

# Research Paper: Evaluating Teachers' Attitudes Toward Stuttering Using the Persian Version of the Teacher's Attitudes Towards Stuttering Inventory



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## ABSTRACT

**Introduction:** The attitude of teachers is effective in improving the quality of life and academic achievement of students with stuttering. The Teachers' Attitudes Toward Stuttering (TATS) inventory is a tool for evaluating teachers' opinions and attitudes toward stuttering. The purpose of this study is to validate the Persian version of the TATS (TATS-Persian) and a preliminary study of the attitude of elementary teachers towards stuttering.

**Materials and Methods:** In this cross-sectional study, which is of validation and instrumentation type, 32 teachers from elementary schools in Tehran were recruited by the available sampling method. To examine the content validity of TATS-Persian, 12 teachers were surveyed, and for the test-retest reliability of it, 12 teachers re-completed the TATS-Persian after one week. The statistical methods included the Cronbach alpha coefficient calculation and the Spearman correlation test.

**Results:** The content validity, test-retest reliability, and internal consistency of TATS-Persian were 0.92, 0.93, 0.96, respectively. The Mean±SD scores of teacher's attitudes were 78.09 ±11.9. Also, the teachers' attitudes score had a significant positive correlation with the number of stuttering students experienced in their teaching history.

**Conclusion:** The Persian version of the TATS inventory is a valid and simple tool for evaluating teachers' attitudes toward stuttering.

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## 1. Introduction:

**S**tuttering is one of the common speech disorders, which is characterized by the main features such as block, prolongation, and repetition of words or syllables and secondary features such as extra body movements or tightness within the face, hands, body, difficulty in rhythm, and mastery of speaking [1]. Research has shown that children with the stuttering disorder are greatly influenced by those around them, and this can affect their communication skills and progress in treatment [2]. One of the important places in life that can negatively affect the social, emotional, and cognitive consequences of stuttering is the school. Stuttering has been reported to affect collective participation, happiness at school, relationships with teachers and classmates, and ultimately a child's abilities and academic achievement [3].

The prevalence of stuttering among school children is 1%, which is why teachers are more likely to encounter stuttering students in their professional lives and because children spend important years of their lives in school and with their teacher, the student-teacher relationship is extremely important [4, 5]. The students with stuttering can transfer negative features such as anxiety, nervousness, shyness, distrust, or introversion to teachers. On the other hand, teachers' attitudes also affect students' feelings and self-efficacy [6, 7]. In many studies outside of Iran, only the general public's attitude toward stuttering has been studied [8], but studies on teachers' attitudes toward stuttering and its effects have been very limited. In Iran, teachers' attitudes toward stuttering have not been studied at all, but in some cases, other people's attitudes toward stuttering have been addressed.

For example, in 2000, Kaldi et al. examined people's attitudes toward people with disabilities and concluded a negative attitude toward disability in society. They found that the highest and lowest negative attitudes were related to people with visible disabilities and people with stuttering, respectively [9]. Yadegari et al. comparing the attitudes of students with and without stuttering, concluded that students with stuttering have more negative communication attitudes than other students [10]. Heydari et al. by examining students' attitudes toward stutterers, found that students have a more negative attitude toward people who stutter than non-stutterers [11]. Meibodi et al. by examining the relationship between the reaction to stuttering and quality of life showed that the reaction to stuttering had an important and predictive relationship with the quality of life [12].

Arabi et al. examined the conditions of the classroom and the conditions created by the teacher and concluded that the teacher and his classmates had a very effective effect on the student's stuttering performance [13]. Ghadampour et al. compared students with and without male high school stuttering and concluded that students with stuttering were weaker than other students in cognitive flexibility and higher in cognitive avoidance and alexithymia than others [14]. Since teachers' attitudes have a direct effect on students' performance, and in Iran, no study has specifically examined teachers' attitudes toward stuttering, this study aimed to evaluate the validity and reliability of the Persian version of the teachers' attitudes towards stuttering inventory and to conduct a preliminary study of elementary school teachers' attitudes toward stuttering and students with stuttering.

## 2. Materials and Methods

The present study is a cross-sectional instrumentation study that was conducted to examine the content validity and reliability of the Persian version of the Teachers' Attitudes Towards Stuttering (TATS) inventory and the preliminary study of elementary teachers' attitudes toward stuttering via the Persian version of this questionnaire (TATS-Persian). Therefore, this study has two phases: first, Persian translation and examining the validity and reliability of the Persian version of the TATS-Persian and then preliminary evaluation of the attitude of elementary Persian-language teachers in Tehran towards stuttering.

### Translation of the TATS inventory

The original English version of the TATS was translated into Persian according to the translation and equivalence protocol [15]. For this purpose, two native Persian translators who were fluent in English texts translated the English version of this inventory into Persian. The Persian version was reviewed by the researchers of this study and some difficult words and terms were modified and replaced. Then another translator who was fluent in Persian and English back-translated the obtained Persian version into English. Finally, a professional English translator considered both Persian and original English versions and approved them. In this way, a Persian version of the Teacher's Attitude Towards Stuttering (TATS-Persian) was prepared with the desired quality.

### Study participants

The study population was elementary school teachers in Tehran. The participants included 32 elementary school teachers who were selected by the available sam-

pling method from three elementary schools in the 1997-1998 academic year. All of these participants lived in Tehran and taught in Tehran's elementary schools.

### Teacher's attitude towards stuttering inventory

TATS inventory was introduced by Thomas A. Crow and Julie H. Walton [16] and consists of 36 attitude items that assess teachers' attitudes toward stuttering. The TATS is completed by the teacher. All items, based on a 5-point Likert scale, assess the teacher's attitude toward stuttering, from strongly agree to strongly disagree. How to calculate the score of teachers' attitude towards stuttering is "4 for strongly agree", "3 for agree", "2 for no difference", "1 for disagree", and "0 for strongly disagree." As a result, the maximum possible score in TATS-Persian, like the original version, is 144 and the minimum possible score is zero. Higher scores indicate a more favorable attitude of the teacher towards stuttering [1].

### Study procedure

In this study, a Speech and Language Pathologist (SLP) referred to primary schools in Tehran to collect data, and after explaining the objectives of this study, provided TATS-Persian to qualified volunteer teachers. Sampling type was available. First, to check the content validity of TATS-Persian based on the Content Validity Ratio (CVR) and Content Validity Index (CVI), the relevant forms were completed by 12 elementary teachers. Teachers were asked to comment on the need for each item based on the 5-point Likert-type scale. According to Lawshe's table, a CVR above 0.56 is acceptable for 12 people. The TATS-Persian was then sampled from 32 elementary teachers. Also, to determine reliability, 12 teachers completed the TATS-Persian again after one week. The inclusion criteria for participating in this study were being a teacher and teaching at an elementary school. All teachers were sampled after completing the written consent and completed the TATS-Persian in the presence of the SLP. They were reminded that they have no time limit for answering, choosing the best option for each question, and if they have a question while answering, they can ask the SLP.

### Statistical analysis

For statistical analysis, SPSS v. 22 was used. Descriptive statistics (Mean±SD) of teachers' responses to the items of the TATS-Persian were calculated. The Spearman correlation coefficient was used to identify any statistically significant relationship between teachers' attitudes toward stuttering and their demographic characteristics (such as academic degree, years of teaching experience, and teaching experience to a student with stuttering). The Cronbach alpha coefficient was used to determine the internal consistency, and the Intraclass Correlation Coefficient (ICC) and the Pearson correlation coefficient were used to calculate the test-retest reliability of the TATS-Persian.

### 3. Results

In the present study, 32 female elementary teachers with an average of 9.94 (in the range of 1 to 27) years of teaching experience participated, of whom 72% had an associate's degree and 28% a bachelor's degree. Also, 25 teachers (78%) had teaching experience to at least one student with stuttering and according to the report of these teachers, the number of exposure and teaching to a student with stuttering for these teachers ranged from 0 to 15 students with stuttering. Only one of these teachers himself had a child who stuttered.

### Validation

Table 1 presents the validation results of the TATS-Persian. The Content Validity Ratio (CVR) of 32 items of this questionnaire, which was calculated from the answers of 12 elementary teachers, ranged from 0.78 to 1. The reliability of the test-retest between TATS-Persian scores was performed on 12 teachers (38%) and its analysis was done using the Pearson correlation coefficient and ICC. Table 1 presents the results of which.

### Preliminary examination of teachers' attitudes

The distribution of Tehran elementary school teachers' responses to the TATS-Persian is shown in Table 2. The re-

Table 1. TATS-Persian validation in elementary school teachers in Tehran (n=12)

Mean±SD Test Scores	Mean±SD Retest Scores	The Pearson Correlation Coefficient	The Cronbach Alpha	ICC3,1 (95% CI)	CVI
78.09±11.9	81.33±11.5	0.93	0.96	0.97 (0.88-0.99)	0.92

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ICC: Intraclass Correlation Coefficient; TATS: Teachers' Attitudes Toward Stuttering; CI: Confidence Interval; CVI: Content Validity Index

**Table 2.** Distribution of elementary teachers' answers in TATS-Persian items (n=32)

Item	Sample Size	Strongly Agree	Agree	No Difference	Disagree	Strongly Disagree
1	32	0	0	2	*17	13
2	32	4	7	1	*11	9
3	32	3	9	4	*11	5
4	32	2	*19	4	3	4
5	32	1	3	0	*21	7
6	32	3	*14	3	11	1
7	32	1	6	1	*16	8
8	32	2	8	6	*14	1
9	32	*21	9	1	1	0
10	32	*24	8	0	0	0
11	32	*23	8	1	0	0
12	32	4	10	0	*15	3
13	32	0	6	1	*23	2
14	32	10	*19	2	0	1
15	32	3	8	1	*14	6
16	32	2	10	4	*14	2
17	32	2	5	7	*13	5
18	32	5	9	1	8	*9
19	32	5	*16	8	3	0
20	32	1	6	5	*16	4
21	32	15	*17	0	0	0
22	31	0	3	1	*21	6
23	31	3	10	3	*11	4
24	32	1	5	3	*18	5
25	32	*19	12	1	0	0
26	32	8	*13	9	2	0
27	32	1	4	1	*26	0
28	32	2	*20	9	1	0
29	32	8	*21	2	1	0
30	32	7	*24	0	1	0
31	30	0	7	7	8	*8
32	31	3	6	3	*16	3
33	32	3	*14	4	7	4
34	32	2	10	3	*13	4
35	32	10	*20	2	0	0
36	31	3	*15	4	9	0

\*Mode of teachers' response to each item.

sults of the preliminary study of the TATS-Persian showed that the Mean±SD attitude score of elementary teachers was 78.09±11.9 (Range: 60-111). Also, the analysis of demographic information with the total score of teachers' attitudes showed that teachers' attitudes score had a significant positive correlation with the number of students with stuttering in their teaching experience ( $r=0.36$ ,  $P<0.05$ ). Teachers who had at least one student with stuttering in their class had a higher attitude score than teachers who did not have a history of teaching a student with stuttering, but this difference was not significant ( $P>0.05$ ). Also, teachers with a bachelor's degree had a more favorable attitude towards stuttering and students with stuttering, but it was not statistically significant ( $P>0.05$ ).

#### 4. Discussion

This study evaluated the psychometric properties of the Persian version of the TATS inventory among elementary teachers in Tehran City, Iran. Based on the results of this pilot study, due to the wide range of attitude scores (Range: 60-111), there were many differences in elementary school teachers' attitudes toward stuttering, which is consistent with the findings of the Woods and Williams study [17]. Since students spend a considerable amount of time in school and that teachers' attitudes toward stuttering affect the quality of life, the student's attitude toward stuttering, and thus stuttering treatment [6, 18], more activities should be done to increase public awareness, especially of elementary school teachers, about stuttering and treatment (speech therapy) of these children.

The results of this study showed a positive and significant correlation between the favorable attitude of elementary teachers and therefore the number of encounters with students with stuttering during their teaching period, so teachers with more awareness of stuttering showed a more favorable attitude towards stuttering. This result supports the findings of other studies that have reported a significant relationship between knowledge and attitudes toward stuttering [16, 19]. These results also confirmed the results of a similar study [16] by showing that the academic degree of teachers does not affect their attitudes toward stuttering.

Of course, in evaluating the results of any research, we must be aware of the characteristics of the tools used. In general, determining the desired attitude through a questionnaire has inherent weaknesses and is at the best a stressful issue [19]. In evaluating the results of each questionnaire, we must consider the validity of the items, the validity of the scoring method, and the conventional beliefs of the region or city where the study was conducted

[16]. In Iran, the TATS inventory has not been used in any article and its psychometric properties have not been studied yet, but in the present study, the validity of TATS-Persian was examined.

The Content Validity Ratio (CVR) of all items as well as the Content Validity Index (CVI) of the TATS-Persian based on Lawshe's table, was rated as favorable. Also, the reliability results of TATS-Persian on 12 elementary teachers showed a good correlation [20] between the answers of the first time teachers and their answers after one week ( $r=0.93$ ). Therefore, the results of this study confirm that TATS-Persian has good validity and reliability to evaluate the attitude towards stuttering in teachers. In the study that introduced the original version of the TATS, none of the psychometric properties of this questionnaire had been reported [16].

In this study, only the attitude of primary school teachers in Tehran towards stuttering was examined, so it cannot be generalized to teachers of other educational levels and other cities. Despite these limitations, it seems that the present study is the first important step in assessing teachers' attitudes toward stuttering. The TATS-Persian can be a useful tool if used properly by clinicians or health care providers in schools. In fact, by identifying teachers with unfavorable attitudes toward stuttering and providing an educational program for these teachers, it is possible to ensure that communication interactions within the classroom can be aligned with and complement the stuttering treatment process in these students.

One of the suggestions of this study for future studies is to use other scales to examine the attitudes towards stuttering simultaneously to determine the structural validity of the TATS-Persian. It is also better to repeat this study with a larger sample of elementary school teachers and even higher level teachers in other cities as well. Also, by providing a course or workshop to teachers about stuttering, changes in teachers' attitudes toward stuttering can be assessed.

#### 5. Conclusion

The Persian version of the TATS inventory is a valid and simple tool to evaluate and measure teachers' attitudes toward stuttering and can be used in the Persian-speaking teacher community. There is a significant difference in teachers' attitudes toward stuttering. It seems that with proper education and information about stuttering, teachers' attitudes can be improved and the treatment of students with stuttering can be helped.



## Ethical Considerations

### Compliance with ethical guidelines

All steps have been performed in accordance with the ethical standards of the Research Committee of Iran University of Medical Sciences. All ethical principles are considered in the implementation and writing of this article. All participants were informed about the purpose of this research and the stages of its implementation. All participants were also assured of the confidentiality of their information. Besides, they were allowed to leave the study whenever they wished, and the results of the study would be made available to them if they wanted.

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### Authors contributions

All authors contributed in preparing this article.

### Conflict of interest

The authors declared no conflict of interest.

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