CASE STUDY

Multidimensional assessment of psychological and neuropsychological factors associated with psychogenic vertigo/psychiatric dizziness : A case study

Sreetama Chatterjee[1], Bidita Bhattacharya[2] and Aparajita Chakraborty[3]

[1]Clinical Psychologist, Dept of Clinical Psychology, Institute of Psychiatry, Kolkata

[2]Associate Professor, Dept of Clinical Psychology, Institute of Psychiatry, Kolkata

[3]Assistant Professor, Dept of Clinical Psychology, Amity University, Kolkata

ABSTRACT

The concept of 'psychogenic vertigo' also known otherwise as 'psychiatric dizziness' has always been considered as an unclear disorder that makes it both difficult to understand as well as to treat. Consequently in a number of cases it has been difficult to distinguish it from vertigo caused solely due to organic causes, to understand its phenomenology and thus plan an adequate intervention. The present case study reports a case of psychogenic vertigo where the aim was to have a multidimensional assessment of psychological and neuropsychological factors of the case. The neuropsychological test findings indicated difficulty in switching attention and set-shifting along with deficit in planning. Difficulty in both recall as well as in recognition was also noted, which suggested a problem with the encoding and consolidation process itself. Psychological test findings indicated features of introversion, difficulty in reality testing under stressful situations, somatic preoccupation, negative self-worth. Deficits in planning indicated dysexecution which also suggested the possibility of making the patient vulnerable to adverse life events which was evident in findings suggestive of adjustment problem and difficulty in maintaining close emotional ties. Test findings further indicated anxiety arising out of (conflicts between achievement versus inadequacy, succorance versus aggression; the defenses which were in use were rationalization, projection, distortion, and acting out.

INTRODUCTION

The term and the concept of psychogenic vertigo is one that has always been shrouded in mystery and considered as an unclear disorder that makes it both difficult to understand as well as to treat. The term 'vertigo' comes from the Latin word 'vertere' that means 'to turn' or in the literal sense implies rotation; and characterized by a condition in which the individual (subjective vetigo) or his environment (objective vertigo) seems to whirl or swim[1]. And the term psychogenic vertigo usually indicates that the vertigo is caused by a psychological disturbance. Presently this term has been more or less replaced with psychiatric dizziness[2] and defined as recurring or persistent symptoms of balance dysfunction, inconsistent with organic vestibular disease as determined by history, clinical examination and pertinent investigations, and consistent with emotional origin. Sometimes psychogenic dizziness may also be manifested through symptoms such as sensations of motion (spinning, rocking, tilting, levitating etc.) that can be reasonably attributed

Corresponding Author :

Dr. Bidita Bhattacharya

Associate Professor, Department of Clinical Psychology

Institute of Psychiatry, Centre of Excellence

Contact Number - 9831095984

Email - bidita.bhattacharya@gmail.com

to psychiatric disorders (e.g. anxiety, depression, somatization disorder)[3]. It is a member of a larger group of patients, including roughly 15% of dizzy patients, who have a normal examination and laboratory evaluations. Psychogenic dizziness is distinct from other members of the group which include dizziness accompanied by a psychiatric condition (such as benign positional vertigo accompanied by a reactive phobia or anxiety), and also from nonlocalized dizziness that has no clear objective correlate (such as dizziness caused by a condition that cannot be detected by current diagnostic technology). Initially its etiology was thought to be purely psychiatric in origin that only resembled ENT symptoms, but lately discovery of underlying biological symptoms have thrown light onto evidence of neuro-ontological involvement too in this disorder. Although studies state that exact incidence and prevalence of psychogenic dizziness is hard to pinpoint, yet some studies have stated that sixty percent of cases with psychiatric dizziness were found to have primary or secondary anxiety[4]. In a similar way other researchers had also found in their study that about 50% of persons who present to clinics for dizziness have psychological disorder, mainly anxiety. Young women are most likely to present with vertigo as part of primary psychiatric disorder, but men have been found to have a correlation between dizziness and development of psychiatric disorder, usually neurotic symptoms, secondary to it[5]. Further, other researchers have pointed out that half of the patients with psychiatric dizziness with anxiety features tend to have a pure psychiatric pathology, the most common being anxiety disorder, followed by somatisation and depression.

Like stated in the beginning, psychogenic vertigo is considered as a disorder whose etiology is considered as varied and complex. Earlier on, Gestalt psychologists had tried to explain it as a discrepancy between spatial orientations of the body schemata and the environment schemata. It was hypothesized that unconscious elements of spatial orientation are brought into consciousness and expressed physically, which causes the difference between these two schemata and could be symbolic of one's difficulty with his environment or conflicts that make him feel he is about to meet his downfall[6][7]. Also, some researchers had found in their study that errors of thinking such as catastrophic thinking and dysphoric ruminations along with conscious focus upon the symptoms also tends to perpetuate it further. They had posited that both classical and operant conditioning could be involved in starting and maintaining these symptoms[8]. Later on some researchers had reviewed three explanatory hypotheses to explain the relation between anxiety and dizziness[9]. The first one refers to the psychosomatic model which assumes that a primary psychiatric disturbance causes dizziness, hyperventilation and hyper-arousal increased vestibular sensitivity. The second hypothesis, that is the somatopsychic model assumes that a primary inner ear disturbance causes anxiety. These further signals from the inner ear are misinterpreted as signifying immediate danger, which increases anxiety, which in turn increases misinterpretation and it is made persistent by conditioning. The last hypothesis, namely the Network alarm model which is a renamed variant of somatopsychic model assumes that panic is triggered by a "false alarm" via afferents to the locus ceruleus area of the brain, which then triggers a "neuronal network", including limbic, midbrain and prefrontal areas. However if the more recent studies are to be considered, then till date the relation between dizziness and psychiatric disorder has still not been understood clearly . That is, they have not yet been able to have an unambiguous picture and hence further detailed probing into the psychological picture of the patient suffering from psychogenic vertigo is warranted. The present study was done with an aim of presenting an in- depth multidimensional assessment of a case who had presented with psychogenic vertigo for understanding the psychological and neuropsychological factors and aims to throw light at some salient clinical, psychological and neuropsychological domains of the patient with psychiatric dizziness.

CASE SUMMARY

S. P., a 45 year old married, Bengali speaking Hindu male, educated up to graduation (Bachelors in Arts), working in Government service in the fishery Department , hailing from a nuclear family and sub-urban region of West Bengal (India) had presented with the complaints of feeling of head spinning and of dizziness since the last 4 months.

Neuro-radiological exams performed at that time were negative for any focal or diffuse brain damage. CT scan of brain had also not shown any obvious abnormality. Hence, he was diagnosed as having psychogenic vertigo by two independent psychiatrists based on the absence of any or neuro-radiological or ENT evidence of brain damage underlying the vertigo.

According to the information provided, he was apparently maintaining well till 4 months back, when he gave a loan to a neighbor for a large sum of money, which was promised to be refunded later. However, during the course of time, it was not returned to him as promised. At round the same time, he also received news from his boss at office that he is soon going to be transferred to a remote and rural area. These two incidents were perceived as extremely stressful by the patient which resulted in experiencing significant amount of stress. Another possibly pertinent stressor was mentioned by the patient; that is, he also reported of an already existing financial pressure as well as uncongenial home environment since last few years due to a conflict with his biological father. Thereafter, within one month of the two incidents, client reported that one day when he was getting ready to go to work, he felt like his head suddenly started spinning. As he had felt highly uncomfortable due to this, he had delayed his schedule and stayed back at home, however the spinning had lasted for an hour and then subsided. He was taken to local general physician and treatment was sought, followed by even homeopathy consultation and consumption of medicines for the next few weeks. While he reported that there was some improvement after he started the medication, however soon after 10 days, his head started spinning again while he was at home, followed by dizziness. He also felt anxious that he would not being able to maintain balance and felt like he was about to fall (although he did not actually fall). He stated that he was completely responsive to surrounding environment during this phase. Thereafter, he would frequently have a feeling of spinning of head, but he stated that the head spinning used to stop whenever he used to lie down. He also reported that while walking in a fast pace or while talking excessively, he had a feeling of his head getting tilted towards his left side, and thereby he gradually started avoiding those actions. He would also report that the feeling that his head was spinning would happen whenever he was about to go to work.

Index patient stated his predominant mood during this period was anxious. His biological functioning (sleep, appetite, energy and libido) remained unchanged. He had been managing his activities of daily living with no gross difficulty. The client did not report any head injury, episodes of fit, any severe physical illness, markedly low or elevated mood with consequent charges in psychomotor activity, excessive intake of substance, sudden episodes of intense anxiety marked by threatening or catastrophic thoughts, detachment from other people and/or unresponsiveness to the surroundings reported. There was no apprehensive expectation (anxiety and/or worry) about everyday events and problems, restlessness, irritability, presence of any pervasive, firm, unshakeable belief, false perception or suicidal ideation reported. There has also not been any significant past history of psychiatric or major medical illness. His general health other than the feeling of head spinning or dizziness was reported by him as stable.

He was born in a family belonging to lower socio economic status and he is the eldest of six siblings. He has three younger brothers and two younger sisters. Additionally, he also has a younger step sister who is the daughter of his step mother whom his father

had married when he was about twenty five years old. His family interaction pattern was characterized by an autocratic leadership, and inadequate cohesiveness. Perceived home atmosphere was non-congenial (When client was 15 years old, he had gathered knowledge about an extra-marital affair of his father. As per patient, this had made him terribly upset, however, he had diverted his attention to his studies, although he would get upset due to this frequently.

His schooling had started at 6 years of age and he would have average results in class. He had adequate peer relationships, with no history of any disciplinarian problems in school. His highest grade completed has been till graduation (Bachelor of Arts). His hobbies and interests included listening to music, and campaigning for political parties. He started working at the age of 26 years, and the duration of his present job is for 19 years. His nature of job is rendering service at an administrative rank of fishery department (Government) and his overall work record had been satisfactory.

Index patient got married at the age of 29 years when his wife was 18 years old. It happened to be a negotiated marriage. His son was born after one year of his marriage and he had a daughter three years back. Client had reported that although his relationship with his wife was congenial, however he would often feel 'emotionally disconnected' from her; he also reported that he had been involved in an extra-marital affair with a woman since the last eight years, which had been unknown to his wife and he also stated that having to balance both the relationships would be a major reason of stress for him. Premorbidly, he was well adjusted.

On Mental status examination he appeared well kempt and tidy, with well-groomed hair, age-appropriate body-built, in touch with surroundings, eye contact maintained, rapport established easily and cooperative attitude. His motor behaviour was within normal limits, and his speech was audible, with normal reaction time, speed, productivity and prosody. It was relevant, coherent and goal directed. His cognitive functions were adequate. His general intelligence seemed average. His affect was anxious, and his thought content revealed somatic preoccupation. No abnormality was elicited in thought stream, form or possession and perception, satisfactory judgment and grade IV insight was noted.

TESTS ADMINISTERED

For the multidimensional assessment, the NIMHANS Neuropsychological Battery for assessing his neuropsychological aspect, the Symptom Checklist-90 or SCL-90 was administered as an objective tool. Since this test has proved to be effective in non-psychiatric population, thus for screening purposes, it was administered. The Rorschach Inkblot Test/RIM was administered with the rationale of understanding the structure of his personality, his coping resources, his self-perception. Lastly the Thematic Apperception Test/TAT was administered to understand the dynamics of his interpersonal domain.

TEST FINDINGS/RESULTS

The SCL-90 R profile was found to be valid. On SCL-90- R, high scores were found in the dimensions like Somatization, Obsessive-Compulsive, Interpersonal sensitivity, Depression, Anxiety, Hostility , Phobia dimensions along with an elevation in the Global Severity Index. However, high score in Positive Symptom Total indicates "augmented" test protocol, suggesting a 'dramatizing' response style, or attempting to 'fake bad' that is he may have attempted to show himself in a worse condition than he already is . On RIM a Total number of response (21) and Lambda value (less than 0.99; here L = 0.91) had been obtained which made the Rorschach protocol valid and interpretable. From the Rorschach Protocol, findings indicated an introversive style which might predispose him to rely on internal evaluation while formulating judgment, rather than depending upon external feedback. Also, test findings suggested that he often

tends to inhibit the release of emotion, which might eventually result in getting burdened by irritating feelings; He might also strive to accomplish more than his capacity that can often lead to frustration and can act as a precursor to depression. It was suggested from findings that client tends to respond in an individualistic manner in simple and precisely defined situation which might suggest that when situations are not so well-structured, his reality testing while taking decision or during problem –solving tasks might be impaired and he might have a tendency to become disorganized under stressful situation due to his limited cognitive resources. Findings further indicated that client might have negative self-concept that promotes a pessimistic view of self and may have unusual body concern indicating possibility of a somatic preoccupation. Findings suggested that the client tends to be defensive in interpersonal perception and he might have difficulty in creating or maintaining close emotional ties with others.

While on TAT, the stories were descriptive and dynamic in nature. The hero was perceived to be cynical, overly self preoccupied , having poor mean-end analysis, and frequently resorting to magical thinking. Prominent needs reflected were that of succorance, sentience, achievement, and aggression and the main conflicts were achievement versus inadequacy, succorance versus aggression. The defenses which were in use in order to combat with anxiety are – Rationalization (Immature Defense) , Projection, Distortion, Acting (Narcissistic Defense). The hero also had poor ego as well as super-ego control.

The findings on the NIMHANS Neuropsychological Battery is indicated below in Table 1.

Table 1 : NIMHANS NEUROPSYCHOLOGICAL BATTERY

SUBTEST	SCORE	RANGE	IMPLICATION
Digit Symbol Substitution Test	240	166.98-244.32	Average
Digit Vigilance Test	780	383.69– 640.19	Above average
Triads Test	9	0.99 – 6.45	Average
Controlled Oral Word Association Test (COWA)	8.3	7.89-15.13	Average
Animal Names Test	17	11.07 – 17.77	Average
Design Fluency Test			
• Free Condition	9	4.93-14.95	Average
• Fixed Condition	10	3.49-12.31	Average

The above table thus indicates that he has good information processing and mental speed (Digit Symbol Substitution Test). His sustained attention and divided attention is average as suggested by his performance on Digit Vigilance Test and Triads Test respectively. Generation of different responses is intact on phonemic fluency (COWA), semantic fluency and design fluency are average (Animals Names Test; Design Fluency) that suggests spontaneity and ability divergent thinking.

Table 2 : Auditory - Verbal Learning Test

SUBTEST	SCORE	RANGE	IMPLICATION
Immediate recall	3	4.21-8.95	Below average
Delayed recall	3	9.30-14.86	Below average
Recognition	30	80.47 – 104.47	Below average

The findings from above tests as indicated in Table 2 shows that he has more difficulty with recall as well as in recognition, although low scores in both could suggest a problem with the encoding and consolidation process itself.

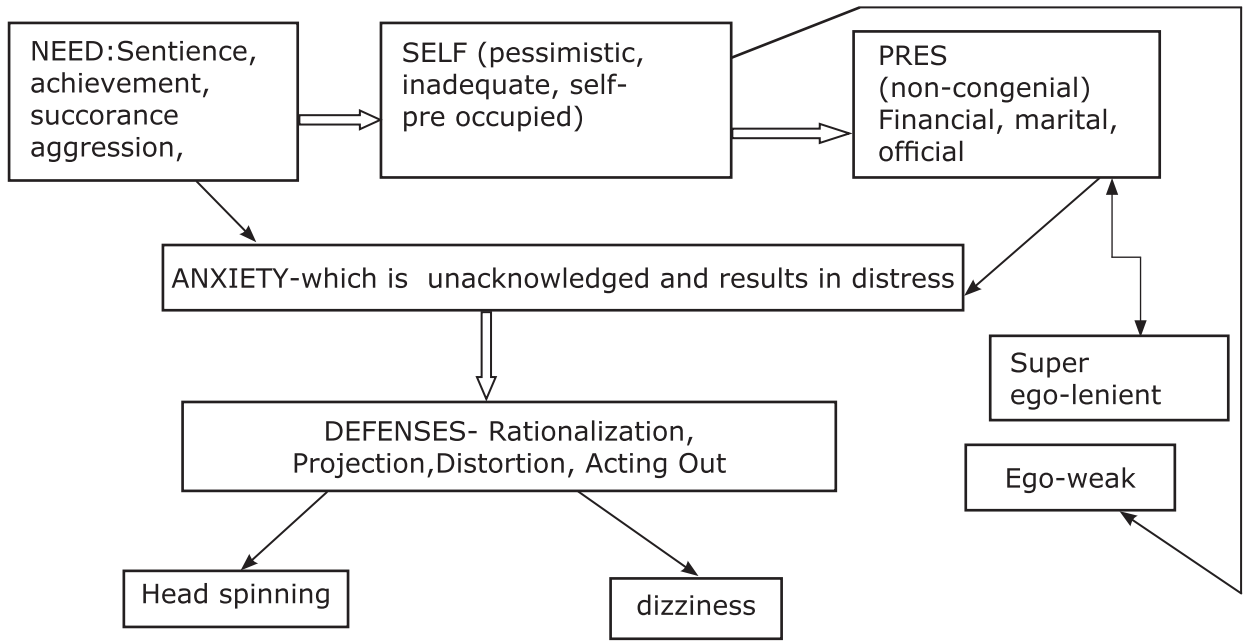
Table 3 : WISCONSIN CARD SORING TEST (WCST)

DOMAIN	SCORE	RANGE	IMPLICATION
Number of trials administered	128	106.16-136.96	Average
Total number of correct responses	46	52.43 – 83.87	Below average
Total number of errors	79	30.89-70.55	Above Average
Percent errors	62	26.59-55.47	Above average
Perseverative responses	47	13.7-43.68	Above average
Percent perseverative responses	37	11.84-34.04	Above average
Perseverative error	43	13.29-38.27	Above average
Percent perseverative error	34	11.5-29.88	Above average
Non- perseverative error	36	12.29-36.71	Average
Percent non-perseverative error	28	10.57-28.55	Average

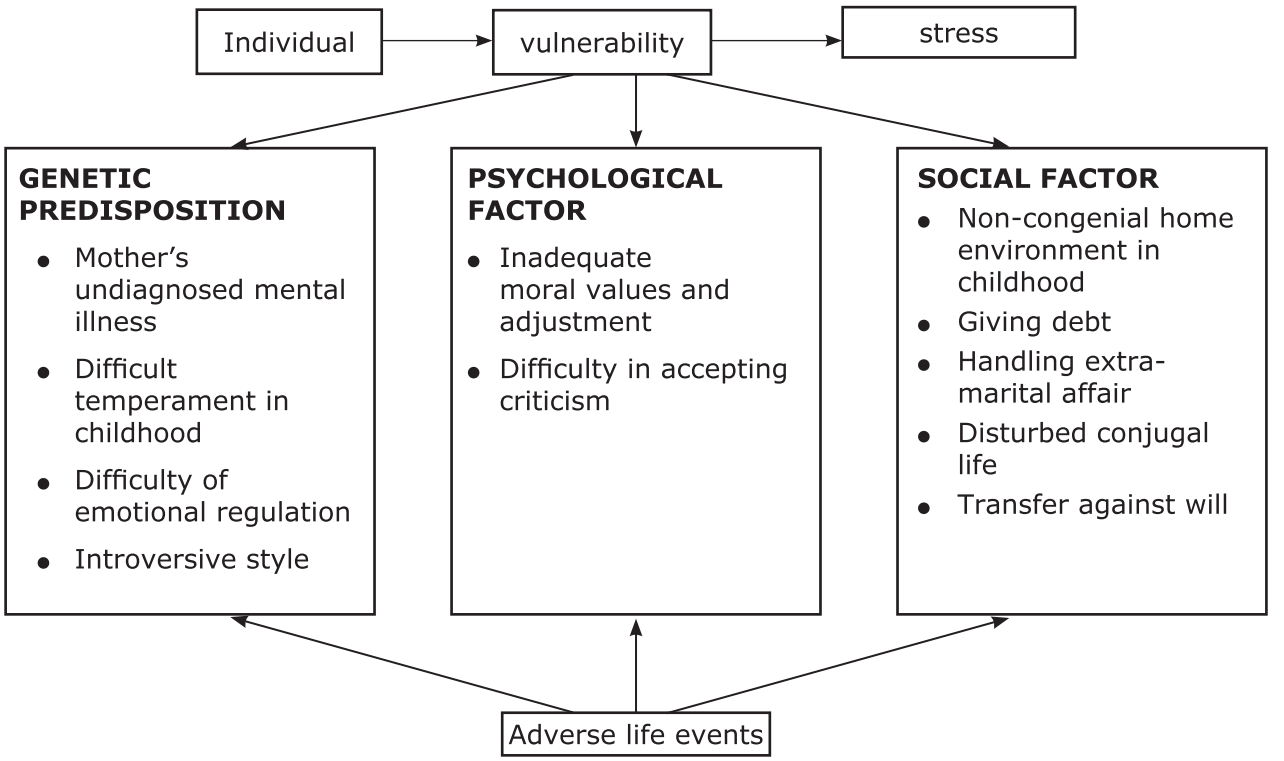
Table 3 as shown in previous page shows his performance in WCST indicates difficulty in switching attention and set-shifting.

PSYCHOPATHOLOGY FORMULATION

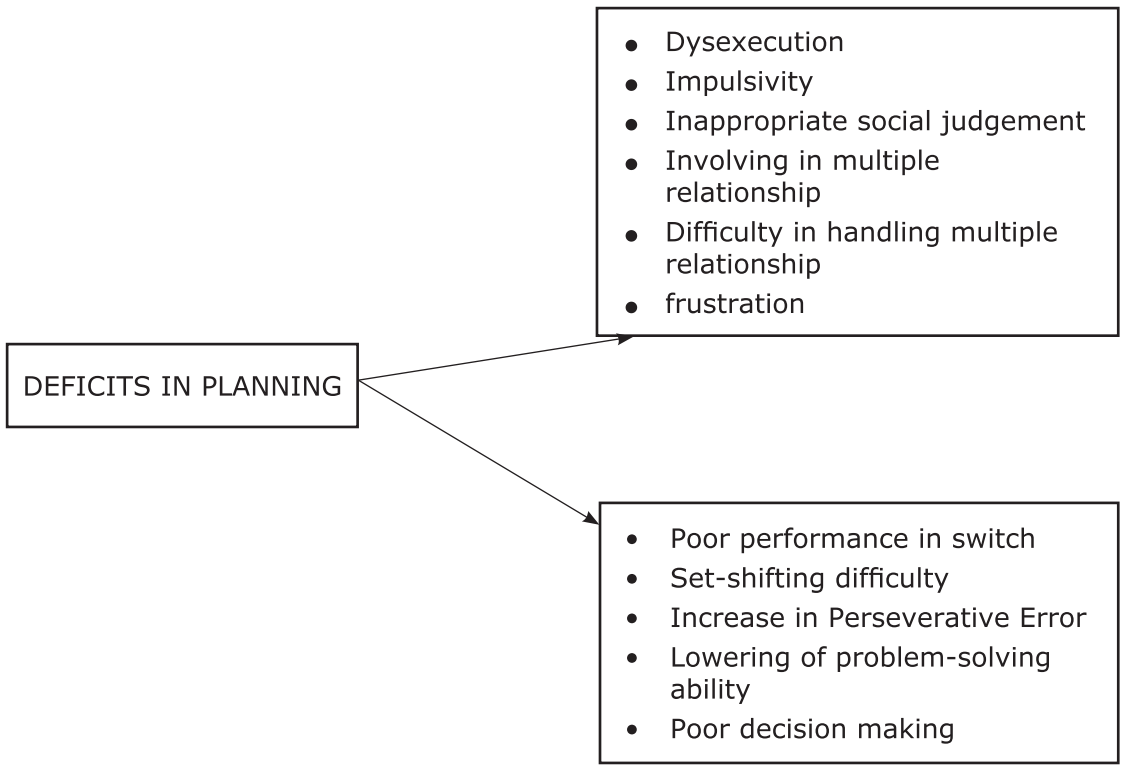
1. NEED PRESS MODEL[10]



2. STRESS-DIATHESIS MODEL



3. NEURO- COGNITIVE MODEL



DISCUSSION & CONCLUSION

In the present study, a patient with psychogenic vertigo was selected with the purpose of demonstration of psychopathology, describing the qualitative and quantitative profile of his neuropsychological assessment and discussion of the results of his psychopathological assessment. It was seen that he showed the criteria for psychogenic vertigo, wherein he would demonstrate repeated presentation of physical symptoms, feeling of head spinning and feeling of dizziness not explained by neuro-radiological exams or ENT evidence of brain damage underlying the vertigo. Hence, he was diagnosed as having psychogenic vertigo by two independent psychiatrists. Usually what is seen in psychogenic vertigo that the symptoms are preceded by a stressor, similarly in this case also both the precipitating factor as well as the stressors were identified. Further, a detailed neuropsychological assessment indicated that although he has good information processing and mental speed and his scores on sustained and divided attention, phonemic fluency, semantic fluency and design fluency are average, he may have difficulty in switching attention and set-shifting, along with more difficulty in recall as well as in recognition. Although low scores in both could suggest a problem with the encoding and consolidation process itself, yet a role of anxiety underlying these scores could not be ruled out. Further psychological assessment also indicated that he may have attempted to show himself in a worse condition than he already is while responding on objective tests, suggesting a 'cry for help' profile and an elevation on the somatization, anxiety, Interpersonal sensitivity and Depression domain. This finding is keeping in line with previous researches which had found out that variables such

as depression, anxiety, loneliness, and introversion were significantly higher in this group[1];[7]. Test findings also suggested an introversive style, tendency to inhibit the release of emotion, which might eventually result in getting burdened by irritating feelings; a tendency to strive to accomplish more than his capacity, poor mean-end analysis, and frequently resorting to magical thinking may be present that can often lead to frustration and can act as a precursor to depression. A difficulty in keeping his reality testing intact under stressful situation due to his limited cognitive resources could not be ruled out. A negative self-concept along with unusual body concern / somatic preoccupation and an inclination to be defensive in interpersonal perception was also indicated from the projective assessment. Thus to summarize, current study points out the usefulness of a multidimensional evaluation of clinical, neuropsychological and psychopathological aspects to provide an in-depth picture so as to also help in planning management better.

REFERENCES

1. Nagarkar, A.N., Gupta, A.K. and Mann, S.B.S. (2000). Psychological findings in Benign Paroxysmal Positional Vertigo and Psychogenic vertigo. The journal of Otolaryngology, volume 29, number 3, page 154
2. Jacob, R. and Furman, J. (2001). Psychiatric consequences of vestibular dysfunction. Current opinion Neurology, 14; 41-46.
3. Furman, J.M.,Balaban, C.D., Jacob, R.G., Marcus, D.A. (2005). Migraine – anxiety related dizziness (MARD): A new disorder? Journalof Neurology, Neurosurgery and Psychiatry, 76, 1-8
4. Kutz , J.W . (2010). The Dizzy patient. The Medical clinics of North America, 94, 989-1002.
5. Kurre, A., Strausmann, D., Van Gool, C., Gloor-Juzi, T., Bastianien, C. (2012). Gender difference in patients with dizziness and unsteadiness regarding self-perceived disability, anxiety, depression and its associations. BMC Ear, Nose and Throat Disorders, 12:2
6. Brain, W.R. (1938). Vertigo-its neurological, ontological, circulatory and surgical aspects. British Medical Journal, 605-08.
7. Shah, H. and Mukherjee, S. (2012). Psychogenic Vertigo. Otorhinolaryngoly Clinics: An International Journal, 77-80.
8. Stabb, J. (2005). Assessment and Management of Psychological Problems In The Dizzy Patient. Journal of Neurology, Neurosurgery and Psychiatry, 76, 189-213.
9. Simon, N.M., Pollack, M.H., Tuby, K.S. and Stern, T.A. (1998). Dizzyness and Panic Disorder : A Review of the Association between Vestibular Dysfunction and Anxiety. Annals of Clinical Psychiatry, 2, 75-80.
10. Murray, H.A. (1938). Explorations in Personality. Oxford University Press.