

Psychometric assessment of adult pragmatic profile

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Abstract: Pragmatics is a general approach to discourse analysis that focuses on the interaction among meaning, context, and communication. The aim of present research was to assess the validity and reliability of a novel-combinatorial protocol, named as Adult Pragmatic Profile (APP), in a Persian language community. Participants were 85 healthy individuals age between 40 and 65 years and data collection involved 30 minutes video recordings of speech pathologist interactions. To survey adolescent pragmatic profile, APP was developed to attain a general profile of verbal, paralinguistic and nonverbal abilities. Content validity, as measured using the concordance between APP and clinicians' opinions, was high and significant correlation between three subscales indicated its high construct validity. When internal reliability was examined, the overall internal consistency of the pragmatic scale was extremely high, and intra reliability, as measured with internal consistency scores, was found to be good for the community sample. The results of this study suggest that screening for pragmatics in Persian language individuals is indeed possible using APP.

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1. Introduction

Pragmatics is defined as correspondence between linguistic knowledge and principles governing language use in a communicative interaction (1). Since appropriate use of language in different social contexts is essential to accurate interpretation of the speaker's intentions (2), pragmatics is considered as the third major component of language ability in addition to knowledge of form (phonology and syntax) and content (semantics) (3). Despite several measures of pragmatics have been developed as guidelines for clinical observations, not all language assessment instruments are suitable for comprehensive evaluation of pragmatics. For instance, MTDDA (4), BDAE (5), WAB (6), ADP (7) and PICA (8), commonly used adult language measurements, could not provide satisfactory pragmatic language evaluations (9). Even when included, the assessment of Pragmatic Language Skills (PLS) has been considered less than the evaluation of syntax,

vocabulary, and semantics (10). As deficits in PLS are connected to many developmental, communication, learning, and psychiatric disorders (11), PLS must be considered as is crucial domain in language assessments.

Language samples are suitable tools to describe communicative abilities used by each individual, as well as its dimensions and processes. Assessment of spontaneous communication allows a wide variety of analyzes that reduces the risk of subjective interpretations or loss of information (12). Pragmatic abilities are primarily assessed using observational profiles or checklists in which the clinician identifies the presence and appropriateness of various pragmatic behaviors. Typically, these observations are based upon discourse samples since this level of communication interaction illuminates the complex associations across linguistic, pragmatic, and cognitive processes (13).

Unlike Western societies, little has been done on language pragmatics in Eastern cultures including

Persian. Since pragmatics are known as the cultural domain of language (14), generalizing pragmatic profiles across different cultures is not accepted. On the other hand, assessment of pragmatic abilities in adults is a relatively neglected area, in comparison with the work on children (11). As no suitable pragmatic profile of adults is available in Persian language communities, the objective of present study was to introduce a novel-combinatorial approach to survey pragmatic profile, in terms of obtaining valid and reliable data, in adult Persian native speakers.

2 Materials and methods

2.1 Participants and procedure

Current research is characterized as a multiple-case study. All procedures were submitted and approved by the Research Ethics Committee of Tehran University, under protocol number 130/82. This study was conducted at the Speech-Language Pathology Clinic of Mashhad University of Medical Sciences (MUMS).

This study included 85 healthy adult individuals, 41 males and 44 females, ranging in age from 40 to 65 years ($M=55.02$, $SD=7.9$); their education ranged from 5 to 14 years of schooling ($M=9.3$, $SD=2.4$). None of the participants had neurological or psychiatric history by self-report, and they have all provided informed consent. Subjects were not gender matched, which is consistent with previous reports that for the communication assessments used, gender was not an influencing variable, unlike age and education (15). For all participants, Persian was the first language, hearing and vision were adequate, and they all passed cognitive and depression screening assessments, including Mini-Mental State Examination (MMSE) (16) and Beck (17). Speech-language pathologists were trained by authors to gather data and had no previous contact with participants, to avoid the influence of familiarity with the interlocutor.

For pragmatic assessment, a novel-combinatorial checklist was developed and named as Adult Pragmatic Profile (APP, Appendix 1), in which the main items were adapted from Pragmatic Protocol (PP) (1) and Profile of Communicative Appropriateness (PCA) (18). To develop APP, a set of properties were established for structure and evaluation of index including assessment of verbal abilities (e.g., comprehensibility, contingency, cohesion, redundancy and maintenance), paralinguistic skills (e.g., intelligibility, prosody, pitch and vocal intensity) and nonverbal abilities (e.g., physical contact, facial expression and gesture). Instrument used in this study included about 30 minutes of recording time with each participant, that was repeated 1 week later, and recordings were took

place in situations of spontaneous interaction between participants and researchers.

Present study evaluates content and construct validities, internal consistency and intra reliability of APP in healthy adults, to introduce it as an appropriate pragmatic assessment tool in the general population.

2.2 Statistical analysis

For data analysis, SPSS Version 19.0 software was used. After defining the distribution of collected data by Shapiro-Wilk test, *Spearman's rho* was computed to define the correlation between verbal, paralinguistic and nonverbal subscales in APP. Furthermore, *Cronbach's alpha* was calculated for internal reliability on split half items, while intraclass correlation was calculated for intra reliability.

3 Results

Purpose of this research was to study pragmatic performance in a community sample consisting of 85 Persian native speakers by evaluating three interacting modalities in a two-point scale system (Appendix 1). To do so, recorded language samples were obtained from healthy adult Iranians and transcribed and transferred to APP for recording and analysis of pragmatic verbal, paralinguistic and nonverbal abilities.

3.1 Content and construct validities

Validity pertains to the degree to which an instrument appears to be measuring what it was designed for. As such, content validity relates significantly to the criterion of 'credible to clinicians'. In present work, clinicians familiar with language pragmatics found the items listed in Appendix 1 credible ($\geq 90\%$) as measures of pragmatic abilities. Therefore, APP has undergone extensive content validity and its items and topics seem justifiable. Moreover, in terms of relation between the subscales of APP (construct validity), significant correlations were found between the pragmatic subscales verbal, paralinguistic and nonverbal (Table 1).

3.2 Internal reliability

If items within an assessment tool are all measuring the same dimension, which is communication effectiveness in this case, there should be a strong relationship among them (i.e., the tool should be internally consistent). In present study, internal reliability was undertaken on the obtained scores by *Cronbach's alpha* statistic (Cronbach, 1951), which conceptually computes the composite correlation from all correlations of split-half comparisons of all item scores. As presented in Table

1, calculated *Cronbach's* alphas were high and support the good internal reliability of the index.

3.3 Intra (test-retest) reliability

As it is important to demonstrate that all items of the measuring tool are internally consistent, it is equally crucial to show that the profile does not

detect any change over time when performance has stabilized (test-retest reliability). Calculated test-retest reliability indicated that the mean score at first testing was 96.12 ($SD = 2.65$), while 96.42 ($SD = 3.04$) at second testing. As shown in Table 1, the intraclass correlation was .89, with a confidence interval of .80 to .94.

Table 1: Reliability assessments of Adult Pragmatic Profile.

1. Construct validity (calculated on scores of all patient samples, N = 85)	
<i>Spearman's rho:</i>	<i>#items</i>
.63**	Verbal-Nonverbal
.47**	Verbal-Paralinguistic
.44**	Nonverbal-Paralinguistic
2. Internal reliability (N = 85)	
<i>Cronbach's alpha:</i>	<i>#items</i>
.94	29
.87	5
.86	6
3. Intra (test-retest) reliability (N = 85)	
Intraclass correlation = .89	
95% confidence limits = .80-.94	

** Correlation is significant at the 0.01 level (2-tailed).

4. Discussion

Pragmatics is known as appropriate use of language either to comprehend ideas or to interact in social situations effectively (1). Since pragmatic skills certainly can be affected by focal brain damage, clinicians assess pragmatics to determine if these abilities are an area of strength that may be capitalized upon during treatment or whether they are problematic and need to be remediated during treatment (9). However, pragmatic language problems are very difficult to detect, since language pragmatism is dependent on specific context and implicit rules; to assess pragmatics, many clinicians have to rely on nonstandardized, observational methods that can be challenging for determining service eligibility (19-20). In this regard, proper pragmatic assessment tools, which must be specific to different cultures, can help clinicians and speech pathologists to effectively treat and better study social and cognitive functioning, respectively.

Current study used healthy adult individuals to generate items for APP in a Persian language community. Similar to PP (1) and PCA (18), APP includes observation of three interacting communication modalities that were verbal, paralinguistic and nonverbal behaviors. On the basis of psychometric evaluation of 85 participants, the resulting 40-item APP appears to be valid and reliable, as analysis conducted on composite scores

and ratings of all pragmatic features revealed substantial content and construct validities, beside high internal consistency and intra reliability. Therefore, our findings suggest that pragmatics ratings in APP are valid reliable measures.

It has been suggested that two-point scales in pragmatic assessments force a decision on an assessor, whereas more scales, such as five-point scales in PCA, often lead to an overuse of the intermediate or neutral category, minimizing the likelihood of clear differences emerging (21). Moreover, reports indicated that about 30 minutes of recorded language samples are informative enough to outline the pragmatic profile of individuals by protocols that classify abilities as appropriate or inappropriate (1,22,23), similar to the instrument used in this study. Although a number of pragmatic tools may have specific psychometric limitations (21,24,25), the fact that APP produced an appropriate index for adult pragmatics is taken as evidence by the high validity and reliability of our Persian profile.

Research into the psychometric properties of the APP in current study produced reasonable results. However, given the rigor of the methodology presented, authors suggest to replicate this study in a larger sample and also with various interlocutors, therefore, Persian language clinicians and researchers working with pragmatic aspects will be able to base their analysis on reliable data.

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Appendix 1: Adult Pragmatic Profile (APP)

Communicative act	Appropriate	Inappropriate	No opportunity to observe
<i>Verbal aspects</i>			
1. Variety of speech acts			
2. Lexical choice			
3. Introduction			
4. Topic initiation			
5. Topic selection			
6. Maintenance/completing			
7. Termination and interaction			
8. Comprehensibility			
9. Response/reply			
10. Repair/revision			
11. Pause time			
12. Interruption/interjection			
13. Request			
14. Acknowledgment			
15. Contingency/sequencing			
16. Quantity/conciseness			
17. Specificity/accuracy			
18. Cohesion/adhesion			
19. Ellipsis			
20. Tense use			
21. Word finding difficulties			
22. Reference			
23. Fillers/stereotypes/slogans			
24. Polite forms			
25. Self-correction			
26. Sarcasm/humor			
27. Egocentrism			
28. Appreciation of listener perspective			
29. Redundancy			
<i>Paralinguistic aspect</i>			
30. Intelligibility/vocal quality			
31. Vocal intensity			
32. Pitch			
33. Prosody/intonation			
34. Fluency/rate			
<i>Nonverbal aspects</i>			
35. Physical proximity			
36. Physical contacts			
37. Body posture			
38. Gestures and pantomime			
39. Facial expression			
40. Eye gaze			