

## ASSESSMENT OF ALEXITHYmia: PSYCHOMETRIC PROPERTIES OF THE TORONTO ALEXITHYmia SCALE (TAS) - A PRELIMINARY REPORT

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### SUMMARY

The present study was aimed at assessing the utility of a scale to measure alexithymia in the Indian cultural set up. Vernacular version of the Toronto Alexithymia Scale (TAS) a newly devised self report alexithymia scale was assessed for its psychometric properties in a sample of 116 normal subjects. The scale was found to have adequate internal consistency and test-retest reliability. Factor analysis with varimax procedure yielded a four factor solution consistent with the construct of alexithymia. The results of the study indicate that the TAS could be a potentially useful instrument to assess alexithymia in our cultural set up.

### Introduction

There has recently been an increasing amount of literature on alexithymia, a term coined by Sifneos (1972) to the cognitive affective disturbance seen in certain subjects characterized by an inability to identify and distinguish between feelings and bodily sensations and an impoverished fantasy life. The phenomenon has been observed in several patient populations like peptic ulcer (Overbeck 1977), chronic respiratory illness (Kleiger and Jones 1980), inflammatory bowel disease (Fav and Pavan 1976/1977, Taylor et al. 1981), migraine (Federman and Mohns 1984), post-traumatic neuroses and drug dependence (Krystal 1982), Anorexia nervosa (Bourke et al. 1985), hypertension (Osti et al. 1981, Gage and Egan 1984), medical patients (Smith 1983), and chronic pain (Mendelson 1982, Cohen et al. 1983, Chaturvedi et al. 1984). The concept has been reviewed by Lesser (1981, 1985) and Taylor (1984).

Several measures have been evolved to

assess alexithymia. These include observer rated scales like the Beth Israel Hospital Psychosomatic Questionnaire (BIQ) (Sifneos 1973), self report measures like the Schalling-Sifneos Personality Scale (SSPS) (Apfel and Sifneos 1979), MMPI Alexithymia Scale (Kleiger and Kinsman 1980), Projective tests like the Rorschach, the Thematic Apperception Test and the SAT-9, a graphoprojective test devised by Demers-Desrosiers (1982).

Most of the above mentioned instruments have suffered from the problem of inadequate reliability and validity.

With respect to the BIQ, Apfel and Sifneos (1973), Kleiger and Jones (1980), and Federman and Mohns (1984) reported high inter rater reliability. However other investigators (Schneider 1977, Wolff 1977, Lolas et al. 1980) have observed that the scoring on the BIQ is highly dependent on experience, bias and style of the interviewer.

Doody and Taylor (1983) found that

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MMPI alexithymia scale lacks construct validity. The Schalling-Sifneos Personality Scale was assessed for its psychometric properties by Bagby et al. (1986) and found to have notable deficiencies in its present form.

Projective tests like the Rorschach and the TAT are time consuming. Besides they lack normative data.

The SAT-9, though partially validated, is a time consuming test and measures only one aspect of alexithymia viz., symbolic functioning.

Recently a new self report alexithymia scale, the Toronto Alexithymia Scale (TAS), was developed by Taylor et al. (1985) with the aim of devising a test fulfilling the standards of test development. When examined on a sample of 542 college students, this 26 item scale was found to have acceptable internal consistency and test-retest reliability. Additionally the scale yielded four factors which were consistent with the construct of alexithymia.

Keeping in view the relative superiority of TAS over other measures, it could be worthwhile to examine the applicability and usefulness of this instrument in our set up. If found useful, the TAS could prove to be a helpful clinical measure of alexithymia.

The present preliminary study was aimed at examining the psychometric properties of the vernacular version of the TAS.

### **Material and Methods**

This study was carried out at the NIMHANS, Bangalore, and formed part of a controlled study examining alexithymic characteristics in patients with psychogenic pain disorders. The sample of subjects for this part of the study was formed by the administrative and nursing staff of NIMHANS and friends and relatives of patients.

### *Translation of TAS*

The TAS was first translated to Kannada which is the local dialect by the process of translation and back translation. The principle investigator, assisted by another consultant proficient in Kannada first translated the TAS to Kannada. The translated version was then back translated into English by two persons, a linguist and a lay person. The back translated version was compared with the original version. Items which back-translated poorly were rewritten. Lengthy and complex items were simplified. The final translated version was thus prepared.

### *Administration*

The final translated version was then administered to the subject sample consecutively to consenting subjects. Adequate knowledge of Kannada, which was the language to which the instrument was translated, was a requirement for inclusion to the study. A total of 120 subjects were approached, out of which 4 subjects declined to take part in the study. The final sample was formed by 116 subjects.

### *Test reliability and validity of the translation*

This was tested on a separate sample of 30 subjects. Half of the subjects initially received the English version while the other half received the translated version. At the end of three months, the scale was readministered, this time in reverse order i.e., those who received the English version first received Kannada version and vice versa.

### *Statistical analysis*

The mean and standard deviation of the TAS scores was computed for the total group and for the two sexes separately. The test retest reliability was calculated using Pearson's product-moment correlation coefficient. The internal consistency of the

scale was evaluated by alpha coefficient (Cronbach 1951). Finally the 26 item TAS was subjected to factor analysis by principle component extraction followed by varimax rotation. Decision on the number of factors to be retained was based on two statistical criteria (a) Eigen values of retained factors should be greater than one (b) The retained factors should each account for atleast 5% of the total variance. For an item to be retained in a factor, a minimum loading of 0.30 was considered necessary.

## Results

Table 1

Sociodemographic characteristics of the sample (N = 116)

<b>Age</b>	
Mean	30.4
S.D.	7.1
<b>Sex</b>	
Males	66 (56.9%)
Females	50 (43.1%)
<b>Education</b>	
VII Grade - SSLC	25 (21.6%)
PUC	18 (15.5%)
Degree	73 (62.9%)
<b>Occupation</b>	
Student	14 (12.1%)
Housewife	3 ( 2.6%)
Administrative/electrical	22 (18.9%)
Urban worker	7 ( 6.0%)
Professional	61 (52.6%)
Business	9 ( 7.8%)

As can be seen from Table 1, there was an over representation of higher educated subjects in the sample. The test-retest reliability of the scale at three month interval was 0.77 ( $P < 0.001$ ). There was no significant difference between the mean scores of the first and second assessment ( $t = 0.023$ ,  $df = 29$ , NS). The internal consistency of the scale was 0.72 ( $P < 0.001$ ).

The mean TAS score of the total group was  $58.68 \pm 11.95$  SD. There was no significant difference between the scores of

males and females (males  $59.04 \pm 12.98$  Females  $57.24 \pm 12.99$ ;  $t = 0.74$ ,  $df = 114$ , NS).

The TAS had a non-significant correlation with age ( $-0.04$ ). With the cut off of mean + 2 SD, 2.6% of the subjects could be categorized as 'alexithymic'.

### Factor structure of the TAS

Factor analysis yielded 9 factors with eigen values greater than 1. 4 of the 9 factors each accounted for at least 5% of the variance. The four factors together accounted for 42% of the total variance. 9 out of the 26 TAS items did not load on any one of the four factors. Table 2 shows the four factors with item loadings.

Factor I, with an eigen value of 4.9, accounted for 19% of the total variance. It measures the ability to identify and describe feelings. This is similar to factor I obtained by Taylor et al. (1985).

Factor II, with an eigen value of 2.7, accounted for 10% of the total variance. It can be named 'Externally oriented thinking' or 'Pensee operateire'. This is similar to factor IV obtained by Taylor et al. (1985).

Factor III, with an eigen value of 2.0, accounted for 8% of the total variance. This factor is a bipolar factor and difficult to interpret. It seems to describe a person who has difficulty in identifying and describing his feelings and day dreams often. The bipolarity of this factor might have been because two of the daydream items (5 & 16) had poor item total correlations.

Factor IV, with an eigen value of 1.4, accounted for 5% of the total variance. It seems to be measuring the ability to interpret the bodily manifestations of emotions. This did not emerge as a separate factor in Taylor et al.'s (1985) study.

Table 2  
 Varimax rotated factor structure of the TAS with item loadings  
 (Items with the asterisk are negatively keyed)

Factor I	I	II	III	IV
8. It is difficult for me to find the right words for my feelings	.66	.12	.31	.20
14. When I am upset, I don't know if I am sad, frightened or angry	.42	.04	.35	.25
19. I prefer to just let things happen rather than to understand why they turned out that way	.74	-.06	-.15	.12
20. I have feelings that I can't quite identify	.44	.24	.12	.09
Factor II	I	II	III	IV
* 9. I like to let people know where I stand on things	-.17	.69	.01	-.06
* 11. It is not enough for me that something gets the job done. I need to know why and how it works	-.01	.59	-.16	.17
* 12. I am able to describe my feelings easily	.23	.60	.32	.10
* 13. I like to analyse problems rather than just describe them	.09	.72	-.13	.09
* 21. Being in touch with emotions is essential	.22	.31	-.14	-.37
* 24. One should look for deeper explanations	.03	.67	-.08	.00
Factor III	I	II	III	IV
* 5. I often daydream about the future	.29	-.10	-.38	.02
8. It is difficult for me to find the right words for my feelings	.66	.12	.31	.20
* 12. I am able to describe my feelings easily	.23	.60	.32	.10
14. When I am upset, I don't know if I am sad, frightened or angry	.42	.04	.35	.25
* 15. I use my imagination a great deal	.03	.28	-.75	.03
* 16. I spend much time daydreaming whenever I have nothing else to do	-.13	-.06	-.75	-.26
Factor IV	I	II	III	IV
10. I have physical sensations that even doctors don't understand	.14	.08	.28	.71
17. I am often puzzled by sensations in my body	.15	.06	-.06	.79
* 21. Being in touch with emotions is essential	.22	.31	-.14	-.37
25. I don't know what is going on inside me	.01	.01	-.18	.31
26. I often don't know why I am angry	.05	-.04	.18	.43

Table 3  
 Inter correlations among the four factors

	Factor I	Factor II	Factor III	Factor IV
Factor I	-			
Factor II	.43	-		
Factor III	.28	.41	-	
Factor IV	.53	-.06	-.14	-

Table 3 shows the inter-correlations among the 4 factors. There is a correlation between inability to identify and describe feelings with externally oriented thinking.

In the other part of the study examining alexithymic characteristics in patients with psychogenic pain disorder (Sriram 1986), it was found that the TAS factors did not have strong correlations with the subscale scores of the Crown - Crisp Experiential Index formerly called the MHQ (Crown and Crisp 1966) which measures psychoneurotic traits and symptoms along 6 dimensions. This suggests that the TAS is measuring an independent psychological construct.

### Discussion

The vernacular version of the Toronto Alexithymia Scale has demonstrated adequate internal consistency and test-retest reliability at the end of 3 months. The values are comparable to that obtained by Taylor et al. (1985) (Internal consistency 0.77, test-retest reliability at 5 weeks 0.75). The mean score obtained in the present study is also comparable to the mean score of  $61.80 \pm 11.27$  obtained by Taylor et al. (1985). There are some differences in the factor structure however. The four factors obtained by Taylor et al. (1985) include (a) ability to identify feelings (b) ability to describe feelings, (c) day-dreaming and (d) externally oriented thinking. In present study ability to describe feelings did not emerge as a separate factor. Instead ability to identify bodily sensations has emerged as a separate factor. Also the day dream factor turned out to be bipolar. While one of the reasons for the discrepant finding is a relatively small sample of a present study, another likely reason is the different nature of responding due to a different cultural set up. Overall the results indicate that the construct of alexithymia can be examined in our cultural set up and the TAS offers promise as a potentially useful instrument.

The study is being further continued with the aim of enlarging the sample and re-factor analysing the scale. It is also planned to examine alexithymic characteristics in different clinical conditions.

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### References

- APPEL, R. J. and SIFNEOS, P. E. (1979), Alexithymia. Concept and measurement, *Psychotherapy and Psychosomatics*, 32, 180-190.
- BAGBY, R. M., TAYLOR, G. J. & RYEN, D. P. (1986), The Measurement of Alexithymia, Psychometric properties of the Schalling-Sifneos Personality Scale. *Comprehensive Psychiatry*, 27, 287-294.
- BOURKE, M. P., TAYLOR, G. & CRISP, A. H. (1985), Symbolic functioning in Anorexia Nervosa, *Journal of Psychiatric Research*, 19, 273-278.
- CHATURVEDI, S. K., MALHOTRA, A., VERMA, V. K. et al. (1984), Alexithymia - A brief review and a study in chronic pain patients. *Indian Journal of Psychological Medicine*, 7, 21-25.
- COHEN, K. R., DEMERS-DESROSIERS, L. A. & CATCHLOVE, R. F. H. (1983), The SAT-9, A quantitative scoring system for the SAT-9 test as a measure of symbolic function central to Alexithymia presentation, *Psychotherapy and Psychosomatics*, 39, 77-78.
- CRONBACH, L. J. (1951), Coefficient alpha and the internal structure of tests, *Psychometrika*, 16, 297-334.
- CROWN, S. CRISP, A. H. (1966), A short

- clinical diagnostic self-rating scale for Psychoneurotic patients, The Middlesex Hospital Questionnaire (MHQ), *British Journal of Psychiatry*, 112, 917-923.
- DEMERS-DESROSIERS, L. (1982), Influence of Alexithymia on symbolic function, *Psychotherapy and psychosomatics*, 38, 103-120.
- DOODY, K. & TAYLOR, G. (1983), Construct validation of the MMPI alexithymia scale, in *Psychosomatic Medicine, Theoretical, clinical and transcultural aspects*, Ed. Krakowsky, A. J., Kimball, C. P. & Plenum, New York.
- FAVA, G. A. & PAVAN, L. (1976/77), Large bowel disorders II, Psychopathology and alexithymia, *Psychotherapy and Psychosomatics*, 27, 100-105.
- FEDERMAN, R. & MOHNS, E. (1984), A validity study of the MMPI alexithymia subscale conducted on migraine headache outpatients, *Psychotherapy and Psychosomatics*, 41, 29-32.
- GAGE, G. C. & EGAN, K. J. (1984), The effect of alexithymia on morbidity in Hypertensives, *Psychotherapy and Psychosomatics*, 41, 136-144.
- KLEIGER, J. H. & JONES, N. F. (1980), Characteristics of alexithymia patients in a chronic respiratory illness population, *Journal of Nervous and Mental Disease*, 168, 465-470.
- KLEIGER, J. H. & KINSMAN, R. A. (1980), The development of an MMPI Alexithymia Scale, *Psychotherapy and Psychosomatics*, 34, 17-24.
- KRYSTAL, H. (1982), Alexithymia and the effectiveness of psychoanalytic treatment, *International Journal of Psychoanalytic Psychotherapy*, 9, 353-378.
- LESSER, I. M. (1981), A review of the Alexithymia concept, *Psychosomatic Medicine*, 43, 531-543.
- LESSER, I. M. (1985), Current concepts in psychiatry, Alexithymia, *The New England Journal of Medicine*, 312, 690-692.
- LOLAS, F., DE LA PARRA, G., & ARANSON, S. et al. (1980), On the measurement of alexithymic behaviour, *Psychotherapy and Psychosomatics*, 33, 139-146.
- MENDELSON, G. (1982), Alexithymia and chronic pain, Prevalence, correlates and treatment results, *Psychotherapy and Psychosomatics*, 37, 154-164.
- OSTI, R. M. A., TROMBINI, G. & MAGNANI, B. (1980), Stress and distress in essential hypertension, *Psychotherapy and psychosomatics*, 33, 193-197.
- OVERBECK, G. (1977), How to operationalize alexithymic phenomenon-Some findings from speech analysis and the Giesen test (GT) *Psychotherapy and Psychosomatics*, 28, 106-117.
- SIFNEOS, P. E. (1972), Short term psychotherapy and emotional crisis, Cambridge, Harvard University Press.
- SIFNEOS, P. E. (1973), The prevalence of 'alexithymic' characteristics in psychosomatic patients, *Psychotherapy and Psychosomatics*, 22, 255-262.
- SCHNEIDER, P. B. (1977), The observer, the psychosomatic phenomenon and the setting of the observation, *Psychotherapy and Psychosomatics*, 28, 36-46.
- SMITH, G. R. (1983), Alexithymia in medical patients referred to a consultation/liaison service, *American Journal of Psychiatry*, 140, 99-101.
- SRIRAM, T. G. (1986), Alexithymia, A controlled study in patients with psychogenic pain disorder, Unpublished M.D. thesis, Bangalore University, India.
- TAYLOR, G., DOODY, K., NEWMAN, A. (1966), Alexithymic characteristics in patients with inflammatory bowel disease, *Canadian Journal of Psychiatry*, 26, 470-474.
- TAYLOR, G. J. (1984), Alexithymia, Concept, measurement and implications for treatment, *American Journal of Psychiatry*, 141, 725-732.
- TAYLOR, G. J., RYAN, D. P. & BAGBY, R. M. (1985), Toward the development of a New Self-Report Alexithymia Scale, *Psychotherapy and Psychosomatics*, 44, 191-199.
- WOLFF, H. (1977), The contribution of the interview situation to the restriction of fantasy life and emotional experience in psychosomatic patients, *Psychotherapy and psychosomatics*, 28, 58-67.