ deprivation was found out and the future is perceived to be hopeless and helpless, along with low cognitive confidence and self consciousness	Lack of love and fear of separation was found out, Low Cognitive Confidence and self consciousness along with fear of social situations	Lack or loss of love was found out, along with worries and has feelings of sadness.
CAS	Increase in emotional activation and worry for future, focus on danger and future misfortunes	Increase in emotional activation and avoidance of the present and plan for future along with uncontrollability of thoughts	Increase in emotional activation, plan for future and also relieves in the past
Output	Emotional: worrying, tension	Behavioural: unstable relationship and impulsivity	Emotional: tension and social anxiety
Thought Control: does not think about it, although he fails to control his thoughts	Behavioural: avoidance behaviour	Thought Control: tries not to think about the social situation but is never able to control it	Emotional: worrying, tension, sadness, helplessness
Behavioural: Aggression, Lack of interest in activities	Thought Control: does not think about the emotion provoking event		

Using The S-REF (Self Regulatory Executive Function) model of psychological disorder with metacognitions revealed, after Wells and Mathews (1994). A detailed qualitative analysis has been given as follows.

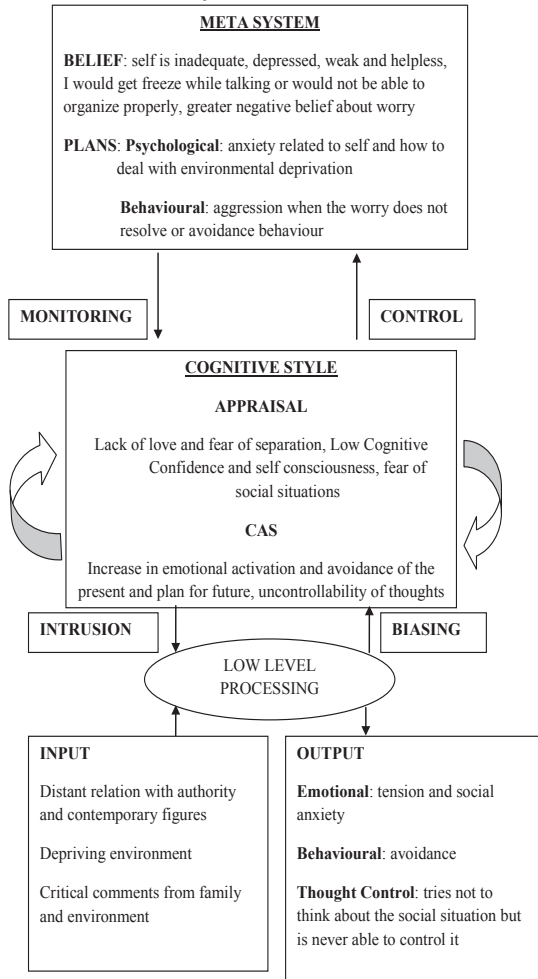
Flow Diagram Showing Psychopathology Formulation of Generalized Anxiety Disorder Based on Presenting Complaints, Qualitative Analysis and Quantitative Analysis:



Flow Diagram Showing Psychopathology Formulation of Mixed Anxiety and Depressive Disorder Based on Presenting Complaints, Qualitative Analysis and Quantitative Analysis:



Flow Diagram Showing Psychopathology Formulation of Social Phobia based on Presenting Complaints, Qualitative Analysis and Quantitative Analysis:



Integrated summary of the Psychopathology Formulation in Generalized Anxiety Disorder:

In Generalized Anxiety Disorder, as obtained from the following study, various inputs like distant relation with authority and contemporary figures, depriving, dangerous and unsupportive environment and stressful life events in the lifetime, contributes to the illness. The meta-system is therefore composed of meta-beliefs and meta-plans. The meta-belief that has been found from the complaints, qualitative and quantitative analysis reveals negative belief about worry, negative beliefs about thoughts the

self is perceived to be inadequate, depressed, weak and helpless, thereby arriving at a meta-plan. His psychological frame of mind rests upon worrying about future, remaining tensed most of the day and engaging in fantasy thinking and his behaviour involves worry about the worry, and getting aggressive when the worry does not resolve. This is thereafter, monitored and controlled by the cognitive style of the individual. The appraisal of which involves lack of love/ deprivation, future perceived to be hopeless and helpless, low cognitive confidence and self consciousness leading to the cognitive attentional syndrome involving increase in emotional activation and worry for future, focus on danger and future misfortunes which again modifies the appraisal system. These are further monitored and controlled by intrusive thoughts and biasing leading to a low level of cognitive and emotional functioning. The output of which being worrying and tension (emotional), unstable relationship and impulsivity (behavioural) but the individual tries not think about it, although he fails to control his thoughts (thought control). However, this is again maintained by the inputs from the family and social environment.

Integrated Summary of the Psychopathology Formulation in Social Phobia:

In Social Phobia, as obtained from the following study, various inputs like distant relation with authority and contemporary figures, depriving social environment, and critical comments from family and environment, contributes to the illness. The meta system is therefore composed of meta beliefs and meta plans. The meta belief that has been found from the complaints, qualitative and quantitative analysis reveals the self to be inadequate, depressed, weak and helpless, he feels that he would get freeze while talking or would not be able to organize properly, greater negative belief about worry and thereby arriving at a meta plan. His psychological frame of mind rests upon anxiety related to the self and how to deal with environmental deprivation and his behaviour involves getting aggressive when the worry does not resolve and avoidance behaviour. This is thereafter, monitored and controlled by the cognitive style of the individual. The appraisal of which involves lack of love and fear of separation, low cognitive confidence and self consciousness

and fear of social situations leading to the cognitive attentional syndrome involving increase in emotional activation and avoidance of the present and plan for future, along with uncontrollability of thoughts which again modifies the appraisal system. These are further monitored and controlled by intrusive thoughts and biasing leading to a low level of cognitive and emotional functioning. The output of which being tension and social anxiety (emotional), avoidance (behavioural) but the individual tries not to think about the social situation but is never able to control it (thought control). However, this is again maintained by the inputs from the family and social environment.

Integrated Summary of the Psychopathology Formulation in Mixed Anxiety and Depressive Disorder:

In Mixed Anxiety and Depressive Disorder, as obtained from the following study, various inputs like distant relation with authority and opposite sex contemporary figures, significant stressful life events more in the life time, contributes to the long term symptoms of the illness. The meta system is therefore composed of meta beliefs and meta plans. The meta belief that has been found from the complaints, qualitative and quantitative analysis reveals the self is inadequate, depressed, and weak, with both positive and negative belief about worry, lower cognitive confidence and thereby arriving at a meta plan. His psychological frame of mind rests upon engaging in thinking and his behaviour involves having worries about events, and aggression is mainly directed towards self and others. This is thereafter, monitored and controlled by the cognitive style of the individual. The appraisal of which involves lack or loss of love, worries and has feelings of sadness leading to the cognitive attentional syndrome involving increase in emotional activation, plans for future and also he sometimes relieves in the past and which again modifies the appraisal system. These are further monitored and controlled by intrusive thoughts and biasing leading to a low level of cognitive and emotional functioning. The output of which being worrying, tension, sadness and helplessness (emotional), aggression, lack of interest in activities (behavioural) but the individual tries not think about the emotion provoking events and is successful at times (thought control). However, this

is again maintained by the inputs from the family and social environment.

The analysis of psychopathology formulation suggests differences among the groups. In Generalized Anxiety Disorder, the meta-system is influenced by negative beliefs about thoughts and worries leading to a cognitive style that is focussed around future danger and misfortune, the output being worry, whereas in Social Phobia, the meta-system is influenced by negative beliefs about the self leading to a cognitive style that is focussed around avoidance of present and plan for future, the output being avoidance. Lastly, in Mixed Anxiety and Depressive Disorder, the meta-system is influenced by both positive and negative beliefs about worries leading to a cognitive style that is focussed around relieving in the past and plan for future, the output being worry, sadness and lack of interest in activities

However, the present study is found to have certain limitations. These factors if considered to a greater extent may make this present study meet higher degrees of sophistication and thereby this may increase its generalizability. There was a limited sample size because of time constraints, loss of subjects due to inconsistency of information provided, the age range taken for the group for the purpose of psychopathology formation was not too broad, and other socio-economic classes other than low and middle class should have also been included.

CONCLUSION:

The psychopathology formulation thus reveals that various inputs from the family and environment forms a meta-system in an individual where there are meta-beliefs about the self and meta-plans about dealing with the incoming stress which monitors and controls the cognitive style and cognitive attentional syndrome leading to cognitive and emotional problems, the output of which being the symptoms of the illness. It was found that patients across cultures show diversities and differences in meta-cognitive profile which influences their monitoring and adjustment of their thoughts, interactions and relationships with others. The study highlights the efficacy of S-REF model in the present socio-cultural context and how deviations from pre-determined therapy structure, based on western culture, was involved in. Findings suggest meta-cognitive appraisals of thoughts do make a contribution to the

disorders under study also revealed an understanding of specific inter-cultural meta-cognitions and with the obtained information, some inter-cultural preventive measures, and intervention strategies could be planned using meta-cognitive therapy and executed in the different anxiety disorder groups in the present population which may enhance the quality of life of these patients. However, the study picturized differences in psychopathology formation across the disorders hence for further validation the study might be conducted with larger sample size.

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Research Article

Efficacy of Mindfulness-Based Cognitive Behavior Therapy in Adults with Stuttering: A Preliminary Study

Sanjeev Kumar Gupta*¹

ABSTRACT

The aim of this preliminary study was to examine the efficacy of mindfulness-based cognitive behavior therapy (CBT) for enhancing communication attitude, quality of life, self-esteem and speech fluency in adults who stutter. A pre-post interventional design was employed. The sample consisted of 5 adults with the diagnosis of stuttering. The therapeutic program included 15-20 sessions of one hour each. The pre and post intervention assessments were done using Toronto Mindfulness Scale, Modified Erickson Scale of Communication Attitudes, WHO Quality of Life-BREF Scale, Beck Anxiety Inventory, Rosenberg's Self-Esteem Scale, Perceptions of Stuttering Inventory and Stuttering Severity Instrument. The finding of the study shows that mindfulness-based CBT is effective in treatment of adults who stutter.

Key Words: Cognitive behavior therapy, Communication attitude, Mindfulness, Quality of life, Stuttering

INTRODUCTION

Stuttering is a developmental speech disorder with multiple etiological factors. Stuttering is defined as speech that is characterized by frequent repetition or prolongation of sounds or syllables or words, or by frequent hesitation or pauses that disrupt the rhythmic flow of speech (ICD-10; WHO, 1993). Thus the core behaviours of stuttering are repetitions, prolongations and blocks (Guitar, 2006). It occurs in approximately 1% of the general population (Bloodstein, 1995) and in 5% of primary school children (Onyeizugbo, 2011). It is more common in men than in women by a ratio of 4:1 (Onyeizugbo, 2011).

Cognitive Behavior Therapy (CBT) is one of the major orientations of psychotherapy (Roth & Fonagy, 2005). It is mainly concerned with understanding the role of cognitions or the personal meaning that the individuals assign to events and on working within this domain in order to achieve cognitive as well as behavioural change (Beck, 1995). It is structured, focused on specific problems, time-limited and educative, encouraging individuals to understand their difficulties better (Beck, 1995). CBT is used with adults experiencing high levels of social anxiety related to stuttering and speaking. It has been reported that approximately 50% of adults who

stutter may have significantly high levels of social anxiety (Kraaimaat, Vanryckeghem, & Van Dam-Baggen, 2002; Menzies et. al., 2008). The primary goal of CBT in adults who stutter is to reduce social avoidance behaviour as well as anxiety (Craig, 2006; Menzies, Onslow, Packman, & O'Brian, 2009).

The term 'mindfulness' is an English translation of the Pali word *sati*. Pali was the language of Buddhist psychology 2,500 years ago, and mindfulness is the core teaching of this tradition. *Sati* connotes awareness, attention, and remembering (Germer, 2005). Mindfulness has been defined as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgementally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003). Mindfulness in psychotherapy is an awareness of present experience with acceptance (Germer, 2005). Mindfulness-based Cognitive Therapy (MBCT) is a manualized group intervention program that integrates mindfulness techniques and elements of cognitive-behavioral therapy (Segal, Williams, & Teasdale, 2002).

Mindfulness-based therapies have shown effectiveness in the reduction of depression and anxiety symptoms in clinical and unpleasant affect

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and psychological stress in non-clinical population (Grossman, Niemann, Schmidt, & Walach, 2004; Bohlmeijer, Prenger, Taal, & Cuijpers, 2010). MBCT has been shown to be effective in the reduction of attention problems, anxiety symptoms and behavioural problems in individuals (Semple, Lee, Rosa, & Miller, 2010). Research evidence suggests that MBCT is effective in the improvement of anxiety, stuttering, communication attitude, and self-esteem in adolescents (Gupta, 2015).

Research studies show that speech therapy treatment for stuttering is available in early childhood (Jones et al., 2005) but stuttering in adults is much less responsive to speech therapy (Craig & Hancock, 1995). Thus, the aim of present study was to examine the efficacy of mindfulness-based CBT for enhancing mindfulness, communication attitude, quality of life, self-esteem and speech fluency and reducing level of anxiety, frequency and severity of stuttering in AWS.

METHOD AND MATERIALS

A pre-post intervention design was adopted. The sample consisted of five adults with the diagnosis of stuttering (ICD-10, DCR), and was recruited from Out Patient Clinic of Department of Clinical Psychology based on inclusion and exclusion criteria. Participants with the diagnosis of stuttering, aged between 18 to 34 years, educated at least upto class X and having obtained a minimum total score of 20 on Stuttering Severity Instrument (SSI; Riley, 1994) were included in the study. Participants with significant medical, psychiatric, neurological disorders as associated conditions, obtaining less than 20 total scores on SSI and having previous exposure to the cognitive behavioural intervention were excluded. The purpose and procedure of study were explained to the participants, informed consent was taken and confidentiality was assured as enshrined in the mandate on ethical guidelines followed at the institute (Venkatesan, 2009).

Measures:

Socio-Demographic and Clinical Data Sheet:

A Socio-demographic and Clinical Data Sheet was used to obtain the relevant information on the demographic and clinical history.

Toronto Mindfulness Scale (TMS; Lau et al., 2006):

It is a 13-item state-mindfulness measure that uses a 5 point Likert-type scale from not at all (0) to very much (4). The scale has two sub-scales: Curiosity, 6 items, subscale score ranging from 0-24, and Decentering, 7 items, with a subscale score ranging from 0-28. Cronbach's alphas are reported to range from 0.86 to 0.91 for Curiosity and 0.85 to 0.87 for Decentering (Park et al., 2013).

Modified Erickson Scale of Communication Attitudes (MESCA; Andrews, & Cutler, 1974):

MESCA measures communication attitude. This 24- item scale distinguishes the extent to which a stuttering person's communication attitude deviates from normed attitudes. Statements require a true or false answer. The higher the score, the poorer is the communication attitude.

WHO Quality of Life-BREF Scale (WHOQOL-BREF; WHOQOL Group, 1998):

It consists of 24 items and provides a profile of scores on four dimensions of quality of life: physical health, psychological, social relationships, and the environment. The WHOQOL-BREF questionnaire was scored after its administration on the study subjects; the raw scores were converted to transformed scores. The first transformation converts scores to a range of 4-20 and the second transformation converts domain scores to a 0-100 scale. Higher scores reflect a better quality of life.

Beck Anxiety Inventory (BAI; Beck & Steer, 1990):

It is a 21-item scale developed to assess the severity of anxiety symptoms. Respondents are asked to rate each item on a 4-point scale ranging from 0 (not at all) to 3 (severely, can barely stand it). Ratings are for the past week. Items are summed to obtain total scores ranging from 0 to 63 (Beck, & Steer, 1993).

Rosenberg's Self-Esteem Scale (RSES; Rosenberg, 1965):

A 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale is believed to be unidimensional. All items are answered using a

4-point Likert scale format ranging from strongly agree to strongly disagree. Items 2, 5, 6, 8, 9 are reverse scored. Give “Strongly Disagree” 1 point, “Disagree” 2 points, “Agree” 3 points, and “Strongly Agree” 4 points. Sum scores for all ten items. Keep scores on a continuous scale. Higher scores indicate higher self-esteem.

Perceptions of Stuttering Inventory (PSI; Woolf, 1967):

The PSI is a 60-item inventory equally divided into three dimensions: (a) Struggle, (b) Avoidance, and (c) Expectancy. For each item, participants indicated how well the described behavior was characteristic of their stuttering. Ginsberg (2000) found that participants’ self-ratings of stuttering severity were closely associated with their scores on the PSI (correlations ranged from .89 for expectancy to .92 for total perceptions of stuttering). Severity levels for each of the three dimensions according to scores on the PSI are mild (0–7), moderate (8–11), moderate to severe (12–15), and severe (16–20).

Stuttering Severity Instrument-3 (SSI-3; Riley, 1994):

It is a measure of stuttering severity and was based on a 20-min interview session. The interview was then used to assess the frequency and duration of stuttering and any associated physical concomitants, and these were converted to SSI-3 scores using the specified guidelines. The adult who stutter scored 20 or higher, this score placed between the 12 and 23rd percentile and rated as mild. Higher score reflects higher severity level of stuttering.

Therapeutic Program:

Mindfulness-based CBT program included orientation regarding the nature, causes, treatment of stuttering, Mindfulness techniques and CBT. Mindfulness techniques incorporated sitting mindfulness meditation; awareness about their thoughts, feelings and body; awareness of the present moment and past; present and future thinking and acceptance into daily life (Semple, et al., 2006).

The ‘cognitive-behavioural model’ of stuttering was drawn and discussed with the participants as per their specific signs and symptoms. The cognitive-behavioural model is based upon the assumption that our thoughts and beliefs influence

our emotions, physiology, and behavior (Beck, 1995). Negative automatic thoughts were identified and challenged by checking the evidence. They were taught deep breathing and relaxation techniques to control speech-related anxiety. Cognitive/speech restructuring was incorporated to modify speech-related dysfunctional beliefs. Problem solving technique was introduced to increase their sense of being able to cope up with speech-related difficulties when they arise. They were asked to self-monitor the speech-related anxiety symptoms during communication with stranger and authority persons and also asked to self-monitor the speech-related dysfunctional beliefs and speech-related difficulties if any, and maintain the diary for the same.

Procedure:

Patients with stuttering were screened based on inclusion and exclusion criteria. After that they underwent pre assessment on various scales, namely, Toronto Mindfulness Scale, Modified Erickson Scale of Communication Attitudes, WHO Quality of Life-BREF Scale, Beck Anxiety Inventory, Rosenberg's Self-Esteem Scale, Perceptions of Stuttering Inventory, and Stuttering Severity Instrument. After pre assessment all the participants were subjected to treatment program. The Treatment program consisted of 15-20 sessions of mindfulness-based CBT that were held over a period of eight weeks. Two to three sessions were held every week and each session lasted for 60 minutes. After Intervention, they were again rated on same measures. Participants were assigned homework consisting of regular practice at home and maintenance of a diary for the same. They were also asked to evolve strategies they could use to deal with difficult speech situations.

Statistical Analysis:

Statistical analysis was carried out using the following formula: Percentage of change/therapeutic change = [(Pre treatment Score – Post treatment Score)/ Pre treatment Score] × 100. Clinically significant changes (50% and above) based on pre and post treatment scores were used to assess the effect of the therapeutic program (Blanchard & Schwarz, 1988).

RESULTS

Table-1: Pre and Post Intervention Assessment

Scores with Improvement Percentage

Measures	Case 1			Case 2			Case 3			Case 4			Case 5		
	Pre	Post	Imp %	Pre	Post	Imp %	Pre	Post	Imp %	Pre	Post	Imp %	Pre	Post	Imp %
TMS	22	35	59*	15	26	73*	23	37	60*	18	29	61*	20	33	55*
MESCA	19	09	52*	21	07	66*	21	10	52*	17	06	64*	23	10	56*
WHOQOL-BREF	65	99	52*	56	89	58*	63	96	52*	59	95	61*	61	96	57*
RSES	14	24	71*	12	21	75*	17	28	64*	18	31	72*	21	33	57*
BAI	35	11	68*	41	16	60*	36	16	55*	46	19	58*	37	14	62*
PSI	56	27	51*	44	20	54*	41	19	53*	29	14	51*	43	18	58*
SSI	35	17	51*	25	12	52*	26	11	57*	32	15	53*	26	13	50*

*Clinically Significant Changes (50% and above) based on pre and post treatment scores; TMS: Toronto Mindfulness Scale; MESCA: Modified Erickson Scale of Communication Attitudes; WHOQOL-BREF: WHO Quality of Life-BREF; RSES: Rosenberg Self-Esteem Scale; BAI: Beck Anxiety Inventory; PSI: Perceptions of Stuttering Inventory; SSI: Stuttering Severity Instrument.

Case 1:

Mr. S.K. is a 25 years old businessman, I PUC pass, belonging to middle socioeconomic status, and has a normal birth and developmental history. He came with the chief complaints of dysfluent speech, which has increased in the last five years. Dysfluent speech significantly impacted his personal and business life. He has reported severe level of stuttering on SSI (35). After attending the intervention, improvement was observed in the level of mindfulness (59%), communication attitudes (52%), quality of life (52%), self-esteem (71%) and whereas reduction was found in the anxiety symptoms (68%), perceptions of stuttering (51%), and severity of stuttering (51% ; table-1).

Case 2:

Mr. M.T.S. is a 19 years old, B.Sc. IInd year student, belonging to middle socioeconomic status and is the eldest of two siblings. He has normal birth and developmental history. He came with the chief complaints of dysfluent speech, which has increased in the last one and half years. Dysfluent speech significantly impacted his personal and college life. He has reported moderate level of stuttering on SSI (25). After attending the intervention, improvement was observed in the level of mindfulness (73%), communication attitudes (66%), quality of life (58%), self-esteem (75%) and whereas reduction was found in the anxiety symptoms (60%), perceptions

of stuttering (54%), and severity of stuttering (52%) (table-1).

Case 3:

Ms. F.R.P. is an 18 years old, IInd PUC pass, belonging to middle socioeconomic status and is the younger of two siblings. She has normal birth and developmental history. She came with the chief complaints of dysfluent speech for last eight years. She has reported moderate level of stuttering on SSI (26). After attending the intervention, improvement was observed in the level of mindfulness (60%), communication attitudes (52%), quality of life (52%), self-esteem (64%) and whereas reduction was found in the anxiety symptoms (55%), perceptions of stuttering (53%), and severity of stuttering (57%; table-1).

Case 4:

Mr. C.L. is a 34 years old businessman, B.Com. pass, belongs to middle socioeconomic status and has normal birth and developmental history. He came with the chief complaints of dysfluent speech since childhood. Dysfluent speech significantly impacted his business life. He has reported severe level of stuttering on SSI (32). After attending the intervention, improvement was observed in the level of mindfulness (61%), communication attitudes (64%), quality of life (61%), self-esteem (72%)

and whereas reduction was found in the anxiety symptoms (58%), perceptions of stuttering (51%), and severity of stuttering (53%)(table-1).

Case 5:

Mr. R.K. is a 20 years old, B.Tech. IInd year student, belonging to middle socioeconomic status and having normal birth and developmental history came with the chief complaints of dysfluent speech, which has increased in the last three years. Dysfluent speech significantly impacted his college life. He has reported moderate level of stuttering on SSI (26). After attending the intervention, improvement was observed in the level of mindfulness (55%), communication attitudes (56%), quality of life (57%), self-esteem (57%) and whereas reduction was found in the anxiety symptoms (62%), perceptions of stuttering (58%), and severity of stuttering (50%) (table-1).

DISCUSSION

The aim of the present study was to examine the efficacy of mindfulness-based CBT in the management of AWS. The therapeutic change in the score of the various scales shows clinically significant results from pre to post intervention (table-1). The overall reduction of anxiety symptoms was found in all five cases from 55% to 68%, reduction of severity of stuttering from 51% to 57%, and reduction of perception of stuttering from 51% to 58% whereas the improvement was found in the level of mindfulness from 55% to 73%, communication attitude from 52% to 66%, quality of life from 52% to 61%, and self-esteem from 57% to 75%. The study demonstrates that mindfulness-based CBT shows significant improvement on the measures of anxiety symptoms, dysfluent speech, self-esteem, mindfulness, communication attitude and quality of life after completion of therapy at post assessment.

The finding of the present study is in line with the study of Gupta (2015), who studied the efficacy of MBCT program in adolescent who stutter and found MBCT program plays a vital role in managing stuttering, improving communication attitude, and boosting self-confidence and self-esteem to face the social situation. On the other hand, Menzies, et al., (2008) study found that CBT treatment was associated with significant and sustained

improvements in psychological functioning but did not improve fluency.

In conclusion, mindfulness-based CBT program is effective to bring positive changes in the measures of anxiety, speech dysfluency, communication attitude, mindfulness, self-esteem, and quality of life in AWS. AWS may indeed benefit from the mindfulness-based CBT program, because the less anxiety they experience, the more fluently they speak and would have high self-esteem and confidence in their ability to communicate; more positive communication attitude; more awareness towards speech situations and less chances to relapse. Therefore, mindfulness-based CBT program can be used for the long-term management of AWS.

A large sample is needed to generalize the results. Further empirical researches are also needed with larger sample size using double blind procedure, control group and follow up to test the efficacy of mindfulness-based CBT for the management of AWS.

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Research Article

Crisis and Trauma in Academic Settings: Implications for Campus Mental Health

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Abstract

The aim of the study was to examine perceived crisis situations in academic settings, their consequences, management and prevention among teaching staff of colleges and schools. The sample consisted of 30 teaching staff (Mean age: 34.24 years) from Kerala who attended a one-day workshop on crisis management in academic settings. Data were obtained using a sociodemographic data sheet and an academic crisis information data sheet. The data obtained were analyzed using descriptive statistics. Results revealed that 25 participants (83.33%) had no previous exposure to crisis management programs and a mean rating of 4.84 on a scale of 1 to 10, indicated moderate level of confidence in handling crisis situations. Types of crisis identified among students were academic stress, behavior problems and misuse of technology with consequences ranging from academic decline, emotional problems and interpersonal conflicts. Suggestions for intervention included employment of a trained counsellor, improving teacher-student relationships and crisis management training for teachers while prevention methods suggested included counselling and life skills training for students. The findings have implications for addressing crisis and trauma in academic settings and for improving campus mental health.

Key Words: Crisis, Trauma, Academic Setting, Campus Mental Health, Teachers, Students

INTRODUCTION

A crisis is defined as a period of psychological disequilibrium, experienced as a result of a hazardous event or situation that constitutes a significant problem that cannot be remedied by using familiar coping strategies. Events that can precipitate a crisis include natural disasters, terrorist attacks, violent crimes, accidents, interpersonal violence, sudden death of a loved one, diagnosis of a severe illness and becoming disabled. Crisis reactions occur in the acute stage, soon after the crisis event, and are characterized by shock, confusion, disbelief, anxiety and anger. A crisis disrupts routine functioning and the individual may have difficulty in pursuing life goals (Roberts, 2005).

Crisis situations and traumatic events occur in academic settings also and to respond effectively, educational institutions need to be aware of the potential impact of traumatic events and have knowledge about how to identify traumatic stress symptoms. Poor academic performance has been evident in youth exposed to trauma or those with traumatic stress symptoms when compared to peers who have not experienced trauma (Perfect, et al, 2016). Mental health problems such as anxiety, depression, self-harm behaviours and suicidal ideation are fairly common among college students

and require the attention of mental health service providers (Zivin, et al, 2009). Failure to act quickly would likely lead to more serious problems, conflicts and crisis situations. Chafouleas, et al (2016) in a review of literature related to trauma informed care in academic settings, reported that till recently, the focus was on academic domains in terms of assessing the functioning of students. The focus is now shifting to the examination of connections among social, emotional, behavioural, and mental health outcomes as facilitators or impediments to overall success in academic settings. They opined that the 4 R's recommended by SAMHSA (2014) can be used to plan trauma informed services for students. The 4 R's are: (a) realization about trauma and its effects (b) recognition of the signs of trauma (c) response that appropriately embraces trauma understanding across tiers of service delivery (d) resist practices that could inadvertently re-traumatize. This would require training of teachers to increase their capacity to use trauma-informed skills and strategies.

Woodbridge, et al. (2016) reported that traumatized students are rarely identified with accurate and systematic screening methods. They also do not commonly receive mental health or special education services. They highlighted the

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importance of assessing different types of trauma experienced by students such as interpersonal and non-interpersonal trauma as well as direct and indirect trauma. Exposure to traumatic events can lead to adverse consequences particularly among those who lack parental nurturance and support. A study in the Indian setting indicated that childhood ADHD was associated with academic difficulties, problems with family and peers, poor social skills and aggressive behavior. Alcohol problems in a parent were associated with adolescent substance use and disturbed family relations (Ingavale & Suman, 2012). It has also been found that boys score higher on psychological distress and have more favourable attitudes towards alcohol use (Kirmani & Suman, 2010). The potential for emotional problems interacting with substance abuse and triggering a crisis in academic settings needs to be recognized and administrators of academic institutions have to be adequately prepared for eventualities.

Behaviourally, trauma exposure has been shown to contribute to higher levels of aggression, assaultive behavior, disruptive behavior, hyperactivity, impulsivity, sexual promiscuity, sleep dysfunction, and substance abuse and dependence among students (Perfect, et al, 2016). In a review of literature on determinants of psychological stress and suicidal behavior among Indian adolescents, Kumar and Talwar (2014) found that high stress levels among students was related to substance abuse and self-harm behaviours. Risk factors for psychological disorders included social exclusion, violence, peer rejection, isolation and lack of family support. Protective factors for mental well-being were linked to cohesion at the community level, family well-being, individual behavior skills and adolescent friendly social services, including health services.

Academic settings have to ensure the availability of trained counselors in the campus to respond quickly to crisis reactions. However, availability of the service has to be accompanied by an approach that elicits confidence in the care offered. For instance, Zivin, et al (2009) found lack of services use even among students who screened positive for mental health problems. Breaking barriers to help-seeking should focus on the reasons for not approaching the service provider. Further, sustaining trauma informed care is very essential for interventions to

succeed. In this context, Nadeem and Ringle (2016) reported that school-based trauma-focused services requires actively identifying students who might not otherwise receive attention and they may be more likely to be perceived as being non-central to schools' educational mission compared to other types of supportive student services that involves academic achievement and other goals. This can lead to de-adoption of an evidence-based intervention program that would have been helpful for students.

Although psychological problems, substance abuse and self-harm behaviours among college students have been studied in the Indian setting, there is a dearth of studies that have examined crisis situations, traumatic events and trauma reactions specifically. The present study was carried out to address this lacuna. The aim of the study was to examine perceived crisis situations in academic settings, their consequences, management and prevention among the teaching staff.

METHOD

Sample: The sample consisted of 30 participants who attended a one-day workshop titled 'TEACH: Trauma, Emergencies and Crises Help'- a workshop on crisis management in academic settings. The workshop was conducted on 22nd September 2015 in the Department of Psychology, Prajyoti Niketan College, Pudukad, Thrissur, Kerala.

Tools:

1. Sociodemographic Data Sheet:

This was prepared by the investigator to obtain information about the participants' age, gender, qualification, number of years of experience and their work setting.

2. Academic Crisis Information Data Sheet:

This was prepared by the investigator to obtain information about previous exposure to crisis management programs and confidence in providing crisis interventions (Rated on a scale ranging from 1 to 10, with 1 indicating very low confidence and 10 indicating very high confidence). It also asked participants to list out issues related to four domains of crisis management in academic settings: (i) Types of crisis (ii) Consequences of crisis (iii) Managing crisis (iv) Prevention of crisis.

Procedure:

The participants were given an overview of the

workshop and written informed consent was obtained from all of them for completing the sociodemographic data sheet and the academic crisis information data sheet. The workshop involved didactic sessions, interactive sessions and small group activities. Data obtained were analyzed using descriptive statistics such as mean, standard deviation, range, frequency and percentage.

RESULTS

All the participants were from Kerala of whom 26 were women (86.67%) and 4 were men (13.33%). The mean age of the participants was 34.24 years (SD=5.83) and they had an average of 6.43 years (SD=3.29) of teaching/counselling experience. All of them had postgraduate degrees except one who had an undergraduate degree in nursing. In terms of work settings, 22 (73.33%) were faculty members in colleges while 5 (16.67%) were school teachers and one (3.33%) was a school counsellor. Two participants (6.67%) were trained clinical psychologists and were working in medical/hospital settings as counsellors and they were also involved in counselling a significant number of college students who sought help in their settings. 25 participants (83.33%) had no previous exposure to crisis management programs while 5 (16.66%) reported previous exposure to crisis management programs. Ratings of confidence in providing crisis interventions ranged from 1 to 7 with a mean of 4.84 (SD=1.37) indicating moderate level of confidence in handling crisis situations.

The most commonly encountered crisis situations in academic settings are given in Table 1.

Table 1: Frequency and Percentage of Types of Crisis in Academic Settings

Type of Crisis	Frequency	%
Academic stress leading to breakdown	16	53.33
Behavior problems & self-harm behaviours	13	43.33
Crisis due to misuse of technology	12	40.00
Conflicts between teachers & students	12	40.00
Interpersonal conflicts & emotional problems due to romantic relationships	11	36.67
Conflicts between students	9	30.00
Crisis due to family problems	7	23.33
Psychoactive substance abuse	6	20.00
Conflicts among teachers	6	20.00
Political rivalry	3	10.00

More than half the participants reported that academic stress often led to crisis situations when students experienced an emotional breakdown. This was considered to be a high risk situation requiring immediate attention. Conduct problems, deliberate self-harm, cyber bullying and conflicts between teachers and students were considered to be challenging issues that led to crisis situations. Other crisis situations were attributed to interpersonal conflicts, family related difficulties, substance misuse and gang wars related to political affiliations.

The various consequences of crisis are given in Table 2.

Table 2: Frequency and Percentage of Consequences of Crisis

Nature of Consequences	Frequency	Percentage
Academic decline	18	60.00
Emotional problems	15	50.00
Interpersonal conflicts	10	33.33
Oppositional behavior	7	23.33
Suicide attempts	5	16.67
Psychoactive substance abuse	5	16.67
Stress	3	10.00
Low self-esteem	3	10.00
Health problems	3	10.00
Avoidance behavior	2	6.67

A significant consequence of crisis and interpersonal trauma was academic decline that manifested in various ways. Apart from decline in grades, students who were emotionally disturbed missed more classes and showed a reduced interest in academic achievements. Emotional consequences were primarily sad and anxious mood leading to withdrawn behavior. Interpersonal conflicts with other students and oppositional behavior occurred mainly in response to the person perceived as triggering the crisis event. Maladaptive coping strategies such as suicide attempts and psychoactive substance use were also regarded as important consequences of crisis and trauma.

Suggested techniques for management of crisis are given in Table 3.

Table 3: Frequency and Percentage of Crisis Management Techniques:

Crisis Management Techniques	Frequency	%
Employment of a trained counsellor	20	66.67
Improving teacher-student relationship	13	43.33
Crisis management training for teachers	12	40.00
Setting up a supportive campus	11	36.67
Counselling for parents	10	33.33
Moral/Value education for students	6	20.00
Improving teaching methods	3	10.00
Personality development classes for students	3	10.00
Special classes for students	2	6.67
Enforcement of discipline	2	6.67

More than two thirds of the participants were of the opinion that trained counsellors need to be employed to address psychological needs of students. They also recognized the need to improve teacher-student relationships in order to pre-empt possible crisis triggers.

Table 4: Frequency and Percentage of Crisis Prevention Strategies:

Crisis Prevention Strategies	Frequency	%
Teaching life skills to students	16	53.33
Counselling for students	14	46.67
Teacher training programs	10	33.33
Administrative guidelines & preparedness	8	26.67
Involvement of parents in early management of problems	7	23.33
Peer support groups to resolve conflicts rapidly	6	20.00
Encouragement of sports & arts among students	4	13.33
Giving special attention to academically weak students	3	10.00
Teaching religious/spiritual practices to students	2	6.67
Teaching yoga to students	1	3.33

The need for teachers to be prepared for crisis

management through training was also emphasized. The role of managements in providing a supportive and responsive environment was noted while also counselling parents about their children’s difficulties and need for addressing them. Other approaches suggested were primarily of an academic nature such as value education and personality development classes.

Suggested strategies for preventing crisis situations are given in Table 4.

More than half the participants were of the opinion that teaching life skills such as interpersonal skills and emotion regulation skills would prevent serious emotional consequences among students. Nearly half the participants indicated that individual counseling of the student was important to prevent significant problems and to also ensure privacy for sensitive matters to be discussed. Crisis preparedness of the teachers and administrative staff was also considered important for effective prevention of crisis situations. The involvement of both parents and peers in prevention efforts was considered necessary apart from encouraging relaxation techniques such as yoga and recreational activities such as sports and art.

DISCUSSION

Academic stress, self-harm behaviors, substance abuse, family problems and interpersonal conflicts described as leading to crisis situations in the present study, are similar to findings reported in other countries. For example, Espelage (2015) applied a social ecological framework to analyze studies related to bullying and violence in academic settings. She found that early childhood experiences at home, in school, and in the community all interact to influence later academic and social engagement. She also found that bullying and campus violence in general and their aftermath continue to be significant problems for students, teachers and staff. It was found that experiences of being victimized or bullying other students were associated with decreased academic achievement. She suggested that future studies should focus on risk behaviours such as drugs and alcohol use, dating violence, gang involvement and exposure to violence. It was also considered important for future studies to examine protective factors such as extracurricular activities and positive youth activities. The findings from the

present study indicate that these issues are relevant to the Indian context also.

Reactions to crisis situations such as emotional problems, substance use, self-harm behaviours and conduct problems among adolescents found in the present study have been noted in earlier studies as well. In a study of 500 undergraduate college students adjudicated for violating university rules, O'Hare (2001) found three drinking contexts for alcohol-convivial drinking, personal-intimate drinking and negative coping. He noted that drinking to cope with loneliness, worries, disappointments or depression can exacerbate problems and lead to additional substance abuse to cope with negative feelings. He recommended screening for alcohol use problems and coping skills training as well as expectancy challenge strategies for context specific interventions among college students. However, willingness to seek help is important for the students to benefit from interventions as pointed out by Cellucci, Krogh and Vik (2006). In a study of 160 undergraduate students, they found that problem recognition, current symptoms and perceived stigma were important predictors of help-seeking attitudes. They opined that educational programs that promote positive attitude towards help-seeking and target stigma that are barriers to health promotion activities should be provided to problem drinkers.

According to Jobes, Berman and Martin (2005), self-harm behaviours among adolescents are often linked to disciplinary issues and interpersonal conflicts. Conflicts with parents and peers or with a romantic partner are usually implicated in adolescent self-harm attempts. The risk increases if the adolescent has a history of mood problems and psychoactive substance abuse. The counsellor should be aware of increases in anger or anxiety that may be warning signs of loss of control and alienation from significant others who may act as buffers against untoward consequences. They were of the opinion that to reduce future risk for self-harm and to plan early intervention, the counsellor should obtain information about ongoing problems not only from the adolescent, but also from his parents, teachers and close friends. The information obtained should be incorporated into an intervention plan that takes into account multiple sources of stress and trauma. The adolescent's conflicts with parents, poor family

relationships and adverse community environment along with substance abuse are related to the risk of aggressive and delinquent behavior. Interventions have to target these factors to reduce aggressive behaviours such as bullying, interpersonal violence and gang activities as well as to reduce substance abuse. Inability to intervene quickly will escalate the tension and traumatize the entire academic institution (Stewart and MacNeil, 2005).

The crisis management and crisis prevention approaches recommended by the participants in the present study indicates the view that academic settings have to be self-sufficient to handle possible crisis situations and promote a healthy campus life. This is in tune with Eells, et al (2012) who recommended public health approaches for mental health promotion and suicide prevention for the student population. They noted that a public health approach would modify environmental stressors and reduce risk of mental health problems. In a review of such approaches, they found that fostering a healthy educational environment, promoting life skills and resilience, increasing help seeking behaviour, identifying students in need of care, providing mental and medical health services and delivering coordinated crisis management were effective in educational settings. Screening for depression, anxiety and substance abuse are important among the student population for both prevention and early intervention. The public health approach would not only require counsellors in all educational institutions but also the availability of off-campus mental health services. Stallman and Hurst (2016) highlighted the need for preventative interventions to enhance students' appraisal of stress and teach them coping mechanisms to cope with stressful situations. This would reduce the risk for development of psychological disorders among college students.

In most cases, the crisis reactions displayed by students are normal reactions to unusual or traumatic circumstances. Hence, with the support of family, teachers, and friends most of them may recover well within a few weeks. However, some students will be more vulnerable to the crisis event and should be given special attention. Regardless of perceived risk level, if after several weeks, crisis reactions do not begin to lessen, then referral to a mental health

professional would be appropriate. In addition, some students may demonstrate more severe crisis reactions that would indicate the need for an immediate referral to a mental health professional. These reactions include persistent re-experiencing of the crisis event, avoidance behaviours, depression and psychotic symptoms. This indicates that it is important for teachers and academic staff to be aware of signs and symptoms of trauma reactions and take appropriate measures. Baweja, et al (2016) examined the factors that influence teachers' support and involvement in successful implementation of an early intervention, school based trauma program, Cognitive Behavioural Intervention for Trauma in Schools (CBITS). They interviewed 40 school staff and found that four key themes emerged: (i) support for CBITS was related to teachers' perceived need for a trauma program on campus (ii) teachers struggled with the competing priorities of balancing students' social-emotional needs with their missing class to attend CBITS (iii) teachers desired more direct communication with clinicians (iv) teachers felt they needed more trauma education.

Newgass and Schonfeld (2005) advised against having ad-hoc crisis teams to deal with crisis situations in academic settings. They recommended adequate preparedness by having organizational systems in place that would address three broad areas: safety and security; obtaining, verifying and disseminating accurate information to staff, students and parents; and emotional needs of those involved in the traumatic event. This preparedness would allow institutions to remain proactive, anticipate needs, assess developing hazards and identify resources available to respond to a crisis. They also recommended that primary interventions should be available in the campus in order to provide immediate relief. These have to be flexible in order to be applicable to a wide range of problems and specific enough to provide guidance at the time of a particular crisis. According to Phifer and Hull (2016), adopting a trauma-informed approach involves system-level changes across the entire academic institution, which requires changing mindsets, policy, and classroom practices. Institutions need to develop a comprehensive plan to identify the needs of the system, review strategies to approach behavior issues, and garner adequate resources for

implementation of prevention and intervention programs. Professional development is needed to understand how trauma impacts the classroom and to mobilize ongoing support to help create and sustain change.

CONCLUSIONS

Academic settings in the 21st century are complex environments that can be stressful and challenging for students. Crisis situations and trauma reactions of a diverse nature occur in academic settings all over the world including India. This includes indiscipline, conflicts between students and teachers and conflicts among students. Consequences of crisis such as academic decline, emotional problems, interpersonal conflicts, self-harm behaviours and substance use among adolescents need to be recognized and addressed. This requires training of both teaching and non-teaching staff in trauma informed practices. This would lead to a healthier and safer campus life and considering the size of the adolescent population in India, this issue requires significant attention.

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Research Article

Memory Functioning in Patients with Schizophrenia and Obsessive Compulsive Disorder in Remission : A Comparative Study

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ABSTRACT

The present study has been carried out to assess the memory functioning of patients suffering from schizophrenia and Obsessive-compulsive Disorder (OCD) in their remission phase, attending the OPD of Mental Health Institute (COE), SCBMCH, Cuttack. The design in present study was used in the present study is ex post facto design. SAMPLE: The total sample size is 80 among which 40 patients of each group (Schizophrenia and OCD) were assessed. A purposive sampling technique was followed for the collection sample. Nancy Andreasen criteria for Schizophrenia remission, PANSS, Y-Bocs and PGI Memory Scale subtest of PGTBBD tools were used. Mann Whitney U test was used in order to know the statistical significance difference between these two groups of patients. Results revealed that schizophrenics have more impairment in various domains of memory as compared to the patients with OCD in remission period. Findings of the study concludes that impairment in various components of memory affects the quality of life of an individual which ultimately causes mental disability of an individual in them.

Key Words: Memory Functioning, Schizophrenia, Obsessive-Compulsive Disorder (OCD).

INTRODUCTION

The importance of memory in the daily life of a person with mental illness is vital. Cognitive deficits are common and clinically relevant features of schizophrenia and are important indices of functional and treatment outcomes in patients (Keefe et al., 2007; Green et al., 2000). There is a growing consensus regarding the importance of incorporating cognitive deficits into the major diagnostic systems, including Diagnostic and Statistical Manual of Mental Disorders and International Classification of Diseases. Recently, it has been suggested that the diagnostic criteria for schizophrenia should specifically include a criterion pertaining to cognitive ability. Cognitive deficits persist during the stable phase of schizophrenia (Sharma et al., 2003). Most researchers have reported deficits in the areas of executive functioning, episodic memory, working memory, learning and attention abilities in schizophrenia. It is increasingly recognized that cognitive impairment, especially memory, is an integral part of the disease process.

There is now promoted awareness that like schizophrenia, mood disorders and neurological

disorders, OCD may be associated with a distinct pattern of cognitive impairment. On the basis of various clinical observations, researchers have recently become interested in the memory functioning of patients with OCD. Neuropsychological testing has revealed evidence of impairment of visuospatial abilities, non verbal memory (Christensen et al., 1992 & Savage et al., 1996) and executive functioning (Lucey et al., 1997). Some reports suggested deficit in attentional set shifting abilities, response inhibition, and trial and error learning. (Head et al., 1989 & Veale et al., 1996).

The present study has been carried out to assess the memory functioning of patients suffering from schizophrenia and Obsessive-compulsive Disorder (OCD) in their remission phase, attending the OPD of Mental Health Institute (COE), Cuttack.

METHODOLOGY

Present study adopted case controlled comparative study approach. Purposive sampling technique for selection of sample of 40 patients of each group of Schizophrenia and OCD were collected from OPD of Mental Health Institute,

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S.C.B. Medical College, Cuttack, Odisha, following inclusion and exclusion criteria.

Inclusion Criteria:

Patients who were diagnosed as Schizophrenia and OCD as per ICD-10 criteria with duration of illness of five to ten years and fulfilled the remission criteria [Andreasen criteria for schizophrenia patients in remission and OCD patients who earned a score of 14 or less (post treatment) in Y-BOCS (Farris et al., 2013)], patients with in the age range of 30- 45 years, educated up to at least matriculation and had given informed consent to take part in the study.

Exclusion Criteria:

Patients with other co-morbid psychiatric conditions, organic mental conditions and co-morbid physical illnesses.

Tools:

ICD-10 criteria for the diagnosis of Schizophrenia and OCD.

Andreasen, N. Criteria for Patients with Schizophrenia in Remission (Andreasen et al., 2005):

This test defined remission according to PANSS operational criteria set up by the Andreasen et al. (2005) for remission in Schizophrenia Working Group. The symptomatic criterion includes eight core PANSS items (delusion, unusual thought content, hallucinatory behavior, conceptual disorganization, mannerism/posturing, blunted affect, social withdrawal, lack of spontaneity) with a score ≤ 3 . The duration criterion is symptomatic remission maintenance over 6 consecutive months.

Positive and Negative Syndrome Scale (PANSS: Kay et al., 1984):

This is a 30 item, 7-point rating instrument that evaluates positive (7 items), negative (7 items) and general psychopathology symptoms (16 items) of an individual.

Yale-Brown Obsessive Compulsive Scale (Wayne Goodman, 1989):

Y - BOCS developed by Goodman et al. consisting of 10-items (clinician-rated) for assessing the severity of obsessive compulsive symptoms in patients with OCD.

PGI MEMORY SCALE (Pershad & Verma,1977):

This scale is developed by Dwaraka Pershad and S K Verma. It assesses the memory functioning

of an individual. It consists of 10 sub scales dealig with different areas of memory.

Procedure:

80 samples were selected on purposive sampling basis following the inclusion and exclusion criteria. The patients were taken from OPD of Mental Health Institute, (COE) SCBMCH, Cuttack, Odisha. The patients who already have been diagnosed as Schizophrenia and Obsessive Compulsive Disorder by the Consultant Psychiatrist were selected from October 2014 to January 2015 from OPD of Mental Health Institute (COE), S.C.B. Medical College. They were assessed twice by the respective measurements (i.e., PANSS and Y-BOCS) in between these periods in order to be included in the remission category. Patients who had earned a cutoff score of remission on their respective measurements were selected to be taken for this present research study. The data were collected from the month of February 2015 to July 2015. The information was collected from the patient as well as from the care giver. Those who were interested in taking part in this study were included. They were explained all about the procedures of the study. Through semi-structured interview all information were recorded in a carefully designed structured performa. Thereafter, all the patients were subjected to detailed evaluation using PGI Memory Scale.

Data Analysis:

Data analysis was done by using non parametric statistics, i.e., Mann Whitney U test in order to assess the level of significant difference between the two groups of patients with Schizophrenia and OCD.

RESULTS

A total of 80 subjects were included in this study. Majority patients were 30-35 yrs of age. Most of the patients were males (57.5%) in schizophrenia group, whereas in OCD group male-female numbers were same. Majority of patients were Hindus in case of both the groups. Majority of schizophrenic patients (45%) had minimum qualification of matriculation and 30% were graduate. 50% of OCD patients were graduated. Majority of schizophrenic patients were married (72.5). Most of the OCD patients were belonging from urban area (62.5%). Both the group were matched and there was no statistically

Table-1 Comparison of Socio- demographic Characteristics of Patients with Schizophrenia and Obsessive-Compulsive Disorder:

		Schizo- phrenia No. (%)	OCD No. (%)	X ²	df	P value
Age Groups (yrs)	30-35	19(47.5%)	21(52.5%)	0.581	2	0.748
	36-40	12(30%)	9(22.5%)			
	41-45	9 (22.5%)	10 (25%)			
Sex	Male	23 (57.5%)	20 (50%)	0.453	1	0.501
	Female	17 (42.5%)	20 (50%)			
Religion	Hindu	35 (87.5%)	37 (92.5%)	0.556	1	0.456
	Muslim	5 (12.5%)	3 (7.5%)			
Education	Matriculation	18 (45%)	11 (27.5%)	3.74	2	0.154
	Intermediate	10 (25%)	9 (22.5%)			
	Graduation	12 (30%)	20 (50%)			
Marital Status	Married	25(62.5%)	20 (50%)	1.27	1	0.260
	Un- married	15 (37.5%)	20 (50%)			
Domi- cile	Rural	20 (50%)	15 (37.5%)	1.27	1	0.260
	Urban	20 (50%)	25(62.5)			

**P* > .05 (Significant at 0.05 level)

Values are shown as the number (%) of patients.

Immediate recall is found to be impaired more in schizophrenic patients as compared to OCD patients. This finding is corroborated with the findings of Srivastava et al., 2004; Deckersbach et al., 2000.

It is found from the study that schizophrenics are remote memory, recent memory, attention & concentration, immediate recall, visual retention and recognition. These are the most essential components of working memory for information processing and learning process, which maintains the quality of life of patients and impairments of these components, ultimately causes mental disability. Remote memory, recent memory, attention & concentration, immediate recall, visual retention and recognition. These are the most essential components of working memory for information processing and learning process, which maintains the quality of life of patients and impairments of these components, ultimately causes mental disability.

Table-2 Comparison of Memory Scores between Schizophrenia and Obsessive-Compulsive Disorder Group:

Parameters of Memory	Schizophrenia (n=40)	OCD (n=40)	Z Value	p Value
Remote Memory	47.18	33.83	2.753	.006*
Recent Memory	47.88	33.13	3.534	0.001*
Mental Balance	44.49	36.51	1.784	0.074
Attention and Concentration	47.25	33.75	2.773	0.006*
Delayed Recall	43.55	37.45	1.250	0.211
Immediate Recall	45.83	35.17	2.241	0.025*
Retention for Similar Pairs	43.73	37.28	1.556	0.120
Retention for Dissimilar Pairs	45.13	35.88	1.888	0.059
Visual Retention	47.84	33.16	3.011	0.003*
Recognition	47.34	33.66	2.839	0.005*

* *P* < .05 (Significant at 0.05 level)

Values are shown as Mean Ranks

DISCUSSION

In the present study it is found that the schizophrenic patients have more remote memory impairment than the OCD patients in the chronic course of the disease. The findings of the present study are consistent with the findings of Trivedi (2006). In most of the studies done so far, the remote memory component of cognitive domain is impaired in the later stages of life, but in the present study it is seen that remote memory may be too impaired in early stages. It also reveals that schizophrenic patients have more recent memory impairment than OCD patients. This finding is corroborated with the findings of the study conducted by Zaytseva et al. (2012).

Attention and concentration is found to be more affected in schizophrenic patients than the OCD patients. This finding is consistent with the findings of Talreja et al., 2013; Comparelli et al., 2012; Martin et al., 2008; Kitis et al., 2007 & Krishnadas et al., 2007. Hence, this may be one of the probable causes behind the inefficiency of chronic schizophrenic patients to manage their effective work schedule in long term course of the illness. Immediate recall is found to be impaired more in schizophrenic patients.

significant difference between these two groups with respect to socio-demographic variables (Table-1). The findings are consistent with the findings of Srivastava et al. (2000).

In preset study it is found that schizophrenics have more impairment in visual retention as compared to OCD patients. These findings are consistent with the Savage et al., 1996; Christensen et al., 1992. Result of this study shows that schizophrenic patients have more impaired recognition than OCD patients. Findings of the studies conducted by Comparelli et al. (2012); Zystseva et al. (2012) are in same line.

CONCLUSION

Overall findings of PGI Memory scale suggests that impairment of various component of memory occurred in both schizophrenia and OCD throughout the course of disease especially in the long run. But schizophrenic subjects have ore disturbances in various component of memory than the OCD patients. Various components that are mostly affected are remote memory, recent memory, attention & concentration, immediate recall, visual retention and recognition. These are the most essential component of memory for information processing and learning process, which maintain the quality of life of patients and impairment of these components, ultimately causes mental disability.

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Research Article

Role of Memory Rehabilitation on Persons with Alcohol Dependence

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ABSTRACT

Alcohol is probably the most commonly used abused substance in the world, with the U.N. World Drug Report (1997) estimating 140 million daily users. There are various cognitive problems/dysfunctions associated with alcohol abuse. The present study focuses on the assessment and rehabilitation of memory problems for the alcoholics. Samples was consisted of '20' alcohol dependent cases (10' control group and '10' experimental group). Both were assesses (pre & post) on PGI memory scale. The intervention was done with strategies immediate memory improving and rehearsal strategies by using memory games. The results indicates that there was a significant improvement in different domains of memory of PGI memory scale after the intervention programme. Data was analysed by using nonparametric statistics. There was a significant difference in the areas of recent memory, remote memory, visual retention, verbal retention between experimental group and control group.

Key Words: Alcohol, Memory, Remediation Programme, Substance Abusers, Alcohol Dependent.

INTRODUCTION

Substance abuse is a maladaptive pattern of substance use leading to significant adverse consequences manifested by psychosocial, medical, or legal problems or use in situations in which it is physically hazardous that must recur during a 12-month period. Substance dependence, commonly known as addiction, is characterized by physiological and behavioural symptoms related to substance use. Alcohol is the commonly abused substance. Alcoholism, also known as Alcohol Addiction, is a broad term for problems with alcohol, and is generally used to mean compulsive and uncontrolled consumption of alcoholic beverages, usually to the deterioration of the drinker's health, personal relationships, and social standing.

Structural changes in the brains of alcoholics have been reported (Ron, 1979), as well as reduced cerebral blood flow and altered electrical activity. For the most severe alcoholics, serious organic cerebral impairment is a common complication, occurring in about 10 percent of patients (Horvath, 1975). The diverse signs of severe brain dysfunction that persist after cessation of alcohol consumption have been conceptualized in terms of two organic mental disorders: alcohol amnesic disorder (memory disorder) and dementia associated with alcoholism.

Memory problems associated with alcoholism consists of global loss of intellectual abilities with an impairment in memory function, together with disturbance (s) of abstract thinking, judgment, other higher cortical functions, or personality change without a clouding of consciousness. The toxic effects of alcohol on the brain may cause impairment directly. In addition, some alcoholics may exhibit impairment as an indirect result of alcohol abuse, e.g., they may have experienced a craniocerebral trauma may be eating poorly and suffering nutritional deficits (such as thiamine or niacin deficiencies), or they may have cognitive impairments associated with liver disease. Some researchers have observed that cognitive deficits in some alcoholics resemble those seen in normal elderly persons, leading to speculation that alcohol's effect on cognition may be explained as premature aging. However, it is more likely that such deficits are independent of any deficits associated with normal aging (Tarter & Edwards, 1986).

Alcohol acts as a general central nervous system depressant, but it also affects specific areas of the brain to a greater extent than others. Memory impairment due to alcohol has been linked to disruption of hippocampal function—in particular affecting gamma-Aminobutyric acid (GABA) and

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N-methyl-D-aspartate (NMDA) neurotransmission which negatively impacts long-term potentiation (LTP). The molecular basis of LTP is associated with learning and memory particularly, damage to hippocampal CA1 cells adversely affects memory formation and this disruption has been linked to dose-dependent levels of alcohol consumption at higher doses, alcohol significantly inhibits neuronal activity in the CA1 and CA3 pyramidal cell layers of the hippocampus and impairs memory encoding as it plays an important role in the formation of new memories. Neurochemical changes occurring in the anterior cingulate are correlated with altered short-term memory functions in the brains of young alcoholic men. FMRI of alcohol-dependent women displayed significantly less blood oxygen in the frontal and parietal regions, especially in the right hemisphere. This is supported by findings of short-term memory impairment by lesions of the parietal lobe and prefrontal cortex. Associations between third ventricular volume and cognitive performance on memory tests have been found in alcoholics specifically, increases in third ventricular volume correlate with a decline in memory performance Godfrey et al. (1985). Findings of study conducted by Narang et al. (1991) showed significant difference on cognitive functions in alcoholics as compared to control. The cognitive impairment increases with the duration of alcohol use. Bondi et al. (2006) conducted the study to define the combined effects of drug and alcohol abuse on verbal learning and memory on 70 alcoholic and 80 poly substance abuse (PSA) individuals with concurrent alcohol abuse. They were compared on a list of learning task of California Learning Test (CVLT). The PSA group nonetheless exhibited significantly greater deficits on recall than the alcoholic group on the CVLT. The combined use of alcohol and drugs, cocaine in particular, may compound memory difficulties beyond what is typically observed in alcoholic individuals. The previous studies highlighted the effects of alcoholism on organisational ability and inhibition ability, chronic alcoholism leads to a deficit in updating abilities in working memory (Pitel et al., 2000).

METHOD

The present study was aimed to study the effect of memory rehabilitation on persons with alcohol

dependence and for that it was hypothesized that there will be no significant deficit in visual retention, verbal retention, immediate recall, recent memory and there will be no effect of cognitive remediation programme on memory of the persons with alcohol dependence.

Sample:

The study was conducted at the Ranchi Institute of Neuro-Psychiatry and Allied Sciences (RINPAS), Kanke, Ranchi. The sample was collected from the drug de addiction ward of the institute. Sample consist of 20 diagnosed cases of alcohol dependence diagnosed according to the DCR of ICD-10 criteria, having H/o of Alcohol intake since more than '7' years and less than 10 years, with age range of 20-45 years, gave informed consent to participate in the study and have completed four weeks of hospitalization or abstinence from alcohol were selected. The subjects of the study were further divided in two groups as 10 cases in each called experimental group and control group in present study.

The Persons who were having comorbid psychiatric disorder, vision, hearing and / or loco motor impairment, having organic pathology, mental retardation or significant physical illness and / or having presence of withdrawal symptoms during pre-assessment were excluded from study. The present study is a hospital based comparative study using the pre and post treatment with control group design.

Tools:

Socio demographic and Clinical Data Sheet:

It was semi-structured Performa specially designed for this study. It contains information about socio-demographic variables like age, sex, education, residential area, monthly family income. It also includes clinical details e.g. diagnosis, duration of illness, history of significant head injury, sensory and motor impairment, seizures, mental retardation and any other significant physical, organic or psychiatric illness and withdrawal symptoms.

PGI-Memory Scale (PGIMS; Pershad & Verma, 1977)

The PGI memory scale was used as research tool to evaluate different domains of memory. The scale is frequently being used for clinical and research purposes in India. It has ten sub scales

dealing with different aspect of memory namely Remote Memory, Recent Memory, Mental Balance, Delayed Recall, Attention & Concentration, Immediate Recall, Retention for Similar Pairs, Retention for Dissimilar Pairs, Visual Retention, Recognition. The scale has high reliability ranging from .91 and .83 and satisfactory cross validity (Pershad, 1977, Pershad & Wig, 1976, 1988)

Procedure

Initially 20 patients were selected for study who were further divided in two groups (10 were control group and 10 were experimental group). All the 20 cases was assessed on PGI Memory Scale. on baseline and after completion (Pre & Post) of memory remediation programme. The memory rehabilitation programme was given only to the experimental group along with the treatment as usual and control group received only treatment as usual. Weekly three sessions were conducted for 13 weeks continuously from the months of September to December. In the first 2 sessions patients were given information about the study and rationale of the study. Patients were also asked for the consent to participate in the study. The PGI- memory scale was administered before starting the study and was taken as baseline scores and after the intervention they were assessed again on the same scale (PGI- memory scale) for post intervention scores. The procedure for memory remediation tools is as follows.

Memory Remediation Tools:

Immediate Memory Improving Strategies:

The following memory remediation package adapted from “Neuropsychological Rehabilitation Theory, Models, Therapy and Outcome” was used (Wilson et al., 2009).

Digit Repetition:

The rehearsal started with three digits. Initially the patient’s showed variable performance, they were sometimes able to recall the numbers but unable to recall at other time. In each session they practiced to recall at least ‘3’ digits. Once they all had mastered to recall ‘3’ digit, the difficulty level was increased to 4, 5 and 6.

Word Repetition:

This task required the repetition of ‘3’ or

more words that did not belonged to any particular category in a way non sense syllabus (for e.g.- rat, apple, table etc.). At the initial level the target was the recall of 3 words. The patients regularly rehearsed to recall of at least 3 words at a time. Also initially the recall was made immediately after the presentation of words, then the duration of retaining the words increased to 10 sec, 25 sec, 30sec, 45sec and finally to 60 seconds.

Sentence Repetition:

In this exercise few sentences that were broken down in small parts were spoken aloud to the patients the patient were asked to repeat these sentences correctly. The patient’s performance lied in their correct recall of each part of the sentence. Initially the practice started with the recall of single sentence, thereby increasing the difficulty level to 2, 3 and 4 sub parts of the sentence.

Single Step Body Part Command:

In the next phase the patients were asked to recall and perform single step body part command (such as first close your eyes). The target was to help the patient to retain these steps for at least 10 seconds. Initially the exercise started with immediate recall of the steps to be performed. The difficulty level was increased to perform the steps after 2 seconds followed by 3 seconds, 5 seconds and 8 seconds and finally up till 10 seconds. Once the patients had mastered to recall and perform single step body part command the difficulty level was increased to two and three step body part command, similar procedure as before were employed until the patients were able to retain the steps for 10 seconds.

Geometrical Figures:

In the next phase, the target was to strengthen the visual retention of the patient. Initially single geometric figures were presented to the patient and they were asked to copy the figure, next the figures were exposed for 30 seconds and then the patients were asked to draw the figure immediately but without seeing it.

Recall of Digit Backward:

Initially the patients were made to recall of 2 digits backward. The difficulty level was increased to 3 digits only.

Rehearsal Strategies:

Card games (Parente & Anderson, 1991) were employed in the intervention for maintenance rehearsal. Games that were employed are as follows -

Maintenance Rehearsal

Game 1- Interference Resistance:

Interference refers to a situation in which a person is experiencing one event, but a second event occurs and interrupts the person's memory for the first. For example a ringing telephone may interrupt a person's memory for what he/she was doing while cooking dinner. In general, this card game trains the client to rehearse in situation where the second of two sequential activities interferes with memory for the first. The patients were shown a card from a deck and asked to say aloud the number or face and suit of the card (e.g. "five of hearts). The card was then placed down on the table in front of the patient. The second was drawn again and the patient again stated its number or face and suit (e.g. "jack of diamonds") and then second card was also placed face down next to the first. The patient was then asked to recall the number of face and suit of the first card. If correct, the card was placed in a pile to his or her right side. If incorrect, the card was placed in a pile to his/her left side. Then third card was displayed and, once again, the patient said the number and suit aloud. The card was placed face down next to the second card, and then the patient was asked to recall the number and suit of the second card. In other words, after saying the number and of one card, the patient was asked to recall the number and suit of the card that they saw immediately before. The process continued until the deck was exhausted.

Rehearsal Phase:

The game was repeated and thus forcing the patient to rehearse. After the patient said the name and suit of the first card, the card was placed face down (as before). However, this time, the patient rehearsed the first card before he was shown a second card. This modification forced the patient to rehearse the identification of the down face card before seeing another. If the patient continued to make mistakes more than one rehearsal was given.

Game - 2: Rehearsing Multiple Sets:

Rehearsing multiple sets requires a person

to remember the number of occurrences in several different categories. Here in the first phase of the game three cards were shown to the subject one at a time and they were asked to remember how many cards are there of each suit. Then they were asked to read aloud the number of cards they recalled from each suit. In the rehearsal phase, cumulative rehearsal was used. The subjects were shown the cards and they were said to read aloud the face of the card. When they were shown the next card then they were said to say the face of the first card also along with the second one.

Game 3: Spatial Rehearsal:

Spatial rehearsal refers to memory for people or things in a three dimensional space. This common activity of daily living involves recalling where something is located or where to find something similar. The game began with 16 cards, 4 from each suit. The cards were shuffled and arranged into square grid. The subjects turned over any four cards leaving them in the same position in the grid. If the four cards had the same suit, the cards were removed from the grid otherwise they were left in the same place. Again four cards were turned over and if they were same then they were also removed from the grid. This procedure was continued till all the cards were removed from the grid.

Game 4: Rehearsing Changing Sets:

In this game the subjects saw three cards one at a time and named each one aloud as they were placed face down the table. Then they were showed other cards from the deck one at a time until they identified the face or number of the shown cards. If the match is correct. Then the cards were put in the right pile otherwise in the wrong pile of cards. When the match was made then the matched card was replaced by another card from the deck. This process continued until the deck was exhausted.

Game 5: Rehearsing Sequence:

In this game the subjects were shown five cards one at a time and then they were placed down on the table in a random order until all the five cards are turned face down. Then the subjects were said to arrange the cards in numerical order from left to right and lowest to highest. The task required them to remember the cards so that they can arrange them in

the proper order. If the cards were arranged correctly then they were placed in the right pile otherwise in the wrong pile. The game continued until the deck was exhausted.

Internal Aids

Recognizing Faces:

In this patients were asked to sit down in a separate room and try to remember the face of any one person

First Letter Cues:

A First letter cue is the strategy that prompts the person to pay attention to the first letters of the words to be learned and memorized. These letters can be arranged into an alphabetical list.

Rehearsal

Rehearsal strategy involves repeating information silently in the mind, quietly to oneself or aloud.

Visual Imagery:

Visual imagery is a strategy that involves creating in the mind of something the person would like to remember.

Story Method:

The story strategy involves making up a story (something silly) that incorporates the entire thing that have to remember. The simpler the story the more likely it to be remembered.

External Aids:

Although there are many strategies that can be employed as an external aids such as alarms, timers, calendar, tape, recorder etc. but only few techniques were used in the present study due to lack of such instrument for in patient. Few techniques that were used are as follows Patients were given NOTE BOOKS to record the description of all the events that happened the day before from memory. Patients were trained to use CALENDAR to remember important events in day to day life.

RESULTS

The data was obtained, organized/ tabulated and processed. The obtained results are being presented below in tabular form.

Table -1: Showing Comparison of PGI – Memory Scale Scores of Control Group and Experimental Group at Baseline.

Areas of Assessment	Conditions		Mann Whitney U test			
	Experimental Group (M±SD)	Control Group (M±SD)	Mean Rank		U Value	Z Value
			Exp. Group	Control Group		
Remote Memory	3.4±2.11	3.6±0.96	10.70	10.30	48.00	.160
Recent Memory	2.10±0.99	3.00±1.15	8.35	12.65	28.50	1.70
Mental Balance	2.90±1.44	2.60±2.22	11.15	9.85	43.50	.517
Delayed Recall	5.80±2.39	5.20±1.39	12.85	8.75	32.50	1.34
Attention & Concentration	5.60±0.96	6.50±2.17	7.85	13.15	23.50*	2.05
Immediate Recall	5.80±2.09	3.60±1.89	13.40	7.60	21.00*	2.22
Retention for Similar Pairs	2.30±1.05	3.20±1.22	8.55	12.45	30.50	1.61
Retention for Dissimilar Pairs	4.30±4.34	4.50±3.02	10.45	10.55	49.50	.038
Visual Retention	6.20±3.01	7.90±3.17	8.80	12.20	33.00	1.29
Recognition	8.30±1.88	8.9±1.16	12.00	9.00	35	1.16
Total	46.40±12.62	48.10±7.37	10.75	10.25	47.50	.189

*P<.05, **P<.01

To ensure the experimental group and control group were similar at baseline score for different domains of memory, both groups were compared using Mann Whitney U test. Analyzing the result in table-1 it is apparent that at baseline level both experimental group and control group were having tentatively similar range for remote memory, recent memory, mental balance, delayed recall, retention for similar pairs, retention for dissimilar pairs, visual retention and recognition. The score ranges for attention and concentration and immediate recall were having significant difference at baseline assessment, the score range is 5.6 ±.966, 6.500± 2.17 for intervention and control group in attention and concentration and the score range for intervention group and control group respectively

Table - 2: Showing Comparison of PGI – Memory Scale Scores of Control Group Baseline and Post Assessment:

Areas of Assessment	Wilcoxon Signed Rank Test				
	Baseline Scores (M±SD)	Post Intervention Scores (M ± SD)	Mean Rank		Z. Value
			+Ve	-Ve	
Remote Memory	3.6 ± 0.96	5.5 ± 0.52	5.94	1.50	2.69**
Recent Memory	3.0 ± 1.15	3.7 ± 1.63	4.50	6.75	1.078
Mental Balance	2.6 ± 2.22	4.7 ± 3.71	5.17	2.50	1.83
Attention and Concentration	6.5 ± 2.17	7.6 ± 1.26	3.60	3.00	1.58
Delayed recall	5.2 ± 1.39	6.4 ± 1.77	5.14	4.50	1.61
Immediate Recall	3.6 ± 1.89	5.6 ± 3.94	5.33	2.00	1.98
Retention for Similar Pairs	3.2 ± 1.22	4.6 ± 0.96	4.93	1.50	2.37*
Retention for Dissimilar Pairs	4.5 ± 3.02	6.9 ± 4.06	5.40	3.00	1.26
Visual Retention	7.9 ± 3.17	9.4 ± 3.59	4.71	6.00	1.24
Recognition	7.6 ± 1.57	8.7 ± 1.05	3.70	2.50	1.68
Total	48.1 ± 7.37	63.1 ± 17.2	6.57	3.00	1.88

* P<.05, **P<.01

Table 2 shows that control group was having significant difference in remote memory and retention for similar pairs. In other areas control group was not having any significant difference.

Table –3: Showing the Score of PGI – Memory Scale of Experimental Group before and after Intervention

Areas of Assessment	Experimental Group		Wilcoxon Signed Rank Test		
	Baseline Scores (M ± SD)	Post Intervention Scores (M ± SD)	Mean Rank		Z Value
			+Ve	-Ve	
Remote Memory	3.4 ± 2.11	5.7 ± 0.67	4.50	0.00	2.53**
Recent Memory	2.10 ± 0.99	4.50 ± .70	5.50	0.00	2.84**
Mental Balance	2.90 ± 1.44	5.80 ± 1.47	5.00	0.00	2.71**
Attention & Concentration	5.60 ± 0.96	8.00 ± 0.47	5.50	0.00	2.83**
Delayed Recall	5.80 ± 2.39	8.40 ± 1.34	5.00	0.00	2.71**
Immediate Recall	5.80 ± 2.09	8.30 ± 2.00	6.50	3.17	1.84
Retention for Similar Pairs	2.30 ± 1.05	3.90 ± 0.73	4.50	0.00	2.54**
Retention for Dissimilar Pairs	4.30 ± 4.34	7.80 ± 3.88	6.00	1.00	2.71**
Visual Retention	6.20 ± 3.01	10.40 ± 3.71	5.12	4.00	2.20*
Recognition	8.30 ± 1.88	9.10 ± 1.28	3.83	5.00	1.55
Total	46.40 ± 12.62	71.0 ± 10.42	5.50	0.00	2.80**

*P<.05, ** P<.01

Results presented in Table 3 shows that there was a significant difference at 0.01 levels in scores of remote memory, recent memory, mental balance, attention and concentration, delayed recall, retention for similar pairs, retention for dissimilar pairs, and also significant difference at .05 level in scores of visual retention indicate that remediation process was significantly affective on alcohol dependent cases on improving their memory status. To find out the efficacy of intervention programme (memory training) differences between experimental group and control group after intervention was calculated using Mann Whitney U test.

Table -4: Showing Comparison of Post Assessment PGI – Memory Scale Scores between Experimental Group and Control Group

Areas of Assessment	Condition		Mann Whitney U test			
	Control Group (M±SD)	Exp. Group (M±SD)	Mean Rank		U Value	Z Value
			Exp. Group	Control Group		
Remote Memory	5.50± 2.52	5.70 ± 0.67	11.25	9.75	42.50	0.64
Recent Memory	3.70± 1.63	4.50± 0.70	11.90	9.10	23.51*	2.45
Mental Balance	4.70± 3.71	5.80± 1.47	11.10	9.90	44.00	0.46
Delayed Recall	6.40± 1.77	8.40± 1.34	13.50	7.50	20.00*	2.33
Attention & Concentration	7.60± 1.26	8.00± 0.47	11.05	9.95	14.50	0.48
Immediate Recall	5.60± 3.94	8.30± 2.00	12.10	8.90	20.51*	2.50
Retention for Similar Pairs	4.60± 0.96	3.90± 0.73	7.75	13.25	22.50*	2.25
Retention for Dissimilar Pairs	6.90± 4.06	7.80± 3.88	11.20	9.80	25.51*	2.32
Visual Retention	9.40± 3.59	10.40± 3.71	11.80	9.20	24.01*	2.55
Recognition	8.70± 1.05	9.100± 1.28	11.90	9.10	36.00	1.14
Total	63.10± 17.25	71.00± 10.42	11.75	9.25	37.50	0.94

* P<.05, **P<.01

Table 4 shows that there was a significant difference at .05 level in recent memory, delayed recall, immediate recall, retention for similar pairs,

dissimilar pairs, and visual retentions in experimental group than control group after intervention. The mean scores of interventional group in other areas are also higher than control group shows that there is improvement though that improvement is not significant.

Table – 5: Showing Comparison of Difference in PGI- Memory Scale Scores between Intervention Group and Control Group at Baseline and after Intervention.

Area of Assessment	Intervention Group (Mean ±SD)			Control Group (Mean ±SD)			MANN WHITNEY U TEST		U Value
	Pre	Post	Diff. (Pre-Post)	Pre	Post	Diff. (Pre-Post)	Mean Rank		
							Exp. Gr.	Cont. Gr.	
Remote Memory	3.4 ± 2.11	5.7 ± 0.674	2.3 ± 1.76	3.6 ± 0.966	5.50 ± 0.527	1.90 ± 1.197	10.10	10.90	21.15*
Recent Memory	2.10 ± 0.99	4.50 ± 0.707	2.4 ± 0.843	3 ± 1.15	3.70 ± 1.63	.700 ± 2.49	8.15	12.85	20.00**
Mental Balance	2.90 ± 1.44	5.80 ± 1.47	2.9 ± 2.37	2.60 ± 2.22	4.70 ± 3.71	2.10 ± 3.07	9.90	11.10	22.60*
Attention & Concentration	5.60 ± 0.966	8.30 ± 2.00	2.40 ± 0.96	6.50 ± 2.17	5.60 ± 3.94	1.10 ± 1.96	8.30	12.70	23.00
Delayed Recall	5.80 ± 2.39	8.40 ± 1.34	2.60 ± 1.57	5.20 ± 1.39	6.40 ± 1.77	1.20 ± 2.09	8.65	12.35	21.66**
Immediate Recall	5.80 ± 2.09	8.30 ± 2.02	2.50 ± 3.68	3.60 ± 1.89	5.60 ± 3.94	2.00 ± 2.788	10.25	10.75	24.00**
Retention for Similar Pairs	2.30 ± 1.05	3.90 ± 0.737	1.60 ± 1.26	3.20 ± 1.22	4.60 ± 0.966	1.40 ± 1.42	10.25	10.75	20.00**
Retention for Dissimilar Pairs	4.30 ± 4.34	7.80 ± 3.88	3.50 ± 2.91	4.50 ± 3.027	6.90 ± 4.06	2.40 ± 5.16	9.95	11.05	21.00**
Visual Retention	6.20 ± 3.01	10.40 ± 3.71	4.20 ± 4.21	7.90 ± 3.17	9.40 ± 3.59	1.50 ± 3.86	8.35	12.65	22.50*
Recognition	8.30 ± 1.88	9.10 ± 1.28	800 ± 1.75	7.60 ± 1.57	8.70 ± 1.054	1.10 ± 1.85	10.75	10.25	47.5

* P<.05, **P<.01

Overall the results shows that the intervention group improved significantly in remote memory, recent memory, mental balance, attention and concentration, delayed recall, retention for similar pairs, retention for dissimilar pairs, visual retention than control group.

DISCUSSION

Alcohol dependence is a state where the individual has a strong desire or sense of compulsion to take alcohol, difficulties in controlling alcohol

taking behavior. The person will have a physiological withdrawal state when substance use has ceased or been reduced. The other symptoms present are progressive neglect of alternative pleasures persisting with alcohol intake. Heavy alcohol use damages memory (Buddy et al., 2008). A typical heavy user of alcohol reported over 30 percent more memory related problems than someone who reportedly did not drink and almost 25 percent more problems than those who stated they drank only small amounts of alcohol. Memory rehabilitation in alcoholics made a noticeable improvement in the memory of the alcoholic dependent individuals. Godfrey et al. (1985), Patel et al. (2000), Goldstein et al. (2005), Scheurich et al. (2004), Grohman et al. (2003), Bates et al. (2002).

From table 4 in the result section there is significant improvement in all the areas of memory as remote memory, recent memory, mental balance, attention and concentration, delayed recall, immediate recall, retention for similar pairs, retention for dissimilar pairs, visual retention and recognition after rehabilitation training. This suggests that cognitive retraining is significantly useful on improving the various cognitive functions, which is very essential for the day to day activities, problem solving skills, coping skills and getting employment. Findings of the present study are consistent with much of the literature presently available on memory rehabilitation in alcohol dependent cases. Literature available in this area suggests that the memory training such as memory games found helpful on significant improvement of different domains of memory in alcohol dependent cases. In present study experimental group and control group were compared and noticed that in post intervention significant improvement was found in verbal memory, immediate memory, delayed memory and reproduction of figures in experimental group (Steingass et al., 1994). Greenaway et al. (2012) also in favour of the similar findings as reported in his study for remediation of memory process in the area of attention training, visual imagery, verbal strategies, and external use strategies, recognition and immediate memory. The findings of present study are consistent with Troyer et al. (2008) who reported significant improvement after ‘6’ weeks of intervention. The strategies used

were internal visual imagery, chunking and external strategies. There was a significant improvement in prospective memory for experimental group while there was no improvement in control group. Results presented in table no 4 deals with the control group and experimental group after intervention. Table reveals that there was a significant difference between control group and experimental group in the areas of recent memory, delayed recall, immediate recall, retention for dissimilar pairs, the difference in both the groups was also noticed in the area of remote memory, mental balance, attention and concentration and recognition as obtained mean value in these areas was found higher in intervention group when compared to control group who were not given the memory rehabilitation programme and were on treatment as usual. Other conditions were also similar for both the groups as participation in the ward activities and recreation etc. but this difference was not found significant, which suggests that the gain acquired through rehabilitation programme in these areas are identifiable but not above the mark. Visual retention and Retention for similar pairs, shows that experimental group was significantly better than control group after intervention. Memory training was given to the patients by using strategies of elaborative processing, verbal memory tasks and visual memory tasks and rehearsal. Results shows that there was improvement in the recall of the words which were more rehearsed and there was significant improvement on information processing, memory and reduction of neuropsychological deficits resulted from training (Mathai, 1996). Memory remediation strategies like errorless learning, letter fragment cueing, verbal prompting and reinforcement for specific outcome have been found significantly affective in improvement in different domains of memory like delayed recall, retention for similar pairs.

Table no 5 presented in the result section shows that the scores of control group on Baseline and post assessment. The results of the table shows that the control group was found significantly improved in the area of remote memory and retention for similar pairs, rest of the areas like recent memory, mental balance, attention and concentration, delayed recall, immediate recall, retention for dissimilar pairs,

visual retention and recognition were not found significant. These changes which have occurred in those two areas might be due to reason that control group was also in abstinent phase and were on treatment as usual. In general it is anticipated that cognitive functions would improve over the course of detoxification and hospitalization as a function of severity and adequate nutrition along with administration of traditional psychiatric, detoxification and rehabilitation treatment but here the interesting phenomenon is that the gains obtained by the control group in these areas are much lower than the experimental group as it is very clearly reflected from the difference in the mean value of both groups, as the experimental group scored higher (2.13) in comparison to control group (1.9) in the area of remote memory and retention for similar pairs is also superseded with the '1.6' gain than the '1.4' of the control group. This further strengthened the view that neuropsychological rehabilitation on detoxified subjects with alcohol dependence is significantly effective or rebuilding the cognitive functions.

Overall result showed that the intervention group improved significantly in different domains of memory as remote memory, recent memory, mental balance, attention and concentration, delayed recall, retention for similar pairs, retention for dissimilar pairs, visual retention than control group indicate that the remediation program has played significant positive role in the management of various cognitive decline caused by alcohol intake and otherwise also.

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Research Article

A Comparative Study of Receptive Speech among Male and Female Cases with Schizophrenic Illness

Riju Raj Roy^{1*}, Anand Manjhi², and J. Mahto³

ABSTRACT

Speech disorder is increasingly understood to be a significant indicator and characteristic of schizophrenia. Abnormalities in receptive language processes are also reliably detected for patients with schizophrenia including disturbances to word perception, sentence comprehension, and semantic and syntactic processing. Thus the objective of the study was to assess receptive speech among male and female patients suffering from schizophrenia using Receptive Speech Function Scale of AIIMS comprehensive neuropsychological battery in Hindi (Adult form). Thirty patients i.e. fifteen male and fifteen female patients already diagnosed as having paranoid schizophrenia (as per ICD-10 DCR) were selected from outpatient and inpatient department of PGIBAMS, Raipur, through purposive sampling. The result of the study concluded that there were only significant differences found between male and female subjects on certain aspects of receptive speech like understanding of commands that involves exhibiting motor responses and to identify non-sensible words.

Key Words: Schizophrenia, Receptive Speech, Neuropsychological Battery, Comprehension

INTRODUCTION

Speech and language disorders have been demonstrated to coexist with a wide range of childhood and adolescent psychiatric conditions, including infantile autism (Baltaxe & Simmons 1981; Prizant et al., 1990), attention deficit disorder (Baker & Cantwell, 1992), and other behavioural and emotional disorders (Beitchman et al. 1986; Baltaxe & Simmons, 1988; 1990). Although speech production abnormalities are more obvious as clinical signs and have been more commonly targeted for empirical study (Docherty et al. 1999; Docherty et al., 2000), dysfunction in receptive language has also been consistently observed for patients and their first degree family members, including disturbances in the perception of words presented aurally at various levels of intensity (Bull & Venables, 1974) and background noise (De Lisi et al., 1997; Shedlack et al., 1997) and reduced comprehension accuracy for information in sentences (Thomas & Huff, 1971; Faber & Reichstein, 1981; Morice & Mc Nicol, 1985; Condray et al., 1992, 1995, 1996; Landre et al., 1992; Goldberg et al., 1998). The language dysfunction related to schizophrenia may involve a neuro development etiology. A primary deficit in the temporal dynamics of brain function is assumed to

cause receptive language disorder in schizophrenia.

Receptive speech is the skill to listen to the sounds one hears and then giving one's own interpretation followed by expressive speech which involves making one's own sounds to communicate with others. Receptive skill is developed by listening and learning the rules of language. Speech production abnormalities currently serve as obvious diagnostic symptoms (American Psychiatric Association, 2000). And also abnormalities in receptive language processes are reliably detected for patients and their nonpsychotic family members, including disturbances to word perception, sentence comprehension, and semantic and syntactic processing (Condray et al., 2002; De Lisi, 2001; Minzenberg et al., 2002). Cannon et al. (2002) found receptive language dysfunction during early childhood for individuals who later developed schizophrenia form disorder during early adulthood. But expressive language dysfunction during childhood was not related with adulthood schizophrenia form disorder.

Two of the systems may play key roles in the language disorders of schizophrenia i.e. perceptual representation system (orthography and phonology of words) and semantic memory (meaning of words).

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Semantic memory represents factual knowledge about the world. Language is one medium for the contact between environment, learning, and semantic memory. The logical extension of this circumstance is that relation between receptive language function and clinical presentation will reflect the complex interplay between environment, learning, and memory. It is now clear that schizophrenia is directly associated with disturbance to semantic memory function, although it is not yet fully understood whether this dysfunction is due to deficient encoding, storage, access, or response selection processes, and/or some combination of those functions. The data are suggestive, although preliminary, with respect to perceptual memory disturbance (Schacter & Tulving, 1994; Schacter et al., 2000; Squire & Zola-Morgan, 1991; Squire & Zola, 1998).

METHODOLOGY

Objective:

The objective of the present study is to assess receptive speech among male and female patients suffering from schizophrenia using AIIMS Comprehensive neuropsychological battery.

It was hypothesised that there will be a significant difference between male and female schizophrenic patients on receptive speech.

Sample:

The study was conducted on the outpatient and inpatient department of PGIBAMS, Raipur. 30 patients i.e. 15 male and 15 females diagnosed as having schizophrenia (as per ICD-10 DCR) were selected for study using purposive sampling technique. Initially the patients were screened out in the different wards of the institute and researcher ensure the diagnostic confirmation as per the criteria opted for the study. The all patients were told about the purpose of the study and consent to participate in the study was taken from all the participants.

Inclusion Criteria:

- Patients diagnosed as paranoid schizophrenia according to ICD-10 DCR were included.
- Patients with insidious onset only were included in this study.

Exclusion Criteria:

- Patients with any other comorbid psychiatric

conditions were excluded from this study.

- Patient with significant other medical conditions were excluded from this study.

Tools:

Socio-demographic Data Sheet:

The present data sheet was prepared for this study to obtain the relevant demographic information as age, occupational, marital status education etc.

AIIMS Comprehensive Neuropsychological Battery in Hindi (Adult Form):

The All India Institute of Medical Sciences Comprehensive Neuropsychological Battery was developed in Hindi (Gupta et al., 2000). This consists of 160 items subdivided into 10 basic scales and 4 secondary scales including motor, tactile, visual, receptive speech and expressive speech, reading, writing, arithmetic, memory and intellectual process. Each scale is rated on a 5 point rating from 0-4 with 0 indicating no impairment and 4 indicating severe impairment. The reliability of the 10 scales ranges from 0.79 to 0.98. In this study only receptive speech scale has been used. The reliability of this test is 0.98 alpha coefficients. The study was approved by ethical committee of the institute.

Procedure:

Data was collected with the permission of the director of PGIBAMS, Raipur. Initially subjects were informed about the study and the purpose of the study. Their consent was taken in the consent form. After that demographic information was collected and following that Receptive Speech Scale of AIIMS comprehensive neuropsychological battery in Hindi (Adult form) was administered. Later on the obtained data was taken for statistical analysis. The study was approved by ethical committee of the institute.

Statistical Measures:

In this study the data has been analysed on the basis of t-test and chi-square, using IBM SPSS-16 software.

RESULT

Following tables show the result analysed from the data.

Table 1: Showing Mean, Standard Deviation and t-Test Value for Age and Frequency, Percentage and Chi Square for Occupation, Marital Status and Education among Male and Females:

Variables		Male		Female		t -test
		Mean	SD	Mean	SD	
Age		37.53	12.87	34.20	7.65	0.86
		Frequency	%	Frequency	%	χ^2
Occupation	Employed	10	33.3	2	6.7	8.89***
	Unemployed	5	16.7	13	43.3	
Marital Status	Married	10	33.3	11	36.7	1.59
	Unmarried	5	16.7	4	13.3	
Education	>5th Std	0	0	3	10	3.692
	5th-10th Std	7	23.3	7	23.3	
	<10th	8	26.7	5	16.7	

Significant***> 0.001 level

Table 1 shows the comparison of socio demographic profile among male and female schizophrenia subjects. The mean age for male is 37.53 and female is 34.20. There is no significant difference between male and female on age variable.

In terms of occupation, 33.3% of males were employed and 16.7% of males were unemployed where as only 6.7% of females were employed and 43.3% females were unemployed. There is a significant difference between male and female on occupation variable at 0.001 level ($\chi^2=8.89$).

On marital status, 33.3 % males are married and 16.7% males are unmarried and 36.7% of females were reported to be married and 13.3% of females are unmarried. While making an account of education level, it has been reported that among males 23.3% were educated between 5th to 10th standard and 26.7% of males were educated above 10th standard. Among females, 10% of females were educated less than 5th 23.3% educated between 5th grade to 10th grade and 16.7% were educated above 10th grade. No significant difference between male and female on different demographic variables was found. Most of the demographic variable were matched except occupation where significant difference was noted.

Table 2: Showing the Result of Mean, Standard Deviation and t Test for Receptive Speech Scale Items for Male and Female.

RSS Items	Male		Female		t Value
	Mean	SD	Mean	SD	
63	0.000	0.000	0.000	0.000	-
64	0.000	0.000	0.000	0.000	-
65	0.000	0.000	0.000	0.000	-
66	0.000	0.000	0.000	0.000	-
67	0.000	0.000	0.400	1.055	1.468
68	0.000	0.000	0.000	0.000	-
69	0.200	0.560	0.000	0.000	1.382
70	0.000	0.000	0.133	0.351	1.468
71	0.000	0.000	0.133	0.351	1.468
72	0.133	0.516	0.000	0.000	1.000
73	0.733	0.961	1.266	1.334	1.256
74	0.266	0.457	0.457	0.593	0.000
75	0.866	1.245	0.000	0.000	2.694**
76	0.466	0.743	0.733	1.279	0.698
77	0.000	0.000	0.200	0.774	1.001
78	0.066	0.258	0.133	0.351	.592
79	0.066	0.258	1.200	1.897	2.292*
80	0.000	0.000	0.133	0.351	1.468
81	0.000	0.000	0.000	0.000	-
Total Score	2.800	2.704	1.866	2.587	0.966

**Significant at 0.01 level and *Significant at 0.05 level

Table 2 shows the comparison of male and female schizophrenia subjects on RSS item. The mean score for item 63 to 66, 68 and 81 is 0 for both male and female. However in item 67 for male subjects the mean score is 0.000 but the mean score for female subject is 0.400. In item 69 and 72 mean score for male subject is 0.200 and 0.133 and for female subject is 0.00 for both the items. Following item 70 and 71, the result is indicating 0.000 as mean score for male subjects in both the items and 0.133 for females in both the subjects. In item 73 and 74, the mean score for male and female subject is 0.733, 1.266 and 0.266 and 0.457 respectively which indicates that female subjects have scored more in item 73 and 74 than male subjects. In 75th item the

mean score for male is 0.866 and for is 0.000. There is a significant difference between male and female for item 75 at 0.01 level ($t= 2.69$). The mean score obtained by male subjects in items 76, 77 and 78 is 0.466, 0.000 and 0.066 respectively and by female subjects in item 76, 77 and 78 is 0.733, 0.200 and 1.200. Taking 79th item in concern, the mean score for male subjects is 0.000 and for female subjects is .133. There is a significant difference among male and female subjects on this item at 0.05 level ($t= 2.292$). In 80th item the mean score for male subject is 0.000 and for female subject is 0.133. The mean score for male and female subjects on total score came to be 2.800 and 1.866 respectively which indicated a higher total score scored by male subjects in comparison to female subjects.

DISCUSSIONS

The present study was carried out to assess receptive speech among patients suffering from schizophrenia. In this study a comparison was also done to assess any differences lies between male and female on socio demographic details like age, occupation, education and marital status, and on Receptive Speech Scale of AIIMS neuropsychological battery. Following the hypothesis it was found that there is no significant difference between male and female on age, education and marital status in relation to receptive speech. However there is a significant difference found between male and female subjects on occupation at 0.001 levels.

Accounting for male and female schizophrenia subjects on RSS, it was found that there is no significant difference on total score of RSS. Gupta et al. (2000) compared schizophrenia patients with brain damaged and control group and found no significant difference on receptive speech scale. However, there is a significant difference between male and female subjects in item 75 at 0.01 significance level. In item 75, the subjects were required to identify non-sense words. The result shows that male subjects (mean=0.866) were able to respond on this item better as compared to female subjects (mean= 0.000). There is also a significant difference between male and female subjects at 0.05 levels in understanding of commands by exhibiting motor responses. The mean score was found to be more for female subjects (Mean= 1.200) as compared to male subjects

(Mean= 0.066). However, to support the present findings, research studies are not available as much studies have not been done in this area using AIIMS neuropsychological battery. Thus, this study can be treated as an attempt to focus on receptive speech among schizophrenia that requires a great amount of attention.

CONCLUSION

The present study suggests that there is no significant difference between male and female subject on overall receptive speech of the patients of schizophrenia. However, this study found differences between male and female subjects on certain aspects of receptive speech like understanding of commands that involves exhibiting motor responses and to identify non-sense words.

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Research Article

Therapeutic Effects of Yoga on Generalized Anxiety Disorder

Laiju S.¹ and Sananda Raj²

ABSTRACT

Generalized Anxiety Disorder (GAD) is a chronic, relatively common psychiatric disorder characterized as an unrealistic, excessive anxiety about two or more life circumstances for a period of six months or longer. People with GAD feel irritable and tense and have difficulty concentrating. These mental signs are coupled with physical symptoms such as shortness of breath, increased heart rate, cold clammy hands, dry mouth, nausea, diarrhoea, chills or hot flushes, muscle tension, aches and soreness. Since GAD is conceived as a stress related disorder, lessening one's response to stress by various techniques is helpful for patients to reduce their anxiety. The present study aimed to explore the therapeutic effects of yoga on GAD. The sample of the study was 50 GAD patients, both males and females, in the age range of 20 to 45 years. The sample was taken from the Holistic Medicine and Stress Research Unit, Government Medical College, Thiruvananthapuram. The tools used to assess was General Anxiety Scale developed by Laiju and Sananda (2002). The Statistical techniques used for the study were two way repeated measures ANOVA and independent samples t-test. Analysis of the results indicates that the study groups showed significant reduction in general anxiety compared to the comparison group.

Key Words: Generalized Anxiety Disorder, Yoga Therapy, Holistic Medicine, Posture, Asanas.

INTRODUCTION

Anxiety is a vague uneasy feeling the source of which is often nonspecific or unknown to the individual. Exposure to stressful life situations or events can cause anxiety, an observable reaction, or an unpleasant emotional state marked by worry, apprehension and tension. The amount of anxiety one experiences depends on the intensity of the stress producing stimulus or event and the resources, the defences, and the coping mechanisms of the person (Spielberger and Sydeman, 1994).

Generalized Anxiety Disorder (GAD), one of the anxiety disorder characterized by persistent, excessive, unrealistic anxiety about possible misfortunes, such as financial losses, family, work, ill health, the welfare of one's children, or combination of these misfortunes (Rachman, 1998; Roemer, Molina & Borkovec, 1997). According to DSM – IV criteria, (1994), GAD is an unrealistic anxiety about two or more circumstances for a period of six months and that it must be experienced as difficult to control. The subjective experience of worry must also be accompanied by at least three of the following six symptoms: Restlessness, a sense of being easily fatigued, difficulty concentrating, irritability, muscle

tension, and sleep disturbance. In addition, GAD patients show physical symptoms such as shortness of breath, increased heart rate, cold clammy hands, dry mouth, nausea, diarrhea, chills or hot flushes, muscle tension, aches, and soreness.

The treatment of GAD has been subject of considerable interest and controversy in recent years. Though, medication has been claimed to be effective in the treatment of anxiety, (Rickels et al, 1987), problems like resistance to medication, intolerance, side effects, and tendency to relapse are also reported (Telch et al., 1983). Hence, GAD, one of the stress related disorders, needs a holistic treatment approach. Still many patients have been treated only with pharmacological treatment which focuses on human body, rather than the mind, and no step is being taken to manage their stress. As a result, the patients have to depend on medication for a long period of time until, their stress has not been managed. Further, since the daily hassles and stressors cannot be removed from our day-to-day life, lessening one's response to stress should be worthwhile. Yoga therapy, one of the complementary and alternative therapies targets both physiological and psychological manifestations of anxiety

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(Braunwald et al., 2001).

Yoga is an ancient form of exercise that can reduce stress and relieve muscular tension or pain. Yoga believes in a holistic concept of health and well-being of which the body, mind and spirit are integral and interdependent parts. We cannot think of sound health by taking care of one or two aspects and ignoring the other (Bhushan, 2004).

The yoga postures or asanas exercise every part of the body, stretching and toning the muscles and joint, the spine and the entire skeletal system. And they work not only on the frame of the body, but on the internal organs, glands, and nerves as well, keeping all systems in radiant health. The yogic breathing exercises known as pranayama, revitalize the body and help to control the mind, leaving one feel calm and refreshed, while the practice of positive thinking and meditation gives increased clarity, mental power, and concentration (Devananda, 2000).

Failure of medicine to render good holistic health, failure of religion to give mental peace, failure of scientific advancements to promote mental health and material progress to improve quality of life created a need to search for a device that will relieve man from sufferings and give positive health, mental stability, emotional tranquillity and spiritual well being.

Group	Pre Assessment	Intervention	Post Assessment	Intervention	Mid Assessment	Intervention	Follow-up (3 months)
Study Group	Yes	Medication & Yoga Therapy	Yes	Medication & Yoga Therapy	Yes	Medication & Yoga Therapy	Medication & some Practices of Yoga
Control Group	Yes	Medication alone	Yes	Medication alone	Yes	Medication alone	Medication alone

Moreover, since the prime objective of yoga is to promote health and quality of life (Bhushan, 2003), it would be fruitful for the millions of people who have been under the vicious circle of stress, to control their stress and keep it at a manageable level. Thus they can keep themselves away from the adverse effects of stress. In this context, the role of

yoga emerges as a device for controlling stress and stress related disorders.

METHODOLOGY

Hypothesis:

Generalized Anxiety Disorder (GAD) patients undergoing yoga therapy combined with medication (study group) will show significant reduction in general anxiety compared to those (control group) undergoing medication only.

Design:

The pre & post assessment design was opted for present study. However, to see the progress in managing the problem and to find out the sustainability of the gain achieved in intervention mid phase and follow-up assessment was also done.

Sample

The sample of the study consists of 50 GAD patients, both males and females, in the age range of 21 to 45 years, attending the Holistic Medicine and Stress Research Unit, Government Medical College, Thiruananthapuram, were randomly taken for the study. Purposive sampling method has been adopted to select the sample for the investigation. The classification of the sample is given in table 1.

Table - 1: Group and Sex-wise Classification of the Sample

GROUP	SEX		Total
	Male	Female	
Study Group	14	11	25
Control Group	12	13	25
Total	26	24	50

Inclusion Criteria:

- Subjects between the age range of 21 to 45.
- Subjects willing to participate in the study.
- Patients met the ICD-10 DCR Criteria for GAD.

Exclusion Criteria:

- Subjects having family history of mental illness.
- Subjects having past history of mental illness.
- Subjects having GAD with comorbid mental disorders.
- Subjects who are illiterate.

- Subjects who dropped either medicine or yoga therapy during the intervention period.

Tools:

Case Record Form was prepared for the study in order to take the case history of subjects. In the present investigation, diagnosis of GAD was made on the basis of case history and interview. The interview focused on eliciting the essential information inevitable for the proper evaluation of GAD.

To measure the intensity of GAD, General Anxiety Scale developed by Laiju and Sananda (2002) was used for the study. The scale consists of 31 items, which were highly relevant to elicit general anxiety symptoms.

Yoga Techniques Used for Intervention:

The major yoga techniques used in the study were:

1. Relaxation techniques
2. Breathing techniques
3. Pranayamas
4. Asanas(12 postures)
5. Meditation

Procedure:

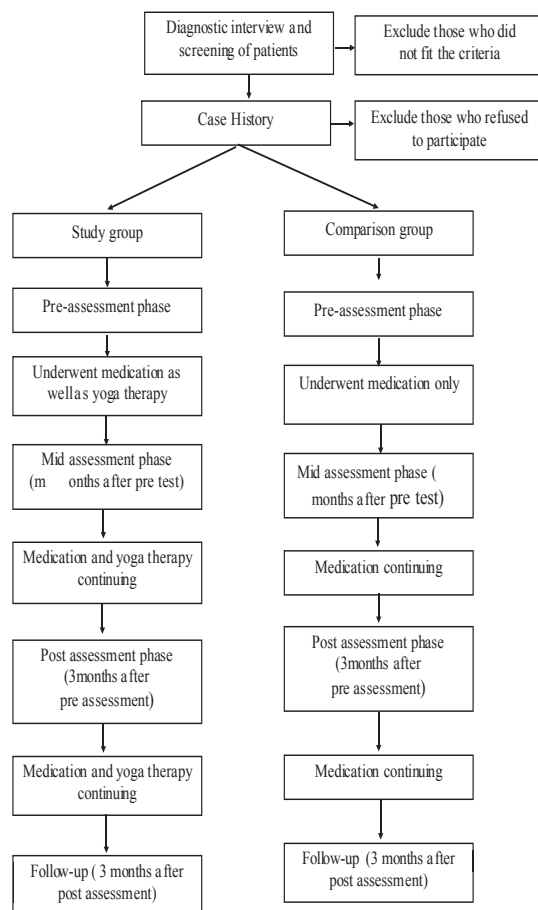
The participants were first interviewed by the investigator and then they were diagnosed by a psychiatrist. After the diagnostic interview and screening of subjects using exclusion-inclusion criteria, case records of the subjects were taken using the case record form. Subjects who had completed the case record form and were willing to participate in the study were randomly assigned to the study group and the comparison group respectively. Pre assessments of the subjects were taken as the initial step, using General Anxiety Scale.

The study group was given Yoga Therapy along with medication, while the comparison group was given medication only. The drugs used were Triplent, and Alamo. The duration of the yoga therapy was one and a half hour daily session for continuous 14 days in the clinic. After that, the patients had to practice the same at home regularly. Review classes were also arranged once in a month after the 14 days therapy session, with a view to clarify doubts, if any,

in various aspects of the intervention programme including the procedure. The yoga techniques used in the study were relaxation techniques, breathing exercises, pranayamas, asanas, and meditation. A doctor, who had Bachelors Degree in Naturopathy and Yogic Sciences, was the therapist for giving yoga therapy. Treatment outcomes of the study and the comparison group were amassed towards the end of three assessment phases: (1) Mid assessment phase (1/2 months after pre assessment; (2) Post assessment phase (1.5 months after the mid assessment; and (3) follow-up assessment phase (three months after the post assessment). The procedure adopted for the study is given in figure 1 below:

Figure - 1: Description of Assessment Procedure:

FIGURE: 3.1 Description of assessment procedure



Data Analysis:

The following statistical techniques were used for the analysis of data.

Preliminary analysis of data was done by using mean and standard deviation. Independent samples t-test and Two-way Repeated measures ANOVA was applied for analysing the data.

RESULTS

The results of the study are analyzed primarily comparing the mean and standard deviations of the study group and the control group. The mean scores of general anxiety revealed that the study group shows more reduction in general anxiety than the comparison at mid, post and follow-up assessment phase (Table 2).

Table 2: Comparison of Study Group and Control Group for the Variable General Anxiety Disorder at Different Phases.

Assessment	Group	N	Mean /SD
Pre	Study Group	25	88.88 ± 7.54
	Control Group	25	90.52 ± 6.80
Mid	Study Group	25	63.44 ± 7.90
	Control Group	25	74.32 ± 7.20
Post	Study Group	25	51.40 ± 7.65
	Control Group	25	66.44 ± 7.39
Follow-up	Study Group	25	40.56 ± 6.44
	Control Group	25	59.04 ± 12.25

Two-way repeated measures ANOVA (Table 3) was used to find out the effect of yoga therapy on subjects' scores on general anxiety at pre, mid, post and follow-up assessment phases (2 groups x 4 assessments). The F-value (F=594.04, P<0.01) for the between assessment phases of general anxiety revealed that there is significant difference between the study group and the comparison group in mean scores of general anxiety among the pre, mid, post and follow-up assessment phases. The F-value (F=35.43, P<0.01) for between group (study group and comparison groups) indicates that, there is significant difference between the study group and the comparison group in general anxiety. The

interaction effect, i.e., the combined effect of yoga therapy and medicine (group x assessment) is also seen in the result (F=26.81, P<0.01). The interaction effect is shown in figure 2.

Table 3: Results of the Two Way Repeated Measures ANOVA for the Variable General Anxiety (Group x Assessment)

Source	Sum of Squares	df	Mean Sum of Squares	F-value
Between Assessment	43991.42	3	14663.81	594.04 **
Between Group	6624.01	1	6624.01	35.43 **
Group x Assessment	1985.70	3	661.90	26.81 **
Error	3554.64	144	24.69	

Note: ** Significant at 0.01 level.

Figure 2: Comparison of Mean Scores of General Anxiety at Different Assessment Phases of the Study Group and the Control Group.

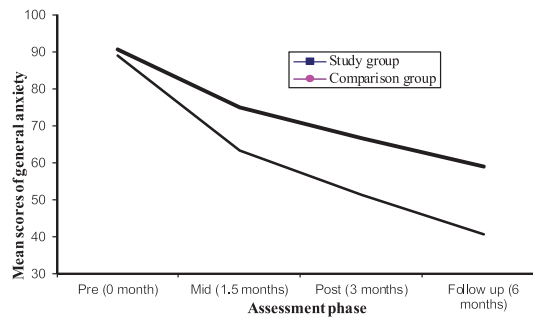


Figure 2 shows the decrease in mean scores of general anxiety of the study group and the control group obtained for the variable general anxiety from baseline assessment to follow-up, the mid phase to post assessment phases. The study group as well as the comparison group show decrease in general anxiety. The slope of the lines indicates the rate of improvement found in the study group and the comparison group. The line representing the study group shows more slope than the line representing the comparison group. This is due to the interaction effect, i.e., the combined effect of yoga therapy and medicine. Hence, the study group shows more decrease in general anxiety.

To further examine, the effect of yoga therapy on general anxiety, independent samples t-test was used to assess the changes from pre assessment phase to follow-up assessment phases. For this purpose, mean difference between the assessment phases were considered for analysis. The results indicate that there was a greater reduction in general anxiety between pre and mid assessment and mid and post assessment. Between the post and follow-up assessment the study group and the control group do not show any significant reduction in general anxiety. This may be due to the fact that since the general anxiety scale mainly measures the symptoms of GAD, three months period was enough for reducing the symptoms. Hence both groups do not show much improvement in general anxiety between the post and follow-up assessment period (Table 4).

Table 4: Results of the t-test: Group Difference in General Anxiety Scores between Different Assessment Periods

Assessment period	Group	N	Mean difference	SD	t-value
Between Pre & Mid Assessments (1.5 months)	Study Group	25	25.44	5.61	6.67**
	Comparison Group	25	16.20	4.05	
Between Mid & Post Assessments (1.5 months)	Study Group	25	12.04	5.13	2.72**
	Comparison Group	25	7.88	5.67	
Between Post & Follow-up Assessments (3 months)	Study Group	25	10.84	4.52	1.70 ns
	Comparison group	25	7.40	9.07	

** Significant at 0.01 level.

DISCUSSION

The results of the study indicates that general anxiety was significantly reduced in the study group compared with the comparison group at mid, post and follow-up assessment phases.

The mean scores of the study group (88.88) and the comparison group (90.52) at the baseline assessment indicate high level of anxiety

symptoms. While comparing the two groups at mid phase to post and follow-up assessment phases, we can see that the study group showed greater improvement in general anxiety symptoms than the comparison group. At the follow-up assessment phase, i.e., six months after the pre assessment, the average general anxiety score has reduced from 88.88 to 40.56. In the comparison group, it has been reduced from 90.52 to 59.06 only. The results of the two way repeated measures ANOVA (Table 3) and independent samples t-test (Table 4) also substantiate the results of the preliminary analysis. All these results suggest that yoga can be use as an alternative or complementary therapy for treating generalized anxiety disorder.

Studies suggest that the practice of yoga may benefit the treatment of anxiety, including GAD. Hoffman et al. (2015) studied the efficacy of Kundalini Yoga intervention, relative to CBT and a control condition. This randomized controlled trial compared yoga (N=95) to both CBT for GAD (N=95) and stress education (N=40), a commonly used control condition. All three treatments will be administered by two instructors in a group format over 12 weekly sessions with four to six patients per group. Treatment outcome were evaluated bi-weekly and at six month follow-up. Furthermore, potential mediators of treatment outcome will be investigated. Given the individual and economic burden associated with GAD, identifying accessible alternative behavioural treatments will have substantive public health implications. A study conducted by Crison et al., (1984) support the present result of the study. Their study was based on the effect of pranayama on GAD. Other studies that support the present result include, studies conducted by Mishra and Sinha (2001); Ray et al. (2001). They studied the effect of yoga on depression and anxiety and found significantly effective in reducing the symptoms.

The present study applied breathing exercises, relaxation techniques, yogic postures, pranayama, and meditation techniques in GAD patients. Relaxation techniques and breathing exercises were used to calm the mind, relieve stress and lead to increased concentration and equanimity which are the common symptoms found in GAD patients. The different asanas have been applied to provide

proper energy to the body. It brought a rich supply of blood to the glands, brain cells, and to the various parts of the spinal column. The yoga postures or asanas worked by exercising every part of the body including the internal organs and glands, stretching and toning the muscles and joints, the spine and the entire skeletal system to promote the health and well-being. Asanas have a particularly powerful and beneficial effect on one or more of the glands. When a person is in a particular asana, for example, in sarvangasana, the flow of energy or prana is concentrated to throat region where the thyroid gland is located. The thyroid is given good massage, and its functioning is greatly improved. By regular practice of yoga, there occurs a natural alignment of body, which leads to a natural realignment of your perception of life and who you are. Thus, when we reach in an energized state, we can control our mind, feel calm and refreshed, and increase mental power and concentration. Pranayama is aimed at stimulating and increasing the vital energy in the body and directing it to a particular area of the body. Extra oxygen is introduced and consequently one can utilize one's lung capacity. Meditation calms the mind, relieves stress, and leads to increased concentration and equanimity. It brings peace and harmony, which may be enjoyed throughout the day. Thus the ultimate result is good physical, mental, emotional, social and spiritual health that is what we call the holistic concept of health. Since GAD is a stress related disorder, reducing one's stress through yoga therapy can have a positive impact on GAD. Selye (1936) recognizes that exposure to a stressor can increase the body's ability to cope with that stressor in future by a process of physiological adaptation. Likewise, a person who practices yoga regularly, gradually increases the body's ability to respond to adaptively and to recover from the adverse effects of stress and stress related diseases.

Yoga may exert its effect on psychophysiology by invoking the relaxation response, an endogenous, co-ordinated response in which arousal of the autonomic nervous system and activation of the hypothalamic pituitary axis are reduced in direct opposition to the fight-or-flight stress response (Jacobs, 2001). Furthermore, the meditative component of yoga practice involving relaxed control of attention has direct effects on cognitive

activity by reducing the ruminative and mind wandering activity of the default mode network (DMN) in the brain (Hansenkamp et al., 2012). Broyd and colleagues (2009) found that higher activity in parts of this network is associated with depression, anxiety, rumination and other negative self-referential thoughts. Rumination and self-focused attention are central features of anxiety disorders and depression (Rochat, Billieux, & Van Der Linden, 2012).

Since the stressors of everyday life cannot be eliminated, lessening one's response to stress by various techniques is helpful for individuals to reduce physical as well as psychological problems. Yoga therapy targets both physiological and psychological management of stress and stress related problems such as anxiety and depression. In short, yoga therapy, one of the complementary and alternative medicines believes in holistic concept of health and well being of which the body, mind, and spirit are integral and interdependent parts.

CONCLUSION

The following conclusions have been drawn from the present study.

- GAD patients who underwent yoga therapy combined with medication (study group) showed significant reduction in general anxiety than those underwent medication (comparison group) only.
- Yoga should be considered as a complementary therapy or alternative therapy in the treatment of GAD and other anxiety based disorders.

In conclusion the present study suggests that yoga therapy can be used as a complementary or alternative therapy to reduce anxiety symptoms in patients with GAD.

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Research Article

Psychometric Properties of Hindi Version of Peace of Mind, Harmony in Life and Sat-Chit-Ananda Scales

Kamlesh Singh^{1*}, Shambhovi Mitra² and Pulkit Khanna³

ABSTRACT

The present research reports the psychometric properties of the Hindi version (translated) of three recently developed scales, namely Peace of Mind Scale (PoM; Lee et al., 2013), Harmony in Life Scale (HILS; Kjell et al., 2015), and Sat-Chit-Ananda Scale (SCA; Singh et al., 2013). All three scales assess well-being in terms of an inner experience as focused in Eastern cultures. The scales were administered to 474 Indian adults aged 18 to 50 years (M Age=25.68, SD= 8.10). Overall findings confirmed the original factor structures and revealed acceptable psychometric properties for Hindi versions of all three scales. Further, these scales were found to be significantly positively correlated with each other. This study helps to bridge the gap between theoretical knowledge and empirical investigation of Eastern concepts of well-being.

Key Words: Peace of Mind, Harmony in Life, Sat-Chit-Ananda, Psychometrics, Revalidation

INTRODUCTION

Well-being is a multi-dimensional concept, one that subsumes physiological, psychological, social as well as spiritual aspects (Lyubomirsky et al., 2005; McDowell, 2010). Various models describing well-being have emanated from Western literature. According to Younes (2011), the 'psychological tradition' emphasises the area of subjective well-being – an evaluation of one's life including cognitive satisfaction and affective evaluations. Furthermore, the model of well-being is comprised of hedonic or emotional well-being as well as functional well-being. Functional well-being further consists of psychological well-being and social well-being. Ryff (1989) put forth a six-factor model of psychological well-being and a model of social well-being was posited by Keyes (1998, 2005), and Keyes and Shapiro (2004). More recently, Seligman (2011) proposed the PERMA model describing psychological well-being along the five domains of positive emotions (P), engagement (E), relationships (R), meaning (M), and accomplishment (A).

While these models capture the essence of well-being in diverse and comprehensive ways, it may be erroneous to ignore cultural differences and assume universal applicability of these models. In fact, culture and context may mould the subjective perceptions of happiness and consequently impact people's experience of well-being. There exists evidence that people influenced by Eastern and Western cultures

value different positive feelings (Lee, Lin, Huang, & Fredrickson, 2013). Predominant focus has been on Western models of well-being, with relatively less work in the domain of Eastern cultures. There is a need for expanding the discourse beyond Europe and America and taking into account diverse cultural nuances in the study of happiness (Banavathy & Choudry, 2014). Literature suggests that Eastern cultures lay greater emphasis on concepts like harmony, peace of mind, and inner well-being (Laungani, 2006; Lee et al., 2013) which have been subjected to limited empirical investigation. The present study deals with three such concepts of well-being and scales to assess them, namely harmony in life, peace of mind and Sat-Chit-Ananda. These are described ahead.

'Harmony in Life': Concept and Assessment:

The word 'harmony' has its genesis in the context of music and has been defined as 'a pleasing combination or arrangement of different things' ('Harmony'). In the words of Li (2006), 'philosophically, harmony presupposes the existence of different things and implies a certain favourable relationship among them'. Thus, harmony essentially conveys a sense of balance, flexibility, and a holistic view of well-being that encompasses mutual relations (Li 2008a; 2008b). Harmony is an important concept in Eastern philosophy, albeit one that has been subjected to limited empirical study in the area of psychology (Kjell, et al., 2015). Moreover,

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Kjell (2011) noted that traditional measures of well-being such as the Satisfaction with Life Scale (Diener, Emmons, Larsen & Griffin, 1985) are limited in terms of their attention only to self-centred expectations with regard to cognitive well-being.

With a view to overcome this limitation, Kjell et al. (2015) put forth the Harmony in Life Scale (HILS) which is focused on psychological balance and flexibility in life. HILS is a uni-factor 5-item instrument which has been found to be reliable, valid and contributory to a more comprehensive assessment of well-being (Kjell et al., 2015). Kjell and associates further backed HILS by examining its strong positive correlations with other well-being measures and negative correlations with mental health problems such as stress and anxiety. The scale demonstrated a reliability of $\alpha = .90$ and test re-test reliability of $.77$ (Kjell et al., 2015). These findings have been reinforced by other studies as well (Fahlgren et al., 2014). In view of the above, HILS may be regarded as a valuable measure of the cognitive component of well-being. Being a new scale, further research and adaptation across cultures is a step forward in establishing the utility of this scale.

‘Peace of Mind’: Concept and Assessment:

In simplistic terms, ‘peace of mind’ signifies a mental state that is free from worry. In the realm of psychological research, the construct has been defined as ‘an internal state of peacefulness and harmony’ (Lee et al., 2013). Describing this construct in the context of Chinese culture, Lee et al. (2013) posited that peace of mind characterizes an aspect of affective well-being encompassing states of mind such as calmness and serenity.

Drawing on the premise that mainstream work on affective well-being has been dominantly focused on hedonic pleasure, without due consideration to affect as valued in Chinese and other Eastern cultures, Lee et al. (2013) developed the Peace of Mind scale (PoM). This 7-item self-report measure has demonstrated good reliability and validity for assessing affective well-being. The item-total correlations ranged from $.76$ to $.85$, average item-total correlation was $.81$. The alpha reliability coefficient of the scale was $\alpha = .91$. A single factor solution accounting for 63.58% variance was obtained (Lee et al., 2013). PoM scale has also shown significant correlations with positive and negative indicators of

well-being. Further, the scale has been validated in cross-cultural settings like European American and Taiwanese culture.

Sat-Chit-Ananda: Concept and Assessment:

The Indian notion of well-being encompasses the bio-physical, socio-psychological as well as spiritual realms. In this context, the term Sat-Chit-Ananda with its origin in Sanskrit may be understood as the foundation of this holistic approach to well-being. Ancient texts suggest that humans seek their inner source of happiness or satchidanand (Srivastava & Misra, 2011). According to Campbell (1988), ‘each person can have his own depth, experience, and some conviction of being in touch with his own sat-chit-ananda, his own being through consciousness and bliss’.

In order to facilitate empirical assessment of this otherwise abstract concept, Singh et al. (2013) developed the Sat-Chit-Ananda (SCA) scale in English. The creation of this tool was aimed at bringing a rich indigenous concept into the mainstream. The 17-item SCA scale is comprised of four sub-factors. These factors are Chit (pertaining to consciousness of one’s thoughts, feelings, speech etc.), Antahshakti (pertaining to inner strength, even in the face of challenges), Sat (dealing with truthfulness, goodness and positivity), and Ananda (bliss), Singh et al., 2013). The scale demonstrated alpha reliabilities ranging from $0.64 - 0.76$ for the four factors; with the four factor solution accounting for 53.82% variance (Singh et al., 2013). Following initial test development, this scale has also been revalidated and its psychometric properties reaffirmed in the Indian context. At this time, scale reliabilities ranged from 0.66 to 0.84 , with the four-factor solution accounting for 58.6% variance (Singh et al., under review).

Relevance of the Study:

As explained in the introduction, there has been limited work to bridge the gap between theoretical knowledge and empirical assessment in the context of inner well-being. Moreover, existing research which has largely emanated from the Western culture has used English language as a dominant medium. This further accounts for paucity of literature dealing with psychometrically valid tools fit for use with Indian people. Since the present study was set in the

Indian context where nearly 41% population is Hindi speaking (Census, 2001), it was considered appropriate to assess the psychometric properties of Hindi translated versions of the selected scales. To the best of our knowledge, these scales are fairly unexplored in Indian literature. The present study investigated the psychometric properties of Hindi versions of HILS (Kjell et al., 2015), PoM scale (Lee et al., 2013), and SCA scale (Singh, et al. 2013) with a two-fold purpose of expanding scholarship about (a) psychometrically valid empirical tools to assess internal well-being in general, and (b) wider psychometric assessment of the selected scales in particular. Additionally, since all three constructs are highly correlated with each other, it was hypothesized that the selected scales would be positively correlated with each other.

METHODOLOGY

Participants:

Four hundred and seventy four adults (Age range = 18 to 50 years, M Age = 25.68 years and SD = 8.10) participated in this study. All participants were recruited from urban and semi-urban locations in North India. Of them, 53% were males and 47% females. Majority of the participants (83%) were unmarried. All participants were well-versed with Hindi.

For part of this study, the sample was randomly divided into two parts for the purpose of exploratory and confirmatory factor analysis respectively. Details of each resultant sub-sample are provided subsequently in the paper.

Measures Used:

Harmony in Life Scale (HILS; Kjell et al. 2015). It is a 5 item self-report scale scored on a 7 point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The factor loadings of the items ranged from 0.73 to 0.86 and the Cronbach's $\alpha=0.90$ for the original English version of the scale (Kjell et al., 2015).

Peace of Mind Scale (PoM; Lee et al., 2013): The scale contains 7 items rated on a 5-point Likert scale ranging from 1 (not at all) to 5 (all the time). Lee et al. reported $\alpha =0.91$ for the original version of the scale.

Sat-Chit-Ananda Scale (SCA; Singh et al., 2013): This is a 17-item scale comprising four factors, namely Sat, Chit, Ananda and Antahshakti.

Cronbach's $\alpha =0.82$ has been reported for this scale (Singh et al., 2013).

Procedure:

Preparation for the Study:

At the outset, the original English scales were translated into Hindi by a bilingual expert working in the area of psychological assessment. The Hindi translations of the three scales were then evaluated by the authors to check for adequacy of translation. Modifications were made wherever the Hindi translations were not found to adequately capture the intended meaning. Further, a bilingual expert independently back translated these scales from Hindi to English. The back translations were again reviewed by the authors and matched to the original scales. At this stage, most items were found to aptly represent the content of the original English scales. The finalized scales were used for data collection.

Data Collection and Analysis:

All potential participants were individually approached, either online or in person. Voluntary participation was sought and informed consent was taken. Each participant was provided the questionnaire booklet containing demographic information schedule, consent form and the above mentioned scales. Only those participants who returned completely filled-up questionnaires were included in the study.

It is noteworthy that the original English version of the SCA scale has been previously explored as well as confirmed in the Indian setting (Singh et. al, 2013). However, the other two scales, i.e. HILS and PoM were previously unexplored among Indian participants. Consequently, their factor solution was first explored and then confirmed in this study. For this purpose, the study sample was randomly sub-divided into 1/3rd for exploratory factor analysis (EFA) and 2/3rd for confirmatory factor analysis (CFA; Guadagnoli & Velicer, 1988; Mac Callum, Brown & Sugawara, 1996). Thus, data of 158 participants (M Age = 28.27 years, SD = 8.58) were used for EFA and 316 participants' data (M Age = 24.40 years, SD = 7.54) for CFA.

RESULTS

1. HILS:

a) Psychometric Properties :

The mean of the HILS items ranged from 4.71 to 5.70 on 7- point Likert scale. Skewness (-1.08 to -0.45) and kurtosis (-0.76 to 0.53) were found to be within the acceptable range (skewness < 2 and kurtosis < 7; Curran, West & Finch, 1996). Further, alpha if item deleted values of the items ranged from 0.83 to 0.87 and the corrected item total correlation range from 0.59 to 0.75 which is also acceptable.

b) Exploratory and Confirmatory Factor Analysis:

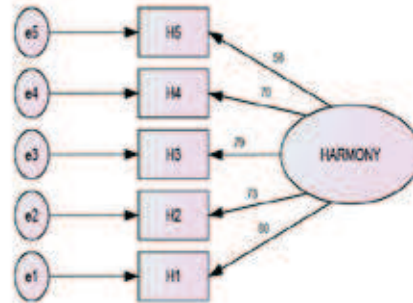
KMO (0.83) was found to be higher than the recommended cut-off point of 0.60 (Kaiser, 1974) and Bartlett's test of sphericity was significant (p=0.001). Factor loadings for five items of the scale ranged from 0.75 to 0.90. Factor analysis for more than 1 Eigen value (3.59) yielded a one factor solution which accounted for 71.92% of variance. Exploratory factor solution replicated its original model. Further, CFA via AMOS 24 using standardized estimates on the data for HILS yielded values of $\chi^2 / (d.f.) = 2.91$, RMSEA= 0.07, CFI = 0.98, GFI = 0.98, and AGFI = 0.94. All these indices were found to be as per the proposed benchmarks as shown in Table 1.

Table 1: Results of CFA along with Norm Values of Reported Indices:

Measures of Goodness of Fit	Acceptable Level	HILS	PoM	SCA
		(n=316)	(n= 316)	(n=474)
$\chi^2 / (d.f.)$	<5 (Geuens & Pel Smacker, 2002)	2.91	6.54	2.44
RMSEA	<0.10 (Mac Calum et al., 1996)	0.07	0.13	0.05
CFI	≥ 0.95 (Hu & Bentler, 1999)	0.98	0.96	0.95
GFI	> 0.90 (Tabachnick & Fidell, 2007)	0.98	0.96	0.93
AGFI	> 0.90 (Tabachnick & Fidell, 2007)	0.94	0.87	0.91

Note. RMSEA = Root Mean Squared Approximation of error; NNFI = Non-Normed Fit Index; GFI = Goodness of Fit Index; CFI = Comparative Fit Index; χ^2 / df = Ratio of Chi-square to Degrees of Freedom.

Fig. 1: Path Diagram for CFA of HILS



2. PoM Scale

a) Psychometric Properties:

For this scale, mean of the items ranged from 2.75 to 3.31 on five point Likert scale. Skewness ranged between -0.03 to -0.38 and kurtosis ranged from -0.64 to -0.80. The item analysis revealed that all the items showed acceptable corrected item-total correlation (range r =0.61 to 0.68) except two items (item 5- "It is difficult for me to feel settled" and item 7- "I feel anxious and uneasy in my mind"). The corrected item total correlation for item 5 and 7 was quite low (r= -0.11 and 0.01 respectively). Corrected item total correlation supported the deletion of these two items. Thus these two items were dropped from further analyses.

b) Exploratory and Confirmatory Factor Analysis:

The KMO for this scale was 0.87, which is higher than the recommended cut-off point with significant Bartlett's test of sphericity (p=0.001). Factor loadings for five items of the scale ranged from 0.87 to 0.94. Factor analysis for more than 1 Eigen value (4.03) yielded a one factor solution which accounted for 80.66% of variance. Thus, the factor analysis was considered appropriate.

As represented in Table 1, CFA using AMOS 24 with standardized estimates command revealed outcomes of $\chi^2 / (d.f.)=6.54$, RMSEA= 0.13, CFI= 0.96, GFI=0.96, and AGFI=0.87 for this scale. These obtained values met the proposed benchmarks in case of CFI and GFI, but were somewhat higher in case of the RMSEA, ratio of $\chi^2 / (d.f.)$ and lower in AGFI. Thus, on the whole CFA results indicate a

moderate model fit for this scale.

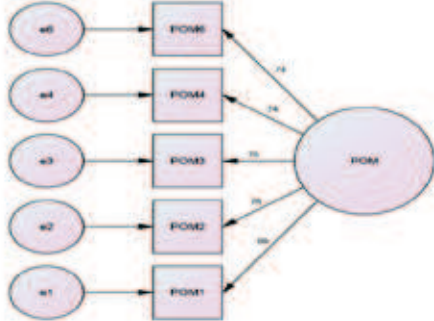


Fig. 2: Path Diagram for CFA of PoM Scale

3) SCA Scale Confirmatory Factor Analysis of SCA Scale:

Since the factor solution for SCA scale has been previously explored (Singh et.al., 2013) as well as confirmed in India on English speaking population (Singh et.al, under review), the present study only confirmed the factor structure of the Hindi version of this scale on 474 participants. As shown in Table-1, the CFA using AMOS-24 with standardized estimates command yielded results of $\chi^2/(d.f.) = 2.44$, RMSEA= 0.05, CFI = 0.95, GFI = 0.93, and AGFI = 0.91. Thus, Hindi translated SCA scale confirmed its factor solution.

Correlation among the Scales:

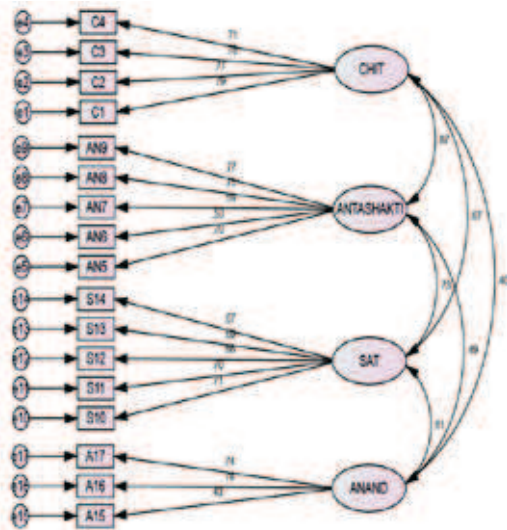


Fig. 3: Path Diagram for CFA of SCA Scale

As shown in Table 2, highly significant positive correlations were observed among all the three scales. Peace of mind was found to be significantly correlated with harmony in life as well as with Sat-Chit-Ananda (both composite as well its sub-factors). Similarly, harmony in life also showed a significant positive correlation with Sat-Chit-Ananda and its constituents. Further, the sub-factors of Sat-Chit-Ananda were found to be highly correlated with each other and also with the overall factor. Thus, results approved the proposed hypothesis.

Table 2: Correlation Matrix between PoM, HILS and SCA Scale (and its sub-factors)

	1	2	3	4	5	6	7
PoM	0.78						
HILS	0.56**	0.90					
SCA TOTAL	0.39**	0.57**	0.90				
CHIT	0.30**	0.57**	0.82**	0.84			
5 ANTA SHAKTI	0.27**	0.48**	0.87**	0.70**	0.80		
SAT	0.29**	0.43**	0.86**	0.56**	0.63**	0.82	
ANAND	0.44**	0.34**	0.63**	0.32**	0.39**	0.48**	0.66

Note: (N=474),** Correlation is significant at the 0.01 level (1-tailed). Numbers in italics along the diagonal represent the Cronbach's α

DISCUSSION

The present study is an incipient step in empirical investigation of well-being as explored in Eastern cultures. The study dealt with psychometric assessment of three self-report scales meant to assess participants' well-being through the concepts of harmony, peace of mind and sat-chit-ananda respectively. This is a step forward in the realm of comprehensive assessment of well-being among Eastern cultures, instead of sole reliance on Western models. Further, the study looked at Hindi translations of the three selected scales, so as to make them more culturally relevant for Indian participants.

This study successfully revalidated the Hindi translations of three contemporary scales –HILS (Lee et al., 2013), PoM scale (Kjell et al., 2015), and SCA scale (Singh et al., 2013) among Indian participants. This was perhaps the first psychometric assessment of HILS and PoM in India; while the English version of the recently developed SCA scale has been previously used with Indian participants.

For HILS, good psychometric properties were obtained. The factor loadings ranged from 0.73 to 0.86 (original scale) and from 0.75 to 0.90 (Hindi translated version). Further, item-total correlations ranged from 0.65 to 0.80 (original scale) and from 0.59 to 0.75 (Hindi translated version). For the five items the Cronbach's alpha was $\alpha = 0.90$ (original scale) and $\alpha = 0.88$ (Hindi translated version). Factor analysis for more than 1 Eigen value yielded a one factor solution for both original and Hindi translated version; accounting for 62.64 % variance (original scale) and 71.92% of variance (Hindi translated version). All these indices were found to be within their recommended range.

As regards the 7-item PoM scale, evaluation revealed poor psychometric properties for two items (item 5 and item 7). Consequently, rest of the analyses were performed on a 5 item Hindi translated version of the PoM scale. The factor loading was above 0.30 (original scale) and above 0.87 (Hindi translated version); item-total correlation ranged from 0.76 to 0.85 (original scale) and from 0.61 to 0.68 (Hindi translated version). The Cronbach's alpha was $\alpha = 0.91$ (original scale) and $\alpha = 0.90$ (Hindi translated version). Factor analysis for more than 1 Eigen value yielded a one factor solution for both original and Hindi translated version, which accounted for 63.58 % variance (original scale) and 80.66 % variance (Hindi translated version). Even after rejecting 2 items initially due to poor psychometric properties, remaining 5 items have excellent results for the scale. Thus, 5 items PoM scale can be used for further studies.

The CFA of the Hindi translation of SCA scale revealed an acceptable model fit; as was the case with the English version of SCA (Singh et al., under review). This further reinforces the efficacy of this scale in both English and Hindi among Indian population.

A correlation analysis among these three scales demonstrated significant positive correlations among these constructs. The observed pattern of correlation was in accordance with the theoretical understanding of the conceptual models of the harmony in life, peace of mind and sat-chit-ananda. These results are also aligned with previous research findings. Garcia et al. (2014) reported harmony in life to be positively associated with self-fulfilling affective profile (high

positive affect, low negative affect). Similarly, Fahlgren et al. (2015) reported a positive association between harmony in life and personality factors such as maturity, responsibility, purposefulness, optimism and so on. It is noteworthy that most of these personality dimensions are also consonant with the concept of sat-chit-ananda. Further, Xu, Rodriguez, Zhang and Liu (2015) reported positive association between peace of mind and mindfulness. Positive correlations between sat-chit-ananda and happiness, life satisfaction and positive experience have been previously reported by Singh et al. (under review). At a broader level, all three scales used herein may be understood as indicators of internal well-being.

CONCLUSION and FUTURE DIRECTION

In conclusion, the present study is a step forward in empirical assessment of well-being through the lens of Eastern cultures. Future research using mixed methodology could look at corroborating quantitative findings with qualitative assessment of these constructs among participants. While sole reliance on self-report measures may be seen as a potential limitation, it is pertinent to remember that all the concepts covered in the purview of the present study are in fact very subjective and perhaps best assessed by the participants themselves. Further research involving these and other such concepts would work towards more holistic knowledge and assessment of well-being while the validation of Hindi translated scales would contribute to future research on Hindi speaking population.

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Research Article

Efficacy of Cognitive Behavior Therapy (CBT) in Depression for Parents of Children with Mental Retardation

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ABSTRACT

Introduction: Rearing a child with disability is a lifelong activity. Parents undergo through very difficult situations as they are forced to readdress their priorities; compromise their personal space; and in number of cases rather unprepared. The costs are not only economical but also psychological and many parents undergo depression as a result. Parents having a child with mental retardation experience a variety of stressors and stress reactions related to the child's disability. The feeling of depression is common, particularly when realization of the child's retardation is recent. Aim: The aim of the study was to investigate the efficacy of cognitive behavior therapy in depression for parents of children with mental retardation. Method: It was pre- post comparative experimental design with control group. Experimental and control groups consisted of 24 individual in each group with depression, diagnosed as per ICD-10. Baseline assessment was carried out with the tool of Beck Depression Inventory. The experimental group received cognitive behavior therapy. They received 12 sessions for the period of 3 months. Therapy was conducted in one session per a week with the duration of 1 hour 30 min. Assessment was repeated after 3 months in the last session of therapy program to investigate effectiveness of cognitive behavior therapy. The data were analysed by using appropriate statistical measures. Results: CBT was considerably more effective in depression for parents of children with mental retardation.

Key Words: Cognitive Behaviour Therapy, Depression, Parents, Mental Retardation, BDI

INTRODUCTION

A child with developmental delays poses multiple parenting challenges. While families generally develop positive ways of coping with these, and demonstrate considerable resilience, but in countless studies parents have reported heightened stress, especially in domains related to child rearing. Two issues concerning parenting stress are of particular interest. First, although stress has traditionally been viewed as a result of developmental delays or of the increased demands resulting from the child's support needs, the influence of behavior problems may have been underestimated. In families where a child has an intellectual disability, parenting stress levels appears to be highest in the childhood years, diminishing as the individual ages (Blacher & Baker, 2002). A related finding is that stress levels fluctuate according to the developmental stages and demands which parents face, with the highest stress at the onset of adolescence and transition of young adulthood (Wikler 1986; Blacher 2001). Secondly,

there is the perennial question of direction of effect whereas specific problem behavior are part of the phenotype in some genetic disorders (e.g., eating problems in Prader-Willi syndrome and self-injury in Lesch-Nyan syndrome; Dykens 2000), and thus, are not likely to be caused by family factors for most children and most problem behaviours, it is likely that such factors do matter. Parental factors that may be relevant to the emergence, or exacerbation, of behavior problems (Crnic et al., 1983) since a highly stressed parent may engage in parenting behavior which are less growth-promoting. Research studies have found three possible interactions of child behavior problems and parents' perception of negative impact or stress: (a) behavior problems predict subsequent increased parenting stress; (b) parenting stress predicts subsequent increased behavior problems; or (c) both causal explanations apply.

Research studies explored family functioning

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over time, focusing on parent's reports of positive and negative impact of the target child on the family. From the 36-48 month assessment, positive impact scores were moderately stable and negative impact scores were highly stable for mothers and fathers alike. The parents of children with and without delays did not differ in their appraisal of positive impact. Negative impact, or stress, scores were considerably higher for the parents of children in the delayed group, a finding that is consistent with a vast literature on families and disability (Kazak, 1987; Cameron et al., 1991; Baker et al., 1997). Following families of children with delays from infancy through 10 years of age, Hauser-Cram et al., (2001) found increasing parental stress such that, by child age 10, four times as many parents were reporting stress in the clinical range as parents in the non-disabled standardization sample. At 36-month assessment, these differences in negative impact were related much more strongly to the child's maladaptive behavior than to cognitive delay (Baker et al., 2002). And despite high stability over time in both child behavior problems and negative impact, child problem behavior at 36 months and changes in child problem behaviours over the one-year period were found to be associated with increases in parent stress. However, it was also the case that parenting stress at 36 months and changes in parenting stress over the one-year period were also associated with increases in child behavior problems. Thus, these findings are consistent with the notion that maladaptive child behavior and parenting stress have a mutually escalating effect on each other (Sameroff & Chandler, 1975; Sameroff et al., 1998).

Hastings (2003) studied that mothers and fathers do not differ in their levels of stress and depression, but mothers reported more anxiety than fathers. Statistical analysis revealed that child behavior problems and fathers' mental health were associated with mothers' stress. If mothers are also taking more responsibility for other aspects of home and family management, then this may explain why they are additionally affected by their husbands' mental health symptoms. Alternatively, if they rely on their husband for social and practical support, then this may be reduced when he is feeling anxious

or depressed. Thus mothers' usual coping strategies may be unavailable and their levels of stress may rise as a result. Hobdell (2004) demonstrated significant differences in a study between 63 mothers/ fathers and 6 single parents and established a relationship between chronic sorrow leading to depressive symptoms and chronic sorrow might be a significant barrier to understanding their child's condition with mental retardation. Glidden and Schoolcraft (2003) have done an 11-year follow up of mothers who have adopted and biological mothers and concluded that personality variable of neuroticism was the strongest predictor of depression for both adoptive and birth mothers. Mallow and Bechtel (1999) have investigated adaptation mechanisms and demonstrated that fathers and mothers of children with disability differ with mother's emotions radiating into chronic sorrow while father's reactions move towards resignation. Heaman (1995) inquired into coping strategies between mothers and fathers who have children with developmental disabilities and reported that there were fewer differences between both groups. They were more concerned with the child's future and reported stress but with poor coping strategies. Carver et al., (1985) compared cognitive style and depression and found that self-blame was a derived cognitive bias which in turn determined attributional style. Frey et al., (1989) reported that parental belief system predicted coping styles; psychological distress and family adjustment. Trute (1995) argues that self-esteem and strong-tie social support resources like spousal relationship were significant predictors of depression in both mothers and fathers. Seltzer (1995) compared coping strategies of aging mothers of adults with mental illness and mental retardation and found that emotion-focused coping predicted maternal depression in mothers of adults with mental illness and depressive symptoms were a function of their child's behavior problems. Miller et al., (1992) found that emotion-focused coping was related to increased psychological distress in mothers of disabled children whereas problem-focused coping was associated with decreased distress. Dyson (1997) studied 30 pairs of fathers and mothers and found that they displayed disproportionately

greater level of stress relating to their children than those of children without disabilities. Rogner & Wessels (1994) was interested to know the coping strategies of mothers and fathers of children with mentally handicap and found mothers showed more emotional stress, more self-criticism, searched more for social support and experienced difficulty in process of adaptation. Olsson and Hwang (2001) studied 216 families having children with autism/intellectual disability and compared with families which have children without disabilities assessing Beck Depression Inventory and reported that Mothers of children with mental retardation displayed less depression than mothers of children with autism. Making an important contribution in regard to therapeutic purposes Krauss (1993) studied similarities and differences in parenting stress between 121 mothers and fathers of children with disabilities and reported that fathers related stress to their child's temperament and child-parent relationship; whereas mothers related stress from personal consequence of parenting. Fathers were more sensitive to the effects of the family environment, whereas mothers were more affected by their personal support networks.

Nixon & Singer (1993) reported significant reduction in measures of guilt, negative automatic thoughts, internal negative attributions and depression in Group cognitive behavioural treatment for excessive parental self blame and guilt in 34 mothers of children with disabilities. Reinecke et al., (1998) intervened depression and depressive symptoms in 217 subjects through CBT and results suggest the efficacy of CBT in treating depressive symptoms and sustenance of therapeutic intervention. Cognitive behavioural therapy (CBT) refers to a popular therapeutic approach that has been applied to a variety of problems. Cognitive-behavioural therapy (CBT) refers to a class of interventions that share the basic premise that mental disorders and psychological distress are maintained by cognitive factors. The core premise of this treatment approach, as pioneered by Beck (1970) and Ellis (1962), holds that maladaptive cognitions contribute to the maintenance of emotional distress and behavioural

problems. According to Beck's model, these maladaptive cognitions include general beliefs, or schemes, about the world, the self, and the future, giving rise to specific and automatic thoughts in particular situations. The basic model posits that therapeutic strategies to change these maladaptive cognitions lead to changes in emotional distress and problematic behaviours. Seltzer et al., (2004) done a more specific study in "accommodative coping" strategy and compared with well-being in parents who have a child with severe mental health problem or a child with a developmental disability and with a control group of parents whose children have no disability and found that the strategy was effective for parents who have children with mental health problem than with parents who have children with developmental disability. Murphy et al., (1995), Hensley et al., (2004); Fava et al., (2004) have investigated with Cognitive Behavioural Therapy and psychopharmacological therapy and proved the robustness of CBT.

METHODOLOGY

Aim of the study: The aim of the study was to investigate the cognitive behavior therapy in depression for parents of children with mental retardation.

Sample:

The sample was selected based on a set of criteria from National Institute for Mentally Handicapped general services from Hyderabad. The sample consisted of 24 parents of children with mental retardation for experimental group, and the control group had 24 parents of children with mental retardation. Sample was taken from the National Institute for Mentally Handicapped, those whose children were diagnosed as moderate mental retardation as per ICD-10. The age range of children with moderate mental retardation is between 8 years to 10 years. The age range of mothers of mentally retarded children is 25 years to 35 years. A comprehensive cognitive behaviour therapy was carried out to the experimental group and for the control group there was no additional management except the routine follow up with

regular services. Written consent was taken from the parents of children with mental retardation.

Inclusion Criteria:

The parents of the mentally retarded children having one child without mental retardation, mothers being home makers with minimum earnings of the family being INR. 10,000/- per month and who have attended high school to graduation level were included in the study.

Exclusion Criteria:

The children with mild and severe mental retardation with behavior problems, physical problems and psychiatric problems, mothers with chronic physical or mental illness, and children with chronic neurological conditions such as cerebral palsy, epilepsy etc. were excluded from the study.

Tools Used:

Demographic data sheet designed for the purpose of this study, Binet-Kamat Test of Intelligence and Beck’s Depression Scale (BDI) were used for the study.

Procedure:

Those children who were diagnosed as moderate mental retardation based on the ICD-10 by psychologist and whose parents were willing participate in the study were included and a sample of 100 was randomly selected for the study. Baseline assessment was done using Beck’s Depression Scale for the parents of children with mental retardation and selected 48 parents who were diagnosed with depression criteria as per ICD-10. All the 48 selected parents were randomly grouped into experimental and control with 24 subjects (12 male and 12 female) in each group. Pre-post research design was used to study the efficacy of cognitive behavior therapy. The experimental group received cognitive behavior therapy. They received 12 sessions for the period of 3 months. Therapy was conducted in one session per a week with the duration of 1 hour 30 min. For the control group, there was no additional management except the routine follow-up and closely monitored consistently in three month time period along with

the experimental group. Assessment was repeated using BDI, after 3 months in the last session of therapy program to investigate effectiveness of cognitive behavior therapy for both the groups.

Statistical analysis

Data were analyzed using the statistical package for social sciences (SPSS) version 10. Differences between the two conditions were calculated by using t-test for equality of means, and within group pre and post results were compared, by paired ‘t’ test with 95% confidence intervals.

RESULT & DISCUSSION

The study proposed to understand the efficacy of CBT by comparing with in groups (pre-post) and between groups (Control and Experimental) on BDI scores. Mean and Standard Deviations on BDI were computed for both the groups pre and post intervention. Dependent sample t-test was used for testing the significance difference between pre and post intervention scores. The effect (difference in pre-post BDI scores) was compared between experimental and control groups using independent sample t-test.

Table-1: Mean, S.D, t, is Calculated for Pre and Post-Assessment for Experimental and Control Group on BDI Scores.

Beck Depression Inventory Scores						
Group	Conditions	N	Mean	SD	t	Level of Sig
Experimental	Baseline	24	22.04	5.56	11.28	0.01**
	Post-inter	24	14.13	3.54		
Control	Baseline	24	22.88	3.43	6.66	0.01**
	Post-inter	24	19.96	2.66		

** P<0.01

Table -1 show the significant change in the pre and post intervention scores on BDI for experimental and control groups. It is significant at 0.01 level. The mean scores of experimental group on pre and post-test are 22.04 and 14.13 respectively. The mean scores of control group on pre and post-test are 22.88 and 19.96 respectively.

Table-2: Mean, Standard Deviation and t is Calculated for Pre and Post-Assessment for Experimental and Control Group on BDI Scores Based on Gender:

Beck Depression Inventory Scores							
Gender	Group	Conditions	N	Mean	SD	t	Sig Level
Male	Experimental	Pre-inter	12	20	4.65	7.72	0.01**
		Post-inter	12	12.92	3.05		
	Control	Pre-inter	12	22.67	2.53	5.61	0.01**
		Post-inter	12	19.25	2.00		
Female	Experimental	Pre-inter	12	24.08	5.82	8.37	0.01**
		Post-inter	12	15.33	3.71		
	Control	Pre-inter	12	23.08	4.25	3.89	0.01**
		Post-inter	12	20.67	3.11		

** P<0.01

Table -2 shows significant change in the pre and post intervention scores on BDI for experimental and control groups based on gender. It is significant at 0.01 level. The mean scores of experimental group of male on pre and post-intervention are 20 and 12.92 respectively. The mean scores of control group of male on pre and post-intervention are 22.67 and 19.25 respectively. The mean scores of experimental group of female on pre and post-intervention are 24.08 and 15.33 respectively. The mean scores of control group of female on pre and post-intervention are 23.08 and 20.67 respectively. It indicate that there is a significant reduction on BDI score of post-test on experimental group which suggest that experimental group showed improvement than control group in both gender.

Table-3: Mean, Standard Deviation and t is Calculated for Improvement on BDI Scores for Experimental and Control Group

Beck Depression Inventory Scores						
	Group	N	Mean	SD	t	Level of Sig.
Improvement	Experimental	24	7.91	3.43	6.04	0.01**
	Control	24	2.91	2.14		

** P<0.01

Statistical analysis was done to understand the efficacy of CBT on spontaneous remission, by taking the difference/improvement (pre & post) on BDI scores in both control and experimental groups. That is the Mean improvement in BDI was compared between control and experimental groups with independent sample t-test. It is significant at 0.01 level. The table-3 indicated that the average improvement in experimental group was 7.91 and in control group was 2.91 which shows that the significant improvement was seen in experimental group who have received Cognitive Behaviour Therapy, when compared to control group.

In order to study how gender has contributed in responding to therapy, the above analysis was done for males and females separately and tested the improvement in BDI between experimental and control groups.

Table-4: Mean, Standard Deviation and t is Calculated for Improvement on BDI Scores For Experimental and Control Group Based on Gender.

Beck Depression Inventory Scores						
Gender	Group	N	Mean	SD	t	Level of Sig.
Male	Experimental	12	7.08	3.17	3.66	0.01**
	Control	12	3.41	2.1		
Female	Experimental	12	8.75	3.62	5.209	0.01**
	Control	12	2.41	2.15		

** P<0.01

Table-4 shows the improvement on BDI scores for experimental group and control group based on gender. It is significant at 0.01 level. The improvement score for male on experimental group is 7.08 and for control group is 3.41. The improvement score for female on experimental group is 7.08 and for control group is 3.41. In both the gender it is observed that the significant improvement was observed in experimental group than the control group.

DISCUSSION AND CONCLUSION

From the above analysis, it is evident that CBT had significant effect over the period of time in experimental group when compared to control

group to reduce depression among parents of children with mental retardation. When the gender was taken into consideration, females have found benefited from CBT than male. Nevertheless, males have benefited, many other factors as occupation, away from house for more hours than females, peer group, opportunity to pursue interesting goals could be complementing to improvement. In this sample females are housewives and all of them had two children in their families hence, females had less social contacts, more responsibilities and had to maintain emotional harmony within the siblings. Mallow and Bechtel (1999) have reported that adaptation mechanisms differ between mothers and fathers of developmentally disabled children; mothers' emotions radiate into chronic sorrow while fathers' reactions move toward resignation; patterns of grief and sadness reemerge and are most often precipitated by a health care crisis in women and comparison with social norms in fathers. Glidden and Schoolcraft (2003) have observed that personality factors and multiple measures for different outcomes are necessary to study reaction over time. Hobdell (2004) concluded that separate assessments of parents and timely interventions are warranted. Furthermore, the extraneous variable 'spontaneous remission' was considerably neutralized by dissecting the difference and establishing the efficacy of CBT over a period of time. This was done by studying control and experimental groups. CBT for depression was more effective than control conditions such as no treatment, with a medium effect size (van Straten, Geraedts, Verdonck-de Leeuw, Andersson, & Cuijpers, 2010; Beltman, Oude Voshaar, & Speckens, 2010). However, studies that compared CBT to other active treatments, such as psychodynamic treatment, problem-solving therapy, and interpersonal psychotherapy, found mixed results. Specifically, meta-analyses found CBT to be equally effective in comparison to other psychological treatments (Beltman, Oude Voshaar, & Speckens, 2010; Cuijpers, Smit, Bohlmeijer, Hollon, & Andersson, 2010; Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011). Other studies, however, found favourable results for CBT (Di Giulio, 2010; Jorm, Morgan, & Hetrick, 2008; Tolin, 2010). For

example, Jorm and colleagues (2008) found CBT to be superior to relaxation techniques at post-treatment. Heaman (1995) and Hobdell (2004) emphasized on therapeutic intervention for developing immunity to depression and better coping skills.

Further Research Direction:

The study recommends CBT was an effective intervention in family system. However, variables like family system, older member with ailments, siblings without mental retardation or developmental delays; low socioeconomic group with no or minimal educational back ground, gender of disabled child demands further need to study the intervention outcomes with CBT.

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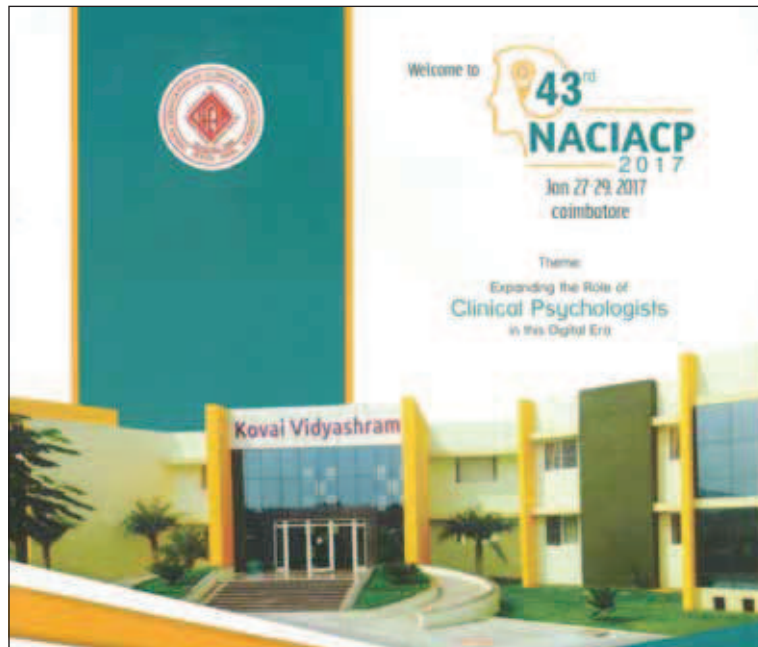
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