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Factor analysis of clinical signs in stupor

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ABSTRACT

Despite various signs in stupor are associated with different nosological groups, diagnostic significance of the associations are yet not clear. Present work was undertaken with the aim to find out any relation of stupor/stupor-like states with various objective cross-sectional clinical findings. A total of 24 patients presented in stupor and stupor-like states admitted in the psychiatry ward of a tertiary level hospital in Nepal were included in the study. Only 16 out of 36 items in Modified Rogers Scale and 17 out of 32 items in Present State Examination (sections 18-20) were scored. Eight items were common between to rating scales. Factor analysis of thus obtained 25 items revealed 10 factors with eigenvalue more than one. Only three factors were suggestive but none were diagnostic of any of nosological groups. The cross-sectional clinic findings do not seem to have definite diagnostic significance and we thus support a holistic clinical evaluation of patients in stupor to reach a diagnosis.

Keywords: catatonia; principle component; varimax rotation; clinical evaluation.

INTRODUCTION

Stupor refers to a condition in which the patient is immobile, mute, and unresponsive but appears to be fully conscious, usually because the eyes are open and follow the external objects. If the eyes are closed, the patient tries to resist attempts to open them.[1] Quite frequently patients who speak only scantly and with extreme motor retardation present in psychiatry clinics as well as in emergency departments, not qualifying for the diagnosis of stupor. They are often said to be in state of psychomotor retardation and are fitted under one or another diagnositc rubric. Sometimes these are grouped under stupor[2]

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(whom we have considered to be in stupor-like state) and studied along with them.

Interest in stupor in western countries seems to be less now a days. However in countries like Nepal, the use of modern advances and technologies in the field of mental health is still far from the reach of majority of people increasing the chance of patients progressing to severe forms of psychiatric disorders. This can be supposed to be the main factor for the higher occurrence of stupor. These facts were highlighted by Khalid *et al* [3], who have reported that almost 14% of the psychiatric patients attending Casualty Department of a tertiary hospital in Nepal, were in the state of stupor.

Stupor may have organic or psychiatric basis. The psychiatric causes of stupor are schizophrenia, depression, neurosis, dissociative disorder, mania; whereas the neurological causes are presenile or senile dementia, cerebral tumour or cyst, neurosyphilis, post-encephalitic disturbance, post epileptic state, confusional states, etc.[4] However when it occurs, it still causes a diagnostic problem between various psychiatric and somatic disease.[5] Once developed there are no characteristics of stupor per se which reliably differentiated different nosological groups and diagnosis may depend upon features other than objective clinical findings.[2] However relation of stupor with various signs and symptoms have also been described.[4] Present work was undertaken with the aim to find out any relation of stupor/stupor-like states with various objective cross-sectional clinical findings.

MATERIAL AND METHOD

It was a prospective and descriptive study. All consecutive patients of age range 16-60 years admitted in the inpatient psychiatry ward of Tribhuvan University Teaching Hospital, who were diagnosed independently by two psychiatrists as cases of stupor/stupor-like states were included in the study. Patients, whose relatives refused to give a written consent on behalf of the patient, were excluded from the study.

A specially designed semi-structured proforma was used to record the socio-demographic and clinical details, followed by mental state examination of non-cooperative or stuporose patients.[6] After the patients became cooperative, routine mental state examination was conducted. These were aided by routine laboratory investigations and whenever necessary, special investigations like CT Scan, MRI and EEG were also performed. A final diagnosis was made by day 14 on the basis of available information according to ICD-10[7] to reach a clinical diagnosis.

The sections 18-20 of Present State Examination (PSE) 9th edition[8], was applied in this study to rate Behaviour, Affect and Speech. Modified Rogers Scale (MRS)[9] was applied to rate motor, volitional, and behavioural disorders of the patients. Method of rating was similar in both the scales. A rating of 1 implied that the abnormality was obvious and usually of more than mild severity

and, a rating of 2 implied that the abnormality was marked or pervasive, while a rating of 0 implied that there was no abnormality.

All the data available were kept confidential, double entered and analysed in a personal computer using Statistical Software SPSS 7.5[10] package for Windows. Factor analysis, using varimax rotation and taking eigenvalue greater than "unity" was carried out.

RESULT

A total of 24 patients presented in stupor or in the stupor-like states over the duration of 8 months and 9 days (February 18th 1999 to October 31st 1999). Female patients (N=15, 62.5%) outnumbered male patients. Mean age was 29±14.45, almost similar for both the sexes.

Only 16 out of 36 items in ***Modified Rogers Scale*** were scored. The remaining conditions were either non-existing in the patients or could not be scored. The items, which were ***scored***, are: abruptness of spontaneous movements, abnormal tone, complex abnormal posture, decreased blinking, increased blinking, indistinct/unintelligible speech, mannerism/bizarre, marked under-activity, mutism, poor/feeble compliance, persistence of imposed posture, reduced associated movement, simple abnormal posture, slowness of spontaneous movements, slow/shuffling gait and under-active (reported behaviour).

Only 17 out of 32 items (excluding item 140) in ***Present State Examination (PSE)-*** Section 18-20 were scored. The ***scored*** items were Agitation, Blunted affect, Behaves as if hallucinated, Catatonic movements, Distractibility, Hostile irritability, Lability of mood, Mannerism and posturing, Muteness, Non social speech, Observes depression, Perplexity, Restricted quantity of speech, Self neglect, Slow speech, Slowness and under activity and Suspicion.

In this way 33 items (16 of MRS and 17 of PSE Section 18-20) were scored. There were eight items, which were common among the scored ones. Twenty-five items thus selected finally and factor analysis was done. The 25 items were: Agitation*, Abruptness of spontaneous movements, Abnormal tone, Blunted affect*, Behaves as if hallucinated*, Complex abnormal posture, Decreased blinking, Distractibility*, Hostile irritability*, Increased blinking, Indistinct/unintelligible speech, Mannerism/bizaree, Marked underactivity, Mutism, Observed depression*, Poor/feeble compliance, Perplexity*, Persistence of imposed posture, Reduced associated movement, Simple abnormal posture, Slowness of spontaneous movements, Self neglect*, Slow/shuffling gait, Suspicion*, and Underactive.

*Table I displays the results of factor analysis yielded 10 factors with an eigenvalue greater than unity.

* Shared between MRS and PSE

Table I: Result of factor analysis

Factor	*Positive loading*	*Negative loading*
I	Abruptness of spontaneous movements, Agitation, hostile irritability, suspicion, perplexity, hallucinatory behaviour, increased tone, marked under-activity	Observed depression
II	Slow/shuffling gait, increased tone, slow spontaneous movements, persistence of imposed posture, self neglect, marked under-activity, reduced associated movement, decreased blinking	–
III	mannerism/bizarre, suspicion, agitation, behaves as if hallucinated, perplexity, complex abnormal posture, poor/feeble compliance, abnormal tone (increased), self-neglect	Reduced associated movement
IV	distractibility, complex abnormal posture, perplexity, persistence of imposed posture, poor/feeble compliance, behaves as if hallucinated, abnormal tone (increased), mutism, suspicion, agitation, and self-neglect	Observed depression
V	poor/feeble compliance, marked under-activity, decreased blinking, self-neglect, persistence of imposed posture, complex abnormal posture, behaves as if hallucinated and hostile irritability	Increased blinking
VI	mutism, slowness of spontaneous movements, decreased blinking, marked under-activity, complex abnormal posture, indistinct/unintelligible speech, hostile irritability, perplexity	Reduced associated movement
VII	marked under-activity, mutism, reduced associated movement, decreased blinking, poor/feeble compliance, indistinct/unintelligible speech, slow/shuffling gait, complex abnormal posture, abnormal tone, perplexity, persistence of imposed posture, hostile irritability	Observed depression
VIII	indistinct/unintelligible speech, self neglect, perplexity, agitation, marked under-activity, slowness of spontaneous movements suspicion, under-active	Poor/feeble compliance
IX	simple abnormal posture, behaves as if hallucinated, complex abnormal posture, persistence of imposed posture, blunted affect, agitation, observed depression and self neglect	Decreased blinking
X	observed depression, marked under-activity, reduced associated movement, indistinct/unintelligible speech, complex abnormal posture, slowness of spontaneous movements and slow/shuffling gait	Blunted affect

DISCUSSION

Factor analysis of various items of PSE (Present State Examination)[8] (Sections 18-20) and Modified Roger's Scale[9] revealed that different diagnostic groups of stupor could not be distinguished sharply on the basis of these examinations. However the factors or principle components, which are set of un-correlated variables, were able to suggest few things regarding the separation of stupor into various groups. Symptom clustered in Factors 1, 4 and 7

had negative loading with observes depression, however they still could not differentiated between other groups of stupor. Factor 3 was suggestive of organic-psychotic conditions. Factor 7 was suggestive of dissociative stupor. The symptom clusters in the Factor 10 indicate depressive stupor like state.

Thus factors described above were suggestive, but not specific to any nosological group. Remaining factors were not suggestive of any group. Hence history of the patient obtained from a reliable informant, supplemented by physical examination and examination of the uncooperative patient, an already existing practice, appears a best possible way to reach a provisional diagnosis. Use of routine and specific investigations as indicated (CSF examination, EEG, and radio-imaging technology) would help to distinguish organic cases from psychiatric disorders. This study thus concludes that a holistic evaluation of the patients in the state of stupor is necessary and the cross-sectional clinical features are difficult to be relied upon in terms of establishing a diagnosis.

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