



## Translation and psychometric analysis of the Persian version of the “TOPL-2” in children aged 9 and 14

Zohre Arani Kashani\*<sup>1</sup>, Jalil Zareei<sup>2</sup>, Hashem Farhangdoost<sup>3</sup>

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### Abstract

**Background:** Throughout the development, it is important to evaluate pragmatic language skills in typically developing children, children with autism spectrum, auditory damage, attention deficit hyperactivity disorder, pragmatic language disorder and other communication disorders. The purpose of this study is to examine the validity and reliability of the Persian version of the “TOPL-2” to achieve a standard and practical test.

**Methods:** First, in this cross-sectional study, the test was translated into Persian language according to the WHO Protocol, and then the questionnaire was presented to 15 practitioners to determine the validity and reliability, based on the Lawshe method. The test was applied to a total number of 100 students at 14 and 9 years of age.

**Results:** The results showed that the Persian version of “Test of Pragmatic Language - second edition” has good face validity. Impact factor was 4.8 and 4.53. There was no item that’s CVI was less than 0.79, and according to the Lawshe method, the CVR was above 0.73.

**Conclusion:** The Persian version of the “TOPL-2” is a standard tool, with appropriate reliability and validity. Thus, it can be used for interventions based on assessment results for children with pragmatic language impairment at hospitals, clinics, and health care centers.

**Keywords:** Pragmatic, Language skill, TOPL-2, Reliability, Validity

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### Introduction

Pragmatic language skills are indicative of the ability to use language in social contexts that are essential for the construct of an appropriate social interaction (1). Pragmatic language skills include choosing the appropriate interactive subject with the context, choosing proper words, and the ability to correctly use the language in accordance with the expectations and context of the contact point (2, 3).

The components that are considered to be relevant to the pragmatic language are non-verbal communication, social linguistic sensitivity, psychological control, semantic control, and accountability to the communication partner (4).

Parents of children with communicative disorders are familiar with the problems of interaction and

*Corresponding author:* Dr Zohre Arani Kashani, [arani.kashani.z@iuums.ac.ir](mailto:arani.kashani.z@iuums.ac.ir)

<sup>1</sup> Assistant Professor of Speech Therapy Department, Faculty of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran

<sup>2</sup> MSc Student of Speech Therapy at Faculty of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran

<sup>3</sup> Assistant Professor of Speech Therapy Department, Tehran University of Medical Sciences, Tehran, Iran

#### ↑What is “already known” in this topic:

*Pragmatic language skills including choosing the appropriate interactive subject with the context, choosing proper words, and the ability to correctly use the language in accordance with the expectations and context of the contact point are indicative of the ability to use language in social contexts.*

#### →What this article adds:

*The standard TOPL-2 can be used in clinical environments as well as in pre-schools to examine children with communication disorders.*

communication, and specialists are aware of the consequences of this disability in language use (5).

To the best of our knowledge, there was no comprehensive valid and reliable pragmatic test in Persian. The Persian version of the "Test of Pragmatic Language - second edition" can compensate for this shortage. This test examines the characteristics of the pragmatics and the interaction of children with communication problems and while determining the overall score of the child, shows how much and in what ways it is difficult (6).

Communication problems can lead to behavioral problems and social abnormalities in the future and the consequences of these problems will be epidemic in the community. Therefore, accurate evaluation and treatment of this aspect of communication in children can reduce the economic costs and prevent potential consequences in the society (7,8). This necessitates the existence of a comprehensive questionnaire as an evaluation tool and guidance for treatment.

It is important to note that the pragmatic language impairment is a central feature in many disorders, including: Hearing impairment, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), and Fragile X syndrome (FXS); the two latter mentioned genetic disorders are part of a developmental neurodegenerative disorder (9-12).

Pragmatic language problems may also exist in other people in the community. A group of people with Traumatic Brain Injury (TBI) and especially damage to the Right Cerebral Hemisphere (RHD), which is a language acquired disturbance, may also have problems with the pragmatic language (13). Shallice and Burgess (1991) investigated the wide range of standard psychological nerve tests associated with frontal lobe damage and found that patients with frontal lobe damage do not have the ability to live in real life because of their difficulty in organizing (14). A deficit in the pragmatic languages interferes with linguistic performance in daily interaction with the social environment (15,16). Every speech acts contains information about social communication between speakers, and the problems of pragmatic language limits the social interactions which effects on the other areas of growth (17).

There are debates about the need for overlapping of the presence of Autism Spectrum Disorder (ASD) and pragmatic language impairment (PLI). Scientists reported a group of children who had prominent problems of pragmatics but had no symptoms of autism (18, 19). Scientists found a sample of children with language damage, of which 59% had additional behavioral problems, while behavioral problems in the normal children population were about 13% (20).

Considering the importance of accurately assessment of pragmatic language, developing a standard test is a demanding need. The "TOPL-2" can be a standard tool for evaluating the problems of pragmatics in various language disorders. The priority of this test over other tests such as the Children's Communication Checklist, is that the "TOPL-2" examines the children's communication not only as a screening test but as a tool for deep evaluation of pragmatic of language (21,22).

The TOPL-2 is the main test for analyzing the deep and extensive social interactions in the context. This test, designed by Diana and Trisha Phelps, is presented in a set consisting of questionnaires and responses, instructions and test images album and runs individually for 45-60 minutes. This test can measure pragmatic language-related skills in relation to tissue in children with various disorders, including learning disorders, autism spectrum disorders, social communication disorders and attention and concentration problems in the subsets of "physical context, audiences, subject, goal, sight-gestural clues, abstracts, and pragmatic test" (23, 24).

In this process, the TOPL-2 options that evaluate a growth domain of commonly pragmatic behaviors include images which indicates common social situations and the examiner describes each of them by showing pictures to the child, or the child is asked to show one of the characters of the test (25). Descriptions of performance and scoring are detailed in the test instructions. The TOPL-2 yields one score which is a standard score based on the sum of the 43 primary items.

Because of the lack of a pragmatic test in Persian, translation and psychoanalysis of properties of the Persian version of the "TOPL-2" is necessary. It can be useful in the field of language and social communication disorders in various language disorders in various social contexts. This test is accessible, comprehensive and user friendly at pragmatic of language and almost there is no other test that has these characters.

This study was performed to translate and determine psychometric properties of the Persian version of the "TOPL-2" in children aged 9 and 14. The samples were selected from normal children in two age groups of 9 and 14 years old.

## Methods

Before the start of the research process, Trisha and Diana Phelps, the test developers, gave a written permission and upon that the translation and validation process began.

### Translation to Persian

Translation process of the questionnaire was according to the WHO protocol (26). The protocol includes the following steps: 1- Forward translation. 2- Expert Panel Back-translation. 3- Pre-testing and cognitive interviewing. 4- Final version.

At first, two fluent Persian-speaker specialist with previous experience in the field of translation but not familiar with this questionnaire, translated the questionnaire from English into Persian. The translators tried to avoid translating word by word and did their best to transfer the main concept in a simple, clear and transparent manner so that in the future the questionnaire could be easily used by professionals. In the final stage, after the expert panel's point of view, the translation of this questionnaire was examined and surveyed and translated into Persian by a bilingual translator to deal with the translation difficulties this time.

### Content validity

To assess the content validity, the views of 15 speech and language pathologists with at least 5 years of scientific and clinical work were used. 8 had PhD degree and 2 were PhD students and 5 had Master's Degree in Speech and Language Pathology.

Content validity was measured based on Content Validity Index (CVI) and Content Validity Rate (CVR). The CVR or Lawshe method is a quantitative method for evaluating content validity and is widely used. The group of experts looked at the importance, clarity, simplicity and relevance of each question. The questions of CVI get score of more than 0.79 are accepted (27, 28).

### Face validity

At this stage, the translated questionnaire was administered to 100 child students aged 9 and 14 years to

evaluate the construct validity. Before completing the questionnaire, the letter of consent was signed by the parents or school principal. Subjects were selected from 5th, 8th and 15th Tehran's district schools. The questionnaire was completed by the therapist through interviewing the child.

Impact Score was used to investigate the structural validity. Participants rated the test points. First, by summing the scores of one item and dividing this number to the number of participants, which was 15, the mean scores for each item were calculated. Then, the mean scores for each item in which the participants gave them a score of 4 and 5 were reviewed. The Impact Score must be a value equal to or greater than 1.5 to be acceptable (29).

### Results

In clauses 1, 3, 4, 6, 7, 9, 12, 17, there was a good

Table 1. Demographic information of samples

Variables	Number	Percentage
Ages	9 and 14 years	100
Sex	Girl and Boy	50
Education	Elementary and secondary school	50

Table 2. Face validity results

Item	Impact Score
1-The doctor's office	4.8
2- Painting a picture	4.6
3- The restaurant	4.53
4- Going to the movies	4.6
5- The scary movie	4.7
6- Picking up Kate	4.7
7- The store	4.8
8- The friends	4.6
9- Talking to the teacher	4.53
10- playing and wrestling	4.6
11- The football game	4.7
12- The cookies	4.7
13- The interruption	4.7
14- The game	4.8
15- The teacher	4.6
16- The night party	4.8
17- The library	4.53
18- How is an umbrella like a tent?	4.7
19- Wet cement	4.6
20- You can't judge a book by its cover.	4.7
21- How is a road map like a recipe?	4.6
22- The sandwiches	4.8
23- Into each life some rain must fall	4.53
24- Talking to the counselor	4.6
25- The sailboat race	4.8
26- You have to crawl before you can walk	4.8
27- The new Rollerblades	4.6
28- The card game	4.7
29- Too many queen bees and not enough worker bees.	4.8
30- Talking about a friend	4.7
31- Talking about summer vacation	4.6
32- The neighbor's tools	4.6
33- Picking up the markers	4.7
34- The secret	4.6
35- Hanging up pictures	4.7
36- The movies	4.7
37- Sharing the markers	4.8
38- How is a blanket like grass?	4.8
39- Convince them to be friend again.	4.53
40- Look to me like you are shooting yourself in the foot.	4.6
41- How is a tire like a shoe?	4.8
42- All the glitters are not gold.	4.6
43- A strong tree bends in the wind.	4.8

Table 3. CVI & CVR results

Item	CVI	CVR
1-The doctor’s office	1	1
2- Painting a picture	1	0.73
3- The restaurant	1	0.6
4- Going to the movies	1	0.6
5- The scary movie	1	0.86
6- Picking up Kate	1	1
7- The store	1	0.73
8- The friends	1	1
9- Talking to the teacher	1	0.6
10- playing and wrestling	0.93	0.73
11- The football game	0.93	0.86
12- The cookies	0.93	0.86
13- The interruption	1	1
14- The game	1	0.73
15- The teacher	1	0.86
16- The night party	1	0.86
17- The library	1	0.73
18- How is an umbrella like a tent?	0.93	0.86
19- Wet cement	1	0.86
20- You cannot judge a book by its cover	0.93	0.73
21- How is a road map like a recipe?	0.93	0.86
22- The sandwiches	0.93	1
23- Into each life some rain must fall	0.93	1
24- Talking to the counselor	0.86	0.86
25- The sailboat race	0.8	1
26- You have to crawl before you can walk	1	0.86
27- The new Rollerblades	1	1
28- The card game	1	0.86
29- Too many queen bees and not enough worker bees.	0.93	0.73
30- Talking about a friend	0.93	1
31- Talking about summer vacation	1	0.86
32- The neighbor’s tools	1	1
33- Picking up the markers	1	0.73
34- The secret	1	0.73
35- Hanging up pictures	0.86	0.86
36- The movies	1	1
37- Sharing the markers	0.93	0.86
38- How is a blanket like grass?	0.86	0.86
39- Convince them to be friend again.	0.93	1
40- Look to me like you are shooting yourself in the foot.	0.86	0.86
41- How is a tire like a shoe?	0.86	0.86
42- All the glitters are not gold.	0.93	0.86
43- A strong tree bends in the wind.	0.93	0.73

agreement between the interpreter and the group of experts. The demographic characteristics of the participating children are shown in Table 1. According to the expert panel; some variations were introduced in some items. Face validity results are given in Table 2. Table 3 represents the CVR and CVI method. Based on Lawshe’s method, a score of 0.49 or above is needed to verify each item’s CVR, while 0.79 or more is required for CVI.

The result of face validity is shown in Table 2 and Table 3 represents the CVR and CVI results. Our sample consisted of 15 professionals, therefore, based on Lawshe’s method, a score of 0.49 or above is needed to verify each item’s CVR, while 0.79 or more is required for CVI.

### Discussion

This test has been translated into target languages in Arabic, French, and Portuguese, and has been performed for validity, reliability and localization (30-32). Most of the conceptual differences in TOPL-2 Persian version were due to the presence of proverbs and terms. The terms and proverbs such as “A strong tree bends in the wind”, “You have to crawl before you can walk”, “You can’t judge a

book by its cover” and “Into each life some rain must fall” were translated into Persian in accordance of experts’ opinions. The English names of characters in the text of the questionnaire were changed into Persian names. According to the experts’ opinions, a number of translated sentences changed into fluent Persian.

In assessing the structure validity, all the items obtained the required score indicating the items were simple and important. The results showed that all of the items have high content validity and there were no items without required score.

In every society, there are children and people who are affected due to various communication disorders and need accurate evaluation and treatment of pragmatic language skills. This test can help to the advancement of children in other fields of study, future work and life.

The research limitations include lack of participation or lack of availability of a number of expert participants and the lack of accountability of a number of them in completing the validity tests. It is recommended for future studies to validate the scale among other persons (6-18 years) and compare the results with the current studies.

## Conclusion

In general, based on statistical results, the Persian version of the “TOPL-2” has an acceptable and appropriate content structure and validity. According to the best of our knowledge, there is no other comparable test in Persian in pragmatic language and communication dealing with interactive features of children and communication disorders. The normalized questionnaire can be used in clinical environments as well as in pre-schools to examine children with communication disorders.

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## Conflict of Interests

The authors declare that they have no competing interests.

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## ترجمه و تعیین شاخص های روانسنجی نسخه فارسی "آزمون کاربردشناسی زبان-ویراست دوم" در کودکان ۹ و ۱۴ ساله

دکتر زهره آرانی کاشانی<sup>۱\*</sup>، جلیل زارعی<sup>۲</sup>، دکتر هاشم فرهنگ دوست<sup>۳</sup>

۱. هیئت علمی دپارتمان گفتاردرمانی دانشگاه علوم پزشکی ایران، استادیار دانشگاه علوم پزشکی ایران
۲. دانشگاه علوم پزشکی ایران، کمیته تحقیقات دانشگاه علوم پزشکی ایران
۳. هیئت علمی دپارتمان گفتاردرمانی دانشگاه علوم بهزیستی و توانبخشی، استادیار و مدرس دانشگاه تهران

### چکیده

**مقدمه:** ارزیابی مهارت‌های کاربردشناسی زبان در کودکان طبیعی، طیف اتیسم، آسیب شنوایی، اختلالات یادگیری، اختلال نقص توجه و بیش‌فعالی، اختلال کاربردشناسی زبان و سایر اختلالات ارتباطی برای ادامه مراحل ارزیابی و درمان در طی رشد اهمیت زیادی دارد. هدف این مطالعه بررسی روایی و پایایی نسخه فارسی "آزمون کاربردشناسی زبان-ویراست دوم" برای دستیابی به یک آزمون استاندارد و کاربردی است.

**روش:** ابتدا در این مطالعه‌ی مقطعی طبق پروتکل سازمان بهداشت جهانی، آزمون به زبان فارسی برگردان شد و سپس پرسشنامه‌ی آزمون برای تعیین روایی پایایی، بر اساس روش لاوشه از دیدگاه ۱۵ نفر متخصص گفتار درمان، نظرسنجی شد و در پایان سپس تعداد ۱۰۰ دانش‌آموز طبیعی ۹ و ۱۴ ساله را مورد بررسی قرار گرفتند.

**یافته‌ها:** نتایج نشان می‌دهد که نسخه فارسی "آزمون کاربردشناسی زبان-ویراست دوم" روایی سازه خوبی داشت. *Impact factor* مابین ۴/۸ و ۴/۵۳ قرار داشت. هیچ گویه‌ای وجود نداشت که *CVI* کمتر از ۰٫۷۹، داشته باشد و بر اساس روش لاوشه، *CVR* بالای ۰٫۷۳ بود.

**نتیجه گیری:** نسخه فارسی "آزمون کاربردشناسی زبان-ویراست دوم" یک ابزار استاندارد و دارای روایی و پایایی مناسب برای بررسی و نیز راهنمای مداخله در زمینه‌ی ویژگی‌های کاربردشناسی زبان کودکان است و این ابزار در فضای بیمارستان‌ها، کلینیک‌ها و مراکز بهداشتی و درمانی قابلیت اجرا را دارد.

**کلیدواژه‌ها:** آزمون کاربردشناسی زبان، روایی، پایایی، کاربردشناسی زبان