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ORIGINAL ARTICLE

Dysphagia Management in Iran: Knowledge, Attitude and Practice of Healthcare Providers

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Abstract

Despite the remarkable burden of dysphagia, appropriate multidisciplinary management is lacking in Iran and patients are often deprived of effective treatments. Obtaining a full understanding of knowledge, attitude and practice (KAP) of healthcare providers is necessary to determine the gaps in improvement of the quality of care for dysphagic patients. A questionnaire was designed covering demographic information and the parameters of KAP. Face and content validity were determined. Test–retest reliability confirmed that the questionnaire scores are stable over time ($r = 0.77$, p value < 0.01). Participants were healthcare providers employed in university-affiliated hospitals in three major cities of Iran; Tehran, Shiraz and Mashhad. In total, 312 healthcare professionals completed our survey. The majority (96.8%) were familiar with the term "dysphagia or swallowing disorders". Most of the participants believed their profession (88.5%), as well as other disciplines (92.3%) can play an important role in the management of dysphagia; and this problem should be recognized in a multidisciplinary manner (96.2%). Also, 60.9% had encountered a patient with dysphagia. 52.2% had used at least one assessment method, while 49.9% had applied at least one treatment method. However, very few participants were familiar with a standard test for screening and assessment of dysphagia (11.9%). 74.7% were willing to participate in a workshop on dysphagia. As the main pitfalls of care lie in diagnosis and treatment expertise, the policy of hospitals should prioritize educating and updating the skills of healthcare professionals, encourage multidisciplinary teamwork, establishing clear guidelines and facilitate access to advanced tools.

Keywords Deglutition · Deglutition disorders · Health personnel · Knowledge · Quality of health care

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Introduction

Dysphagia is a sensation of difficulty in transferring the bolus from the mouth [1] with a wide range of underlying causes [2–4]. It is associated with serious complications, such as aspiration pneumonia and malnutrition, which lead to decreased health-related quality of life, morbidity and mortality [5–9]. Despite the significant physical and psychological burden of dysphagia, most of patients receive inefficient care and do not benefit from the spectrum of available cost-effective diagnostic and therapeutic modalities [3].

The prevalence of dysphagia in Iran is in line with the reports in the literature: 41.2% among elderly individuals living in nursing home centers [10]; 31.7% in patients with multiple sclerosis [11, 12], and 55% in acute stroke patients [13]. However, there is very limited work addressing the current status and efficiency of practice for patients susceptible to dysphagia. Also, the perception of health professionals regarding dysphagia is still unclear. It has been shown that proper diagnostic tools are lacking in inpatient settings, and very often assessment of dysphagia is not part of the routine protocol for high risk patients. Furthermore, remarkable increased length of hospital stay adds up to the impact of such a negligence, and indicates the need to take necessary measurements [14]. Facilitating improvements in practice requires a full understanding of the pitfalls of care delivered by the health staff.

Thus, the aim of the present study was to assess the knowledge, attitude and practice (KAP) of healthcare providers, who worked at hospitals in three major cities in Iran (Tehran, Shiraz, and Mashhad), in order to determine the gaps for refining the quality of care for patients with dysphagia.

Materials and Methods

Designing the Questionnaire

An initial draft of the questionnaire was created by a speech and language pathologist who had 5 years of experience working with dysphagic patients (the first author). The draft consisted of four domains: (1) demographic information, (2) knowledge about swallowing and dysphagia (3) attitude towards team working, and (4) methods of practice in diagnosis, assessment and treatment of dysphagia. Five experts from different disciplines (3 physical medicine and rehabilitation specialists, 1 nurse, 1 speech and language pathologist). They were university-affiliated experts with a minimum of 5-year work experience, who routinely encountered dysphagic patients in practice. None are among the authors of this paper. Face and content validity of the questions were scored using a 5-point Likert scale ranging from 0 to 4, as demonstrated in Table 1. The mean scores for each original item were calculated based on the scores obtained from all the 5 experts (Table 1). Afterwards, the average ratings of face and content validity of each question was investigated in an expert panel consisting of the first and second author of this article and a psychometrician. All questions received maximal face validity scores. However, four questions had average content validity scores below three points and thus required modifications: In knowledge section, original questions 1 and 9 were "Are you familiar with the term "dysphagia"?", and "Using a straw for drinking is recommended for dysphagic patients.", respectively. Also, in practice section, original questions 2 and 7 were "What was the underlying etiology of the patient?" and "Do you believe you need to improve your knowledge about dysphagia?", respectively. The final questionnaire is represented in Table 2.

To assess the test–retest reliability of the questionnaire, 10 participants answered the questions twice; in the time interval of 2 weeks.

Participants and Settings

Participants were healthcare providers who worked in governmental, educational hospitals in three major cities of Iran (Tehran, Shiraz and Mashhad). We conducted the survey in hospitals, which had neurology, neurosurgery and rehabilitation wards. The forms were handed to the head nurses of these wards, and they distributed them among all their colleagues at earliest opportunity. Volunteers completed the forms. All participants provided a verbal informed consent. The study protocol was approved by ethics committee of Shiraz University of Medical Sciences.

Statistical Analysis

Statistical analysis was performed using Windows SPSS software, version 20. Face and content validities were analyzed by calculating the mean scores for ratings of each item. For the test–retest reliability, we used the Pearson correlation test. Mann–Whitney U and χ^2 tests were used, wherever applicable. p value < 0.05 was considered statistically significant.

Table 1 Likert scores of face and content validity

Face validity	
0	I have no idea about this item
1	Not understandable, unclear, and vague
2	Approximately understandable, clear, and grammatically correct
3	Understandable, clear, and grammatically correct
4	Absolutely understandable, clear, and grammatically correct
Content validity	
0	I have no idea about this item
1	Not related to the scale ultimate purpose and not necessary
2	Approximately related to the scale ultimate purpose and approximately necessary
3	Related to the scale ultimate purpose and necessary
4	Absolutely related to the scale ultimate purpose and completely necessary

Results

Assessment of the Questionnaire

The results of face validity showed that all the questions were absolutely understandable, clear and grammatically correct. Regarding content validity, 19 out of 22 items scored ≥ 3, which indicates that the items were necessary and adequately related to the purpose of the scale. Only three scored below 3 points. Yet, in the expert panel, the researchers agreed upon retaining them in the questionnaire after modifications considering their importance for future studies (Table 2). Test–retest reliability confirmed that the questionnaire scores are stable over time ($r = 0.77$, p value < 0.01). Three out of 10 participants scored 1 point higher on the second test; raising the mean score from 8.1 to 8.4. However, there was no statistical significance on paired t test (p value = 0.081).

Demographic Parameters

In total, 312 healthcare professionals (male: 25.6%) with the mean age of 32.83 years (SD = 8.26) with a mean occupational experience of 8.95 years (SD = 7.20), who were employed in university-affiliated hospitals in Tehran, Shiraz and Mashhad, completed our survey. Participants were from 20 various branches. Nurses constituted the majority of our population ($n = 212$, 67.9%) followed by physicians ($n = 54$, 17.3%).

Part 1: Knowledge

We found out that approximately all (96.8%, $n = 302$) of the interviewed health personnel were familiar with the term "dysphagia or swallowing disorders". Mean number of correct answers (in correct/incorrect questions) were 7.82 (SD = 1.41). Number of correct answers in knowledge showed a rather weak but significant correlation with duration of work experience ($p = 0.008$, $r = 0.166$). The proportions of participants answering correctly to the questions in this section are as follows: Q2: (97.1%), Q3: 88.1%, Q4: 64.2%, Q5: 95.5%, Q6: 85.8%, Q7: 75.1%, Q8: 78.8%, Q9: 37.4%, Q10: 73.1%, and Q11: 90.4%.

Part 2: Attitude

Most of the participants believed that their profession (88.5%, $n = 276$), as well as other disciplines (92.3%, $n = 288$) can play an important role in the management of dysphagia; and this problem should be recognized in a multidisciplinary manner (96.2%, $n = 300$). The ranking of professionals acknowledged as the most relevant to the problem of dysphagia is listed in Table 3.

Part 3: Practice

More than half of the personnel (60.9%, $n = 190$) had encountered a patient with dysphagia. The most common encountered underlying etiologies of dysphagia were esophageal cancer, stroke, brain tumors, and digestive problem. Figure 1 demonstrates the frequency of etiologies.

163 (52.2%) participants mentioned they had used at least one assessment method, while 140 (49.90%) reported to have applied at least one treatment method (Table 4). None of the participants mentioned assessing or treating the oral hygiene of their patients during their evaluation and treatment. Despite the high rate of encounter, very few participants were familiar with a standard test for diagnosis and assessment of dysphagia (11.9%, $n = 37$). Among the 190 personnel, who had had patients with dysphagia, the majority ($n = 163$, 85%) had referred their patients to

Table 2 KAP questions and respective face and content validity scores

Part	No.	Question	Answer	Face validity	Content validity
Knowledge	1	Are you familiar with the term "dysphagia or swallowing disorder"? (Modified)	Yes/no	4.00	2.60
	2	Anatomically, oral problems are the only cause of dysphagia	Correct/ incorrect	4.00	3.40
	3	Esophageal problems cannot cause dysphagia	Correct/ incorrect	4.00	3.60
	4	Only pharyngeal muscles are involved in swallowing	Correct/ incorrect	4.00	3.40
	5	Head and neck disorders can prone the patients to dysphagia	Correct/ incorrect	4.00	3.60
	6	Aging can affect the physiology of swallowing and predispose the patient to dysphagia	Correct/ incorrect	4.00	4.00
	7	Dehydration can be a result of dysphagia	Correct/ incorrect	4.00	3.80
	8	Respiratory infections and dysphagia are not related	Correct/ incorrect	4.00	4.00
	9	Using a straw for drinking is recommended for all dysphagic patients. (Modified)	Correct/ incorrect	4.00	2.80
	10	A dysphagic patient should avoid foods with different consistencies	Correct/ incorrect	4.00	3.00
	11	Dysphagia does not decrease quality of life of the patient	Correct/ incorrect	4.00	4.00
Attitude	1	Your profession can help improve dysphagia	Correct/ incorrect	4.00	3.60
	2	Other medical professions can help improve dysphagia	Correct/ incorrect	4.00	4.00
	3	To improve dysphagia multidisciplinary approach and teamwork is necessary	Correct/ incorrect	4.00	4.00
	4	Which other professions can help improve dysphagia?	Open ended	4.00	4.00
Practice	1	Have you ever encountered a patient with dysphagia?	Yes/no	4.00	3.20
	2	What was the underlying etiology of your patient? (Modified)	Open ended	4.00	2.00
	3	How did you diagnose dysphagia for your patient?	Open ended	4.00	4.00
	4	Have you ever used standard tests for diagnosis and assessment of dysphagia? Which tests?	Open ended	4.00	4.00
	5	Which managements have you employed for your patient?	Open ended	4.00	4.00
	6	Have you ever referred your patients to other medical professionals? Which ones?	Open ended	4.00	4.00
	7	Do you believe you need to participate in a workshop on diagnosis, assessment and management of dysphagia? (Modified)	Open ended	4.00	2.60

specialists in other fields for further treatment (52.20%) (Table 3). Around three quarters (74.70%, $n = 218$) of participants were interested in participating in a workshop on dysphagia. No statistical correlations were observed between being interested in participating in a workshop about dysphagia and grade of participants ($r = 0.00$) and field of study ($r = 0.00$).

Discussion

There are no routine standard management guidelines for dysphagia in our country. To serve this goal, we attempted to examine the knowledge, attitude and practice of healthcare providers in university-affiliated hospitals of three major cities to obtain an accurate estimation of the

Table 3 The number of times different professions were mentioned as important in management of dysphagia and the frequency of patient referral to these professions by participants

	Professions	Importance of role	Referral
1	Nurse	142	–
2	GI man	113	79
3	ENT	100	37
4	Neurologist	67	22
5	General surgeon	47	21
6	General physician	39	–
7	Nutritionist	36	8
8	Internal medicine	35	18
9	Physiotherapist	33	4
10	Maxillofacial dentist	26	10
11	Physiatrist	22	3
12	Occupational therapist	18	–
13	Psychiatrist	18	20
14	Speech therapist	16	8
15	Psychologist	14	–
16	Neurosurgeon	10	5
17	Dentist	3	1
18	Pharmacist	1	–

current status. Our designed KAP questionnaire on dysphagia proved to be a face and content valid measurement tool providing reliable results.

The scores on basic knowledge were promising. The majority of our participants had satisfactory information about anatomical aspects, etiologies and complications of dysphagia. Another favorable finding was the strong belief of participants in team working for the management of swallowing disorders. They stated that nurses, gastrointestinal specialists and ENT specialists play the most important roles. Accordingly, our participants most frequently referred their patients to gastrointestinal specialists, ENT specialists and neurologists. However, speech therapists [15, 16] and nutritionist [17, 18] were only seldom mentioned. We suppose this fact may pertain to the inadequate familiarity of healthcare providers with these professions and their potential part in treatment of dysphagia. Thus, we highly recommend establishing an organized and specific team including all related professions, which can be effortlessly consulted for the care process of dysphagic patients.

Also, none of the participants considered oral hygiene of patients in their practice while Oral hygiene is a very important factor for preventing aspiration pneumonia in patients with dysphagia [19–22].

On the other hand, the answers to practice section were not as propitious. "History taking" without any further precise description topped the list of employed diagnostic methods, whereas it can only be considered the first step [23] and needs to be followed by clinical screening tests, instrumental examinations, patient self-evaluation methods and other supplementary assessment techniques such as esophageal manometry when appropriate [24]. Surprisingly, slightly over one tenth of participants was aware of and could perform a standard screening and assessment method for dysphagia.

It appears that the current practice approach of healthcare providers is inefficient. This problem demands an active interaction between academics and researchers and personnel. Researchers should regularly introduce the most recent validated and reliable available tools, particularly on a cultural level, and hospitals should cooperate for

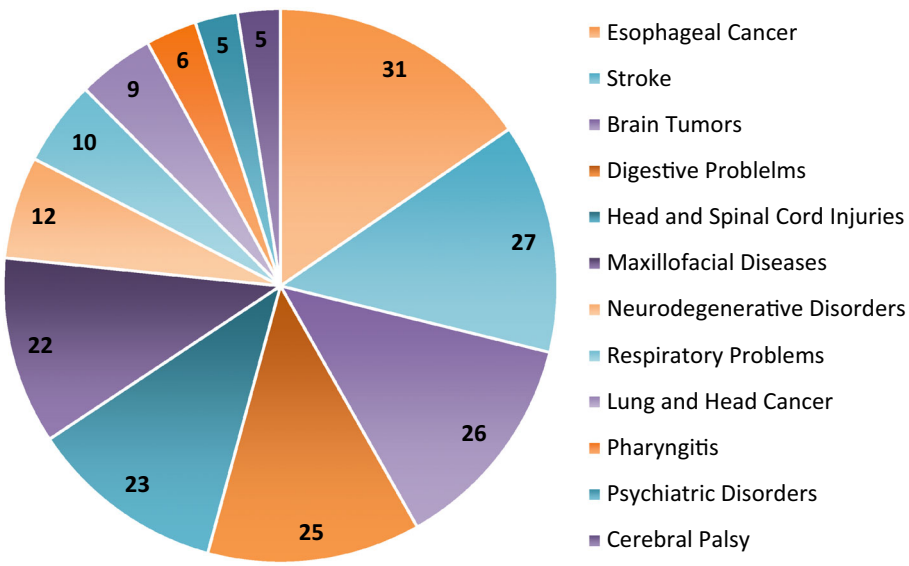

Fig. 1 Frequency of etiologies for dysphagia

Table 4 Diagnostic and therapeutic methods employed by the participants

	Diagnostic method	Frequency	Therapeutic method	Frequency
1	Physical exam	85	Soft or liquid diet	57
2	History	53	NG tube	35
3	Endoscopy	29	Surgery	21
4	Checking gag reflex	25	Underlying cause treatment	20
5	Barium swallow	15	Pharmacological therapy	18
6	X-ray	12	Muscle strengthening	13
7	Coughing	10	Using straw	12
8	Brain MRI	9	Decreasing food volume	11
9	Brain CT	9	Changing position	11
10	Vomiting	8	Decreasing speed of food intake	10

facilitation of access to these tools in clinical settings and updating the personnel's knowledge. Consequently, utilizing evidence-based approaches will enhance the quality of patient care.

Clave et al. recommended a stepwise diagnostic algorithm for dysphagia beginning with detection of vulnerable patients by speech therapists and nutritionists, who should respectively assess impairment of deglutition (efficacy) and aspiration and/or pneumonia (safety). Volume-viscosity swallow test should be performed and in case of impairment videofluoroscopy is encouraged. If swallowing is normal, follow-up is sufficient. [24].

Furthermore, the answers to management questions were very limited. Out of 190 healthcare staff who had who had experience assessing patients with swallowing disorders, 50 failed to suggest any treatment options; others only declared general keywords such as pharmacotherapy, liquid or soft diet, NG tubes, etc. As none had pointed out their choice of treatment based on the cause of disorder, we could not find out if they selected individualized therapies according to the present pathophysiology in each patient or simply used a routine random management. An additional concern should be noted that professionals who lack the skill of undertaking a correct and standard screening and assessment methods, will not be able to evaluate the effectiveness of their treatment.

We found that the aspects of diagnosis and treatment were more challenging to our participants. Accordingly, the policy of hospitals should promote updating the skills of healthcare professionals, for instance via holding frequent workshops [25, 26]. Almost two-thirds of our surveyed population agreed with this concept and exhibited willingness to participate.

The present KAP study on dysphagia is the first one conducted in Iran, which showed that the main pitfalls in our country lie in the practice part; i.e. diagnosis and management. We suggest future studies focus in depth on the gaps in practice part by designing specific detailed questionnaires regarding identification of high-risk patients, screening, definite diagnosis, determination of the underlying causes, severity and complication assessment, treatment protocols, and follow-up. Furthermore, repeating the questionnaire after implementing a workshop and assessment of referral pattern is also recommended.

Herein we represent the key points of our study and our recommendations for improvement of patient care for dysphagia:

1. Forming a hospital-based multidisciplinary team with clear guidelines comprising of all related professionals, particularly speech therapist and nutritionist.
2. Familiarizing healthcare providers with the role of respective professionals and encouraging consultation with the team.
3. Providing access to screening and assessment tools in hospital wards and educating the personnel on their correct application.
4. Establishing diagnostic and management guidelines for practitioners in different level of care based on the facilities and available tools (e.g. in rural clinics).
5. Improving a constructive interaction between academics and researchers with healthcare providers in practice.

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Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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