BROAD AUTISM PHENOTYPE QUESTIONNAIRE — TRANSLATION AND VALIDATION IN A SOUTH INDIAN LANGUAGE

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ICNC 2022
17th INTERNATIONAL CHILD NEUROLOGY CONGRESS
ANTALYA, TURKEY I OCTOBER 3-7, 2022

INTRODUCTION

- Parents or relatives of children with autism spectrum disorder (ASD) may express modest inadequacies in social/communication skills or engage in specific behaviours typical of ASD, but does not fulfil the diagnostic criteria for ASD and is termed as Broad Autism Phenotype (BAP).[1]
- Evaluating BAP of parents have applicability in both clinical interventions and research.
- Broad Autism Phenotype Questionnaire (BAPQ) has been proven as a valid and reliable instrument for measuring certain personality traits and pragmatic language deficits.[2]

OBJECTIVES

1. Translation and validation of BAPQ from English to the South Indian language, Malayalam (BAPQ-M).
2. To establish new cut off scores for Indian population to classify individuals into BAP present (BAP+) or BAP absent (BAP-).

Description of BAPQ

- BAPQ consists of 36 statements in 3 subscales of aloof personality (AP), rigid personality (RP) and pragmatic language (PL) and has self (S) and informant version/spouse (I).
- The response of each item is rated on a 6-point Likert scale (1-very rarely to 6- very often).
- The average of the responses for each item, subdomain, total self (TS), total informant (TI) and total best estimate (TE) is calculated.

MATERIALS AND METHODS

- Standard guidelines for translation (WHO & ISPOR) followed by face validation (10 experts) & cognitive debriefing (5 parents) was done for BAPQ-M.
- 40 parents of ASD and neurotypical (NT) children were included for psychometric analysis.
- Content validation [content validity index (CVI)], internal consistency (Cronbach's alpha) and test-retest reliability [Spearman's correlation coefficient (rho) and Wilcoxon signed rank performance test] was performed.
- Factor structure was explored using Principal Component Analysis (PCA) and the eligibility was measured using Kaiser-Meyer-Olkin (KMO) and the Bartlett's test of Sphericity.
- New cut off scores was established by plotting Receiver Operating Characteristic (ROC) curve and Youden Index or J statistic.

RESULTS

- Item CVI was > 0.8 for all the items and the scale level CVI was 0.928 (excellent content validity).
- rho for 'S' and 'I' were 0.953 and 0.918 respectively (p<0.001) and the Wilcoxon signed rank test values were 0.438 (T1) and 0.574 (T2) suggesting good test retest reliability.

Internal consistency by Cronbach's alpha

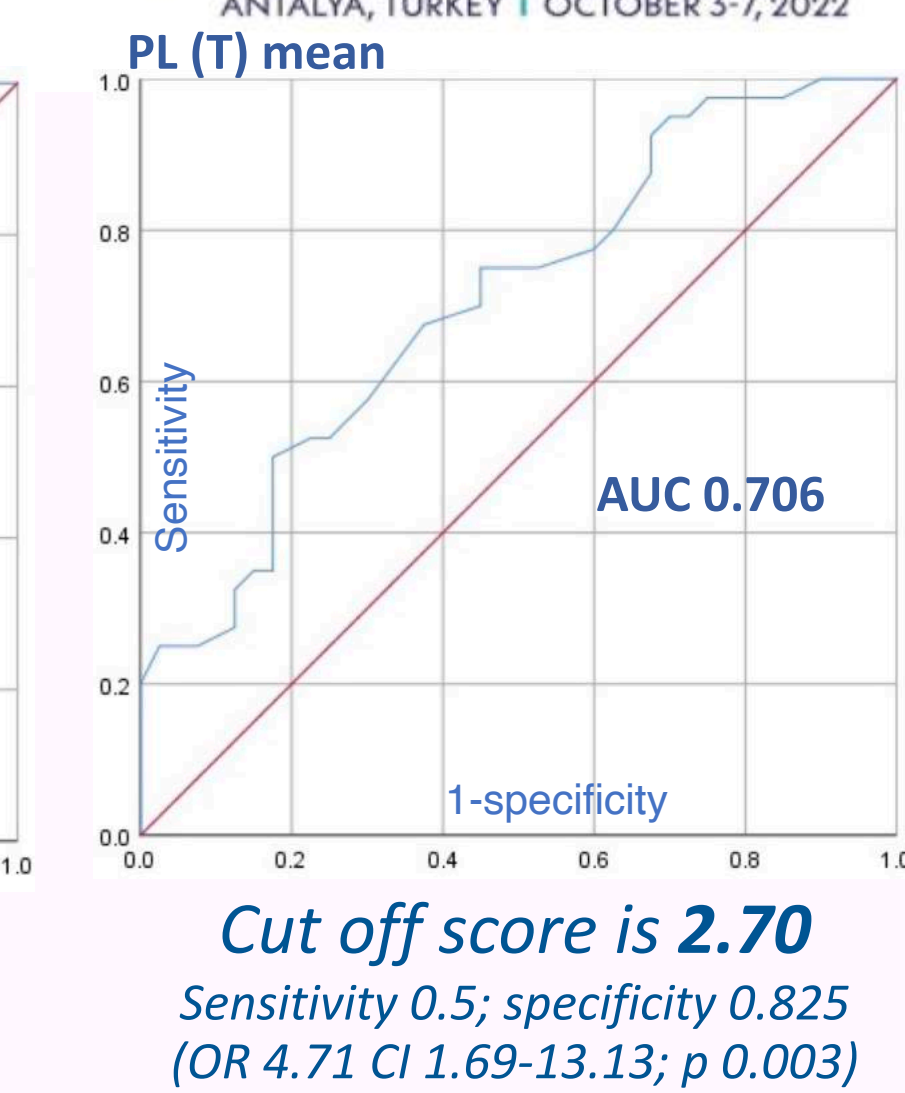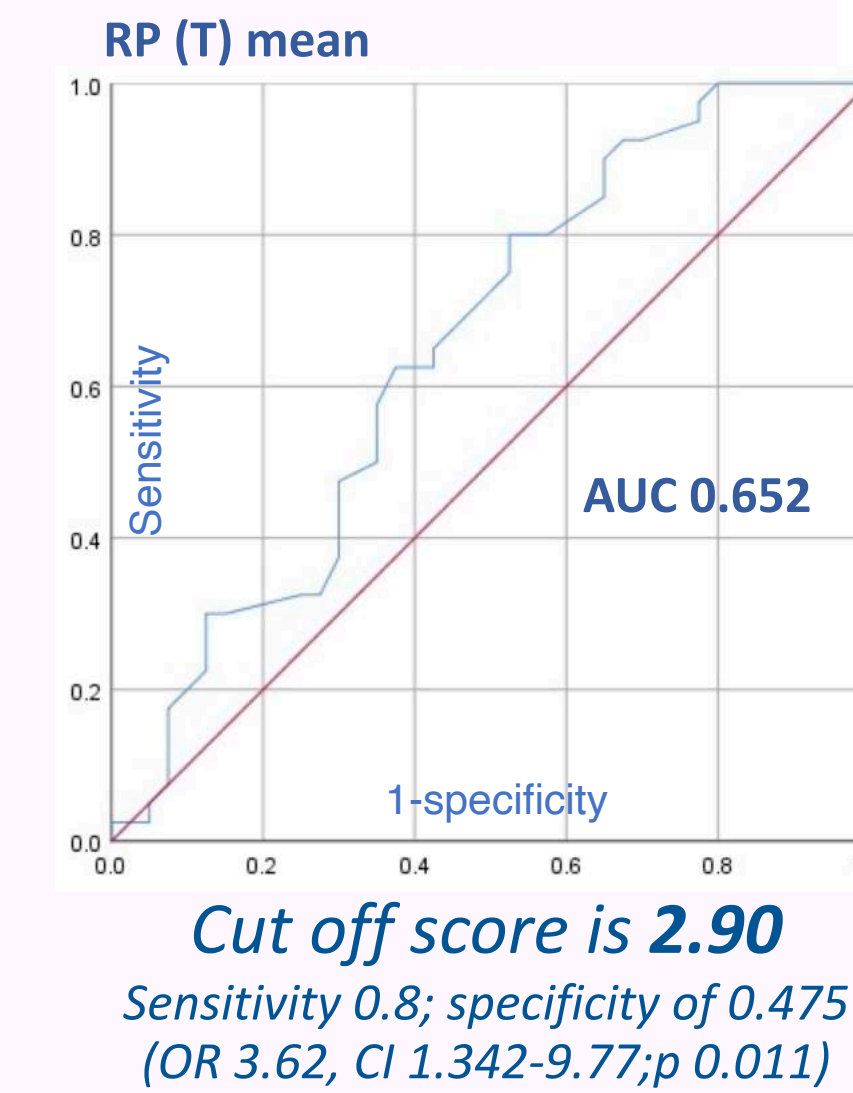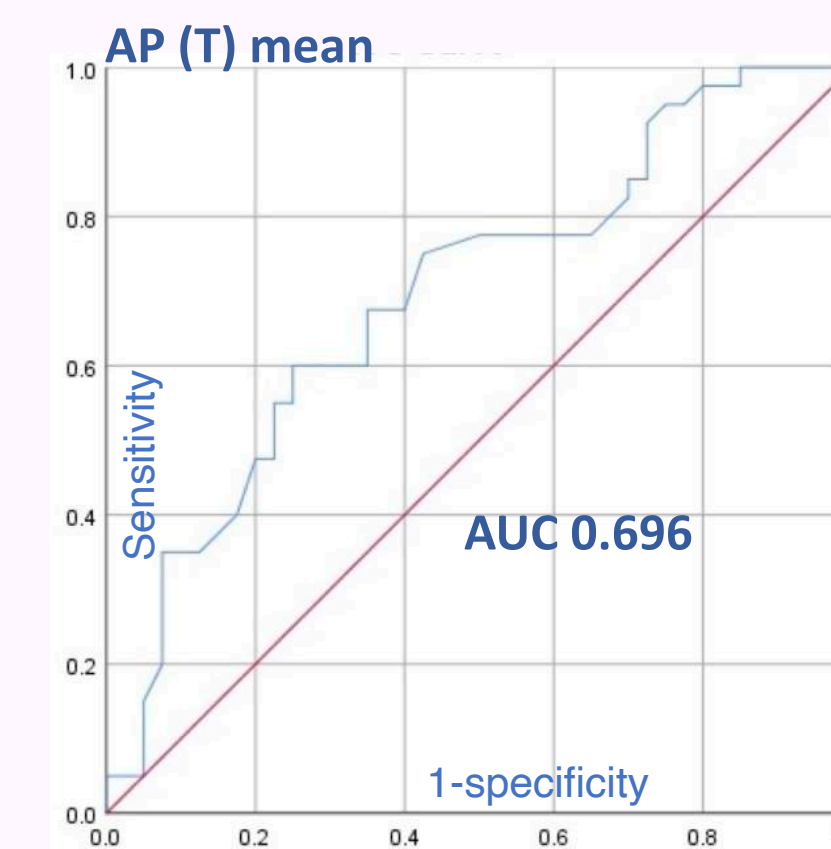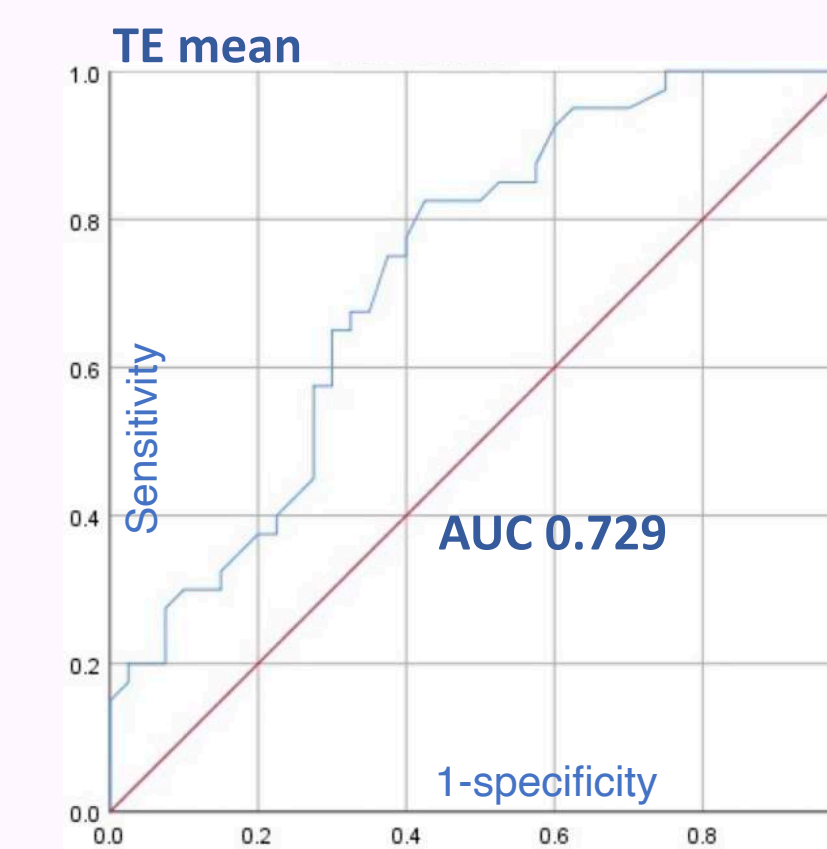| BAPQ-M	Total		ASD group		NT group	
	S (80)	I (80)	S (40)	I (40)	S (40)	I (40)
Total	**0.753**	**0.807**	0.579	0.741	0.828	0.820
AP	0.636	0.715	0.519	0.683	0.714	0.696
RP	0.524	0.628	0.414	0.376	0.616	0.744
PL	0.486	0.648	0.376	0.630	0.536	0.603

Numbers in parenthesis

Factor analysis by PCA

- The KMO measure was > 0.5 and the Bartletts test of sphericity was significant, indicating the eligibility of data for dimension reduction
- Items in 'S' & 'I' had good communality values (0.532 to 0.849 & 0.561 to 0.870 respectively).
- On factor rotation, Eigenvalues ranged from 1.39 -2.722 and 1.45-3.28 for 'S' and 'I' version (71.7% and 72.3% of the total variance) respectively.

BAP profile in parents of ASD and NT children

- These two groups were comparable for demographic and socio-economic parameters

BAPQ	ASD group (40)	NT group (40)	P value
AP (T)	2.764 (0.584)	2.366 (0.502)	**0.0016**
RP (T)	3.334 (0.473)	3.021 (0.618)	**0.0128**
PL (T)	2.719 (0.483)	2.347 (0.434)	**0.0005**
TE	2.939 (0.377)	2.578 (0.431)	**0.0001**

ROC curve for estimation of cut off scores for BAP

TE mean
AUC 0.729
Cut off score is 2.60
Sensitivity 0.825; specificity 0.575 (OR 6.38 CI 2.28-17.84 p<0.001)

AP (T) mean
AUC 0.696
Cut off score is 2.60
Sensitivity 0.60; specificity of 0.75 (OR 4.50, CI 1.73- 11.70 p=0.002)

RP (T) mean
AUC 0.652
Cut off score is 2.90
Sensitivity 0.8; specificity of 0.475 (OR 3.62, CI 1.342-9.77;p 0.011)

PL (T) mean
AUC 0.706
Cut off score is 2.70
Sensitivity 0.5; specificity 0.825 (OR 4.71 CI 1.69-13.13; p 0.003)

Limitations of the study

Limitation is the small sample size. Validation of the BAPQ-M in the general population with large sample could yield much better psychometric values with cut off scores having very good sensitivity and specificity.

CONCLUSIONS

The translated and culturally adapted BAPQ-M has good psychometric properties. The new cut off scores established in Indian population has good sensitivity and specificity to detect BAP

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1. Hurley R et al. The broad autism phenotype questionnaire. J. Autism Dev. Disord. 2007;37:1679–1690.
2. Meera SS, et al. Translation of the Broad Autism Phenotype Questionnaire to an Indian language: A description of the process. Asian J. Psychiatr 2015;15:62–67.

ACKNOWLEDGEMENTS