



## Research Paper

# Direct Observation of Procedural Skills for the Clinical Evaluation of Speech Therapy Students in the Assessment of Speech Organs



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### Article info:

Received: 05 Feb 2023

Accepted: 07 Nov 2023

Available Online: 06 Feb 2024

### Funding

This article was extracted from the master's thesis of Seyede Zahra Hosseini Kalej, Department of Speech and Language Pathology, School of Rehabilitation Sciences, Iran University of Medical Sciences, Tehran, Iran.

### Conflict of interest

The authors declared no conflict of interest.

## ABSTRACT

**Background and Objectives:** Direct observation of procedural skills (DOPS) is one of the new methods of clinical evaluation that gives feedback about students' clinical skills. The design and psychometrics of the DOPS test tool for the clinical assessments of speech therapy students in the evaluation of speech organs have been discussed.

**Methods:** In the current non-interventional descriptive study, 20 speech therapy students were selected from the Faculty of Rehabilitation Sciences. The DOPS test related to the speech organs evaluation procedure and its evaluation checklist was prepared. After obtaining the consent and training, students and evaluators entered the study. The evaluators observed each student's work with a real patient, and their judgments were recorded based on a structured checklist. Each of them was given feedback in the appropriate environment. Face validity, content, and inter-rater reliability were measured and reported.

**Results:** Face validity, including importance, clarity, and simplicity, was investigated for each item. The items' impact scores for favorable face validity of >1.5 were included in the questionnaire. The content validity index for each item was over 0.8, and the content validity ratio was >0.62. All students have chosen the option of slightly satisfied to completely satisfied, and 70% have chosen the option of high satisfaction and complete satisfaction. None of the evaluators chose the options of no satisfaction to slightly satisfied. For inter-rater reliability, the intraclass correlation coefficient (ICC) was calculated using the opinions of two evaluators, and the ICC value was 0.884 with a 95% confidence interval (0.708-0.954) (P<0.001).

**Conclusion:** The results indicated good inter-rater agreement and reasonable reliability. According to this study, the use of DOPS to evaluate clinical skills in speech therapy students in evaluating speech organs has high validity and reliability.

**Keywords:** Observation, Procedural, Speech, Students



**Cite this article as** Hosseini Kalej SZ, Amiri Shavaki Y, Abolghasemi J, Jenabi MS. Direct Observation of Procedural Skills for the Clinical Evaluation of Speech Therapy Students in the Assessment of Speech Organs. *Function and Disability Journal*. 2023; 6:E241.1. <http://dx.doi.org/10.32598/fdj.6.241.1>

<http://dx.doi.org/10.32598/fdj.6.241.1>

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

*Evaluating students' clinical skills is an inseparable part of the educational curriculum. Their skills in assessing speech organs were evaluated using objective structured clinical examination (OSCE), portfolio, mini-clinical evaluation exercise (Mini-CEX), or other traditional methods.*

→ *What this article adds:*

*In this study, the direct observation of procedural skills (DOPS) test tool for the clinical assessment of speech therapy students in evaluating speech organs has been prepared with high validity and inter-rater reliability. The DOPS test tool can be used clinically to evaluate students' clinical skills in assessing speech organs.*

## 1. Introduction

**E**valuation is one of the crucial aspects of educational activities that transform education from a static state to a dynamic process. The results of the evaluation help to identify the positive aspects and weaknesses of the training path, which can be useful in changing and fixing the defects and thus making educational changes and corrections. Therefore, one of the critical goals of evaluation is to increase the quality and productivity of education [1, 2]. Evaluating students' clinical performance provides information to judge students' skills related to clinical work. Therefore, evaluating students' clinical performance is considered one of the complex tasks of professors and clinical instructors for health professions [3, 4]. Since professional speech therapy is practical, students need knowledge, information, and various psychomotor skills to have a proper clinical performance. Therefore, a specific evaluation and test program is implemented to judge the student's competence in the practical skill. Improving the educational process at all levels is related to continuous evaluations and the necessary interventions based on their results. It is due to such effects that the use of tested and more accurate methods is emphasized by experts [5]. Many common clinical assessment methods cannot fully assess students in clinical settings and only evaluate the small amount of information obtained after a short-term pre-examination study. Therefore, the student cannot identify the defects and try to correct them [6-8]. Currently, methods, such as objective structured clinical examination (OSCE), portfolio, mini-clinical evaluation exercise (Mini-CEX), and direct observation of procedural skills (DOPS), which are performance-based, are recommended to evaluate students' procedural skills [9]. Considering that speech therapy is a practical profession, evaluation by direct observation of clinical skills in the real clinical environment ensures the ability of students

to provide appropriate clinical services and face clinical events in special patient conditions [10].

Articulation of speech sounds is necessary to express words and sentences. Without speech organs, articulation of speech sounds is impossible. Therefore, the assessment of speech organs is a critical part of a complete evaluation. Oral examination and interpretation of results require basic science and knowledge of the anatomy and physiology of the oral structure. The goal of this assessment is to identify or rule out structural or functional factors associated with different types of communication or swallowing disorders. In the evaluation of speech organs of the building, the range of motion and speed and strength of each organ, such as lips, teeth, tongue, jaw, and soft palate, are of interest to the examiner. The examiner must have comprehensive knowledge and clinical skills related to the structure and function of speech organs.

This study was conducted to prepare a DOPS tool to evaluate students' skills in the assessment of speech organs.

## 2. Materials and Methods

The research population included the speech therapy students of the Faculty of Rehabilitation Sciences, Iran University of Medical Sciences, who were undergoing clinical internship units. The data were collected via the convenience sampling method. The participants included 20 students. This study was cross-sectional with a non-interventional descriptive-analytical method. To collect data, the checklist of clinical skills evaluation form was used through direct observation. To prepare the DOPS evaluation form, the Robbins-Kelly oral motor control instructions were used. Then, the desired DOPS form items were determined and scrutinized according to available literature and also using the opinions of the fac-

ulty members of speech therapy specialists. The number of selected items was 18 from 21 predetermined items. To check the content validity, the opinions of ten experts (7 speech therapy faculty members and 3 doctoral students of speech therapy of the Faculty of Rehabilitation Sciences) were used.

Each item's clarity, simplicity, and importance were determined for face validity. The impact score index was used, which was calculated for each item separately. To check the ratio of content validity to necessity and usefulness and to check the content validity index, the simplicity, clarity, and relevance of the checklist questions were investigated. To determine the reliability, the agreement between two expert evaluators and speech therapy faculty members was used. Evaluators observed any student's performance and judged their clinical skill by determining a score between zero and ten according to the prepared form. Score 0 was equal to unacceptable, scores 1-3 mean lower than expected, scores 4-6 mean borderline, scores 6-9 mean within expected limits, and score 10 was above expected. The data obtained from the questionnaires was extracted and statistically analyzed by SPSS software, version 25. The reliability coefficient and the internal correlation coefficient were used.

A briefing session was held to train the examiners, and the examiner's guide in the DOPS evaluation was in written form. Scoring instructions, a checklist guide, and the necessary criteria were provided to examiners. This instruction was provided for more reliability and homogenization of the examiners' judgment. The participants were trained in the form of a written guide, including the research objectives, the DOPS evaluation method, the type of procedures, the names of the examiners, and the skills evaluation checklist in one session. Whenever the students felt that they had acquired the necessary competence in the relevant skill, the examiner was asked to evaluate their performance. Each test took approximately 15 minutes, and after completion, about 5 minutes were spent providing feedback to the students to discuss their strengths and weaknesses. Finally, their level of satisfaction was examined by the final part of the checklist that measures the satisfaction of students and evaluators.

### 3. Results

#### Face validity

The face validity of the DOPS test was confirmed in evaluating the procedural skills of a real patient according to the opinions of experts in the field of speech therapy. According to Table 1, the degree of simplicity,

clarity, and importance of the test questions was examined to determine the face validity of the items. Then, their impact score was calculated. As seen in Table 2, the impact scores of all the items were >1.5; therefore, they are favorable regarding face validity and were included in the questionnaire.

#### Content validity

In this study, according to Table 3, among the 21 test questions, for three questions, the value of the content validity ratio was <0.62, the content validity index was <0.80, and these questions were removed. In the rest of the items (85%), the content validity of the DOPS test was calculated. Each item's content validity index (CVI) was over 0.8, and the content validity ratio (CVR) for each item was over 0.62. According to the Lawshe table, calculated CVI and CVR were favorable regarding content validity.

#### Reliability

To determine the reliability (agreement between evaluators) that two evaluators were used simultaneously, the reliability coefficient and internal correlation coefficient were used. The intraclass correlation coefficient (ICC) was calculated using the opinions of two evaluators for 20 students, and the ICC value was 884/0 with a 95% confidence interval (0.708-0.954), ( $P < 0.001$ ), which indicates a good agreement between the raters and a reason for good reliability (Table 4).

Finally, the DOPS tool examined the percentage of satisfaction of students and evaluators in evaluating the clinical skill of assessing the speech organs. According to Table 5, all students chose the option of slightly satisfied to completely satisfied, and the largest percentage (70%) for the options was "high satisfaction" to "complete satisfaction". According to Table 6, none of the evaluators chose the options of no satisfaction to "slightly satisfied", and the majority of satisfaction was between the options of "high satisfaction" and "full satisfaction". As a result, the students were satisfied with the evaluation of the clinical skill of evaluating the speech organs in the field of speech therapy with the DOPS tool, and also the evaluators were satisfied with the evaluation of the clinical skill of the students of the speech therapy field with the DOPS tool.

**Table 1.** The face validity characteristics (importance, simplicity, and clarity) of the items of the DOPS tool

Item	Importance			Simplicity			Clarity						
	Not important at All	Slightly Important	Moderately important	Important	Absolutely Important	Quite Simple	Simple	Somewhat simple	Complex	No Clear	Somewhat Clear	Clear	Quite Clear
The student's behavior shows that he is familiar with the evaluation form of speech organs and their different parts.	1	1	2	3	3	5	5				2	4	4
The student's behavior shows that he is familiar to use this form.	1	2		4	3	6	3	1			2	4	4
The student is ready to assess.	1	2	1	3	3	5	3	1	1	1	3	2	4
The student has prepared the necessary evaluation tools, such as abslang.			1	4	5	8	2			1	1	3	5
The student has used appropriate gloves for the oral assessment of the client.		1	3	6		6	4					4	6
The light of the evaluation environment is sufficient and appropriate.	1	1	3	2	4	5	4		1		1	4	4
Sterile and hygienic conditions are prepared for oral evaluation.			1	2	7	5	3	1	1		1	4	5
The student is prepared before the evaluation of the client and has the appropriate conditions.		2	2	3	3	5	4	1		2		5	3
Before starting the oral assessment, the student has given a brief explanation to the client about doing this work.		1		2	7	5	4	1			1	3	6
The student can communicate properly with the client.			3	2	5							3	7
The student has paid attention to the proper sitting position of the client and himself for the oral evaluation.		1	1	4	6		3	1				5	5
If the client is tired and unable to tolerate the situation, the student has used the rest time during the evaluation.			1	4	5	5	3	2				5	5
The student is skillful in oral assessment.				4	6	2	5	3				5	5
The student asked the client to perform the required movements by the speech organs based on the executive instructions.				5	5	7	3					5	5
The student is familiar with the anatomy and physiology of oral and facial structures.			1	3	6	5	5			1	1	3	5
The student can perform an examination of speech organs in a short period.			1	5	4	5	5				1	4	5
The student can recognize oral-facial structural weaknesses and defects.	1	1		5	5	6	4					5	5
The student can recognize the functional defects of speech organs.				4	6	6	4				1	4	5
The student is familiar with the diseases, disorders, and abnormalities of each of the speech organs.				5	5	5	4	1		1	1	3	4
The student can accurately observe the structure and movement pattern of speech organs.				3	7	7	2	1			1	4	5
The student has the ability and sufficient information to interpret the results of the assessment of speech organs.				4	6	7	2	1			2	3	5

**Table 2.** Impact score index related to the DOPS tool

No.	Items	Impact Score
1	The student's behavior shows that he is familiar with the evaluation form of speech organs and their different parts.	1.5
2	The student's behavior shows that he is familiar to use this form.	1.5
3	The student is ready to assess.	1.5
4	The student has prepared the necessary evaluation tools such as abslang.	2.5
5	The student has used appropriate gloves for the oral assessment of the client.	3
6	The light of the evaluation environment is sufficient and appropriate.	2
7	Sterile and hygienic conditions are prepared for oral evaluation.	3.5
8	The student is prepared before the evaluation of the client and has the appropriate conditions.	1.5
9	Before starting the oral assessment, the student has given a brief explanation to the client about doing this work.	3.5
10	The student can communicate properly with the client.	2.5
11	The student has paid attention to the proper sitting position of the client and himself for the oral evaluation.	3
12	If the client is tired and unable to tolerate the situation, the student has used the rest time during the evaluation.	2.5
13	The student is skillful in oral assessment.	3
14	The student asked the client to perform the required movements by the speech organs based on the executive instructions.	2.5
15	The student is familiar with the anatomy and physiology of oral and facial structures.	3
16	The student can perform an examination of speech organs in a short period of time.	2
17	The student can recognize oral-facial structural weaknesses and defects.	2.5
18	The student can recognize the functional defects of speech organs.	3
19	The student is familiar with the diseases, disorders, and abnormalities of each of the speech organs.	2.5
20	The student can accurately observe the structure and movement pattern of speech organs.	3.5
21	The student has the ability and sufficient information to interpret the findings of the assessment of speech organs.	3

#### 4. Discussion

The present study's results confirm the validity and reliability of the DOPS test performed on speech therapy students. In this test, experts in speech therapy have been used for face validity. They have confirmed the evaluation of clinical skills through DOPS on a real patient, which is consistent with most studies conducted in this field. Rozbahani et al. investigated the validity and reliability of the DOPS test in evaluating the clinical skills of audiology students at the Iran University of Medical Sciences. The face validity of the DOPS test in evaluating students' procedural skills while working with a real patient was confirmed by extracting the opinions of audiologists [11]. In a study conducted by Wilkinson et al. at the Royal College of Medicine in England regarding

the validity of the DOPS test in educational programs, the experts concluded that the DOPS has high face validity [12]. In this research, on the topic of content validity, among 21 questions, for three questions, the value of CVR was  $<0.62$ , and CVI was  $<0.8$ , therefore these questions were removed. The CVI value of questions (85%) is 0.8 or more, and they are favorable regarding content validity. This result is based on the study conducted by Sarviyeh et al. at the Faculty of Nursing and Midwifery of Kashan University of Medical Sciences. In its results, the content validity of the DOPS test using the content validity index is  $>0.75$ , and the content validity ratio is  $>0.50$ , which is reported as consistent [2]. It is also consistent with the results of a study conducted by Jalili et al. in Iran to evaluate nursing students' clinical skills using the DOPS method. This study showed that the DOPS

**Table 3.** CVI and CVR of DOPS tool

No.	Items	CVI	Accepted or Rejected	CVR	Accepted or Rejected
1	The student's behavior shows that he is familiar with the evaluation form of speech organs and their different parts.	0.8	Accepted	0.2	Rejected
2	The student's behavior shows that he is familiar to use this form.	0.7	Rejected	0.4	Rejected
3	The student is ready to assess.	0.7	Rejected	0.2	Rejected
4	The student has prepared the necessary evaluation tools, such as abslang.	1	Accepted	1	Accepted
5	The student has used appropriate gloves for the oral assessment of the client.	1	Accepted	0.8	Accepted
6	The light of the evaluation environment is sufficient and appropriate.	0.7	Rejected	0.2	Rejected
7	Sterile and hygienic conditions are prepared for oral evaluation.	1	Accepted	0.6	Rejected
8	The student is prepared before the evaluation of the client and has the appropriate conditions.	0.9	Accepted	0.8	Accepted
9	Before starting the oral assessment, the student has given a brief explanation to the client about doing this work.	0.9	Accepted	0.8	Accepted
10	The student can communicate properly with the client.	0.9	Accepted	0.6	Rejected
11	The student has paid attention to the proper sitting position of the client and himself for the oral evaluation.	1	Accepted	0.8	Accepted
12	If the client is tired and unable to tolerate the situation, the student has used the rest time during the evaluation.	0.9	Accepted	0.6	Rejected
13	The student is skillful in oral assessment.	1	Accepted	1	Accepted
14	The student asked the client to perform the required movements by the speech organs based on the executive instructions.	1	Accepted	0.8	Accepted
15	The student is familiar with the anatomy and physiology of oral and facial structures.	0.9	Accepted	0.8	Accepted
16	The student can perform an examination of speech organs in a short period of time.	0.9	Accepted	0.6	Accepted
17	The student can recognize oral-facial structural weaknesses and defects.	1	Accepted	1	Accepted
18	The student can recognize the functional defects of speech organs.	1	Accepted	1	Accepted
19	The student is familiar with the diseases, disorders, and abnormalities of each of the speech organs.	0.8	Accepted	0.4	Rejected
20	The student can accurately observe the structure and movement pattern of speech organs.	0.9	Accepted	1	Accepted
21	The student has the ability and sufficient information to interpret the findings of the assessment of speech organs.	0.9	Accepted	1	Accepted

Abbreviations: CVI: content validity index; CVR: content validity ratio; DOPS: Direct observation of procedural skills.

test is a suitable method to evaluate psychological skills. Due to its high validity, reliability, and acceptance, it is suitable to evaluate all aspects of students' performance [13]. Also, the results of this research regarding content validity are consistent with a study conducted by John-Roger Barton et al. in England to screen colon cancer with the DOPS test. Its validity and reliability was 0.81 [14].

In this study, all the students have chosen options from slightly satisfied to completely satisfied, and the largest number (70%) have chosen options from high satisfac-

tion and complete satisfaction. Also, none of the evaluators chose the options of no satisfaction to slightly satisfied, and their choice was between the options of high satisfaction and complete satisfaction. These results are consistent with the study conducted by Sahebalzamani et al. in the field of nursing at Zahedan University to study and research the acceptability of DOPS, which showed that 75% of faculty members and 70% of students were satisfied with the test. It seems that DOPS effectively evaluates clinical skills and is also accepted among faculty members and students [15]. Also, the results of this research regarding satisfaction with Farajpour et al.'s study

**Table 4.** The results of the inter-rater reliability of the DOPS tool

P	95% Confidence Interval (ICC)	Intraclass Correlation Coefficient (ICC)
<0.001	0.708–0.954	0.884

**Table 5.** The percentage of students' satisfaction with the evaluation of speech organs by the DOPS tool

Satisfaction	Complete Unsatisfied	Highly Unsatisfied	Moderately Unsatisfied	Slightly Unsatisfied	Borderline	Slightly Satisfied	Moderately Satisfied	Highly Satisfied	Very Highly Satisfied	Complete Satisfaction
	1	2	3	4	5	6	7	8	9	10
Evaluation satisfaction percentage						5	25	30	20	20

**Table 6.** The percentage of evaluators' satisfaction with the evaluation of speech organs by the DOPS tool

Satisfaction	Complete Unsatisfied	Highly Unsatisfied	Moderately Unsatisfied	Slightly Unsatisfied	Borderline	Slightly Satisfied	Moderately Satisfied	Highly Satisfied	Very highly Satisfied	Complete Satisfaction
	1	2	3	4	5	6	7	8	9	10
Evaluation satisfaction percentage							20	40	35	5

titled “satisfaction of medical interns and professors with the implementation of the DOPS test at the Islamic Azad University of Mashhad in 2013” showed that the feasibility, educational effects, and satisfaction were significantly high from the student’s point of view. Satisfaction from the point of view of examiners also had a significantly high score, which is consistent [16]. In this study, two speech therapists were used for inter-rater reliability. The ICC was calculated using the opinions of two evaluators. The ICC value was 0.884 with a 95% confidence interval (0.708-0.954) ( $P < 0.001$ ). These results indicate that the test is reliable and an appropriate agreement exists between the raters. This result is consistent with the study conducted by Sahib Sahebalzamani et al. entitled “validity and reliability of the test of direct observation of procedural skills in the evaluation of clinical skills of nursing students of Zahedan College of Nursing and Midwifery”. In this study, the lowest and highest value of the correlation coefficient in reliability between evaluators was 0.42 and 0.84, respectively, which were significant in all cases [15]. Also, according to the systematic studies conducted by Habibi et al., it was concluded that the reliability of the DOPS test has a very good validity [4]. According to the results of this research, it can be concluded that the DOPS test for the objective measure-

ment of clinical skills in speech therapy has appropriate validity and reliability and is applicable from the point of view of students and professors. This method uses direct observation and provides feedback, improving the quality of treatment services provided in speech therapy. The existence of such an evaluation tool leads professors to pay more attention to the implementation of the desired clinical procedure by students. The student also receives appropriate feedback to correct the shortcomings of his clinical work, which leads to a more accurate assessment of the patient. Based on the assessment, better services can be provided to the patient. Correct and accurate implementation of this method leads to a proper connection between science and student performance. The lack of an objective tool reduces the possibility of valid and reliable evaluation in clinical examinations, especially during the study period of speech therapy students. Considering that this test method and content are directly related to clinical practice, it positively affects student learning. Therefore, it is recommended that professors use this method to evaluate students’ performance at the bedside because instead of general comments, feedback is based on real and objective behaviors.

## 5. Conclusion

The research results showed that the DOPS test has appropriate validity and reliability for the objective measurement of clinical skills in the evaluation of speech organs in the field of speech therapy. Students and professors declared that this tool is suitable, and due to direct observation and feedback, the presentation can improve the quality of education and medical services presented by speech therapy students. The existence of such an evaluation tool leads professors to pay more attention to the implementation of the desired clinical procedure by students, and the student also receives appropriate feedback to correct the shortcomings of their clinical work, this leads to a more accurate assessment and better services.

## Ethical Considerations

### Compliance with ethical guidelines

To comply with the ethical principles, the examiner introduced himself to each participant and presented the official letter. Then, the researcher gave the necessary explanations about the test and how to complete it (Code: IR.IUMS.REC.1400.260).

### Funding

This article was extracted from the master's thesis of Seyede Zahra Hosseini Kalej approved by Department of Speech and Language Pathology, School of Rehabilitation Sciences, [Iran University of Medical Sciences](#), Tehran, Iran.

### Authors' contributions

Conceptualization and study design: Seyede Zahra Hosseini Kalej, Younes Amiri Shavaki, and Mohammad Sadegh Jenabi; Data collection, and drafting the manuscript: Seyede Zahra Hosseini Kalej; Data analysis: Jamileh Abolghasemi; Critical revision of the article and final approval: Younes Amiri Shavaki, and Mohammad Sadegh Jenabi; Data interpretation: Seyede Zahra Hosseini Kalej, Younes Amiri Shavaki, Jamileh Abolghasemi, and Mohammad Sadegh Jenabi; Revision of the article: Younes Amiri Shavaki.

### Conflict of interest

The authors declared no conflict of interest.

## Acknowledgments

The authors thank the Department of Speech and Language Pathology and the participants and evaluators.

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## مقاله پژوهشی



# مشاهده مستقیم مهارت‌های عملی برای ارزیابی بالینی دانشجویان گفتاردرمانی در ارزیابی اندام‌های گفتار

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## چکیده

**مقدمه:** مشاهده مستقیم مهارت‌های عملی (DOPS) یکی از روش‌های نوین ارزشیابی بالینی است که در مورد مهارت‌های بالینی دانشجویان بازخورد می‌دهد. هدف این مطالعه، طراحی و روان‌سنجی ابزار آزمون مشاهده مستقیم مهارت‌های عملی برای ارزیابی بالینی دانشجویان گفتاردرمانی در ارزیابی اندام‌های گفتار بود.

**مواد و روش‌ها:** در این مطالعه توصیفی غیرمداخله‌ای، ۲۰ دانشجوی گفتاردرمانی موجود در دانشکده علوم توانبخشی انتخاب شدند. آزمون DOPS مربوط به روش ارزیابی اعضای گفتار و چک‌لیست ارزیابی آن تهیه شد. پس از کسب رضایت و آموزش، دانشجویان و ارزیابان وارد مطالعه شدند. ارزیابان، کار هر دانشجو را با یک بیمار واقعی مشاهده کردند و قضاوت آن‌ها براساس یک چک‌لیست ساختاریافته ثبت شد. به هر یک از آن‌ها در محیط مناسب بازخورد داده شد. روایی صوری، محتوایی و پایایی بین ارزیابان اندازه‌گیری و گزارش شد.

**یافته‌ها:** روایی صوری شامل اهمیت، وضوح و سادگی برای هر مورد بررسی شد. مواردی در پرسش‌نامه گنجانده شد که نمرات تأثیر گویه‌ها برای روایی صوری مطلوب < ۱/۵ باشد. شاخص اعتبار محتوا برای هر آیتم بیش از ۰/۸ و نسبت اعتبار محتوا < ۰/۶۲ بود. همه دانشجویان گزینه کمی راضی تارضایت کامل و ۷۰ درصد نیز گزینه رضایت بالا را برای رضایت کامل انتخاب کردند. هیچ یک از ارزیابان گزینه‌های عدم رضایت تا کمی راضی را انتخاب نکردند. برای پایایی بین ارزیابان، ضریب همبستگی درون‌رده‌ای (ICC) با استفاده از نظرات دو ارزیاب محاسبه شد و مقدار  $ICC = 0/884$  با فاصله اطمینان ۹۵ درصد (۰/۷۰۸-۰/۹۵۴) ( $P < 0/001$ ) بود.

**نتیجه‌گیری:** یافته‌ها حاکی از توافق خوب بین ارزیابان و پایایی معقول بود. براساس این مطالعه، استفاده از DOPS برای ارزیابی مهارت‌های بالینی دانشجویان گفتاردرمانی در ارزیابی اندام‌های گفتار از روایی و پایایی بالایی برخوردار است.

تاریخ دریافت: ۱۶ بهمن ۱۴۰۱  
تاریخ پذیرش: ۱۶ آذر ۱۴۰۲  
تاریخ انتشار: ۱۷ بهمن ۱۴۰۲

## کلیدواژه‌ها:

مشاهده مستقیم  
مهارت‌های رویه‌ای،  
ارزیابی بالینی، اندام‌های  
گفتاری

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Cite this article as Hosseini Kalej SZ, Amiri Shavaki Y, Abolghasemi J, Jenabi MS. Direct Observation of Procedural Skills for the Clinical Evaluation of Speech Therapy Students in the Assessment of Speech Organs. Function and Disability Journal. 2022; 6:???. <http://dx.doi.org/10.32598/fdj.6.241.1>

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