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Original Article

A Cross-Sectional Study of Knowledge, Attitudes and Training Exposure Regarding Dysphagia Management Among Healthcare and Allied Healthcare Professionals in the United Arab Emirates

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ABSTRACT

Background: Dysphagia is a clinically significant swallowing disorder associated with neurological conditions, head and neck cancers, post-surgical complications, and other medical conditions affecting swallowing function. If not identified and managed appropriately, it may lead to aspiration pneumonia, dehydration, malnutrition, prolonged hospitalization, and reduced quality of life. Effective dysphagia management requires coordinated multidisciplinary involvement; however, limited evidence is available regarding dysphagia-related knowledge, attitudes, and training exposure among healthcare professionals in the United Arab Emirates. Objective: This study aimed to assess knowledge, attitudes, and training exposure regarding dysphagia management among healthcare and allied healthcare professionals in the UAE and to examine relationships among these variables. Methods: A quantitative cross-sectional survey was conducted among 75 licensed healthcare and allied healthcare professionals, including occupational therapists, physiotherapists, dietitians, nurses, and physicians. Data were collected using a self-developed 35-item questionnaire covering demographic characteristics, dysphagia-related knowledge, attitudes, and training exposure. Internal consistency was assessed using Cronbach's alpha. Data were analysed using descriptive statistics, chi-square tests, Fisher's exact tests, and Spearman's rank correlation analysis. Results: The mean knowledge score was 7.3 ± 2.7, with 44.0% of participants showing average knowledge and 42.7% showing good knowledge. Positive attitudes were observed in 82.7% of participants, while 70.7% reported moderate training exposure. The knowledge, attitude, and training exposure scales demonstrated Cronbach's alpha values of 0.847, 0.797, and 0.624, respectively. Significant positive correlations were observed between training exposure and knowledge (rho = 0.463, p = 0.001), training exposure and attitude (rho = 0.427, p = 0.001), and knowledge and attitude (rho = 0.418, p = 0.001). Knowledge category was significantly associated with attitude category (p = 0.038), while most demographic and professional variables were not significantly associated with the main outcomes. Conclusion: Healthcare and allied healthcare professionals in the UAE demonstrated generally average-to-good knowledge and positive attitudes regarding dysphagia management, while training exposure was mostly moderate. The significant associations among knowledge, attitudes, and training exposure highlight the need for structured interdisciplinary training programs to strengthen dysphagia recognition, referral practices, and collaborative management across UAE healthcare settings. Keywords: Dysphagia; knowledge; attitudes; training exposure; healthcare professionals; multidisciplinary care; United Arab Emirates.

INTRODUCTION

Dysphagia, defined as difficulty in swallowing, is a clinically important condition encountered across a wide range of age groups and medical populations. It is commonly associated with neurological disorders such as stroke, Parkinson's disease, traumatic brain injury, dementia, and multiple sclerosis,

and may also occur in patients with head and neck cancers, post-surgical complications, and other conditions affecting swallowing function (1). When not recognized and managed in a timely manner, dysphagia may lead to aspiration pneumonia, dehydration, malnutrition, prolonged hospitalization, increased healthcare costs, and reduced quality of life (2). These complications make early identification and appropriate management of swallowing difficulties an essential component of safe patient care, particularly in acute, rehabilitation, intensive care, and long-term care settings (3).

Effective dysphagia management requires coordinated multidisciplinary involvement rather than isolated discipline-specific care. Speech-Language Pathologists are primarily responsible for comprehensive swallowing assessment and intervention, but other healthcare professionals also contribute substantially to patient safety and rehabilitation outcomes (4). Nurses are commonly involved in feeding supervision, aspiration monitoring, and implementation of swallowing precautions, while physicians contribute to diagnosis, medical management, and referral decisions (5). Dietitians support nutritional optimization and texture-modified diet planning, whereas occupational therapists and physiotherapists assist with positioning, functional feeding, mobility, rehabilitation, and adaptive strategies (6). Therefore, the quality of dysphagia care depends on the knowledge, attitudes, and clinical preparedness of the wider healthcare team.

Previous international studies have shown considerable variation in dysphagia-related knowledge, confidence, screening practices, referral behavior, and clinical decision-making among healthcare professionals (7). Healthcare professionals outside Speech-Language Pathology may regularly care for patients with swallowing difficulties but still have limited understanding of aspiration risk factors, swallowing physiology, referral pathways, dysphagia screening, and evidence-based management strategies (8). Battey et al. also reported variability in healthcare professionals' knowledge and attitudes toward dysphagia management and emphasized the need for interdisciplinary education and competency development (9). These findings suggest that positive attitudes alone are insufficient for safe dysphagia care unless supported by adequate theoretical knowledge, practical training, and structured clinical exposure.

Training exposure is an important factor influencing professional competency in dysphagia care. Formal education, continuing professional development, simulation-based learning, supervised clinical practice, and interdisciplinary training have been associated with better knowledge, greater confidence, and improved adherence to recommended dysphagia management practices (10). Improved dysphagia-related knowledge may also strengthen professional attitudes toward screening, timely referral, patient safety, and multidisciplinary collaboration. Structured educational initiatives are therefore important for improving clinical awareness, reducing preventable complications, and promoting consistent dysphagia management across healthcare settings.

In the United Arab Emirates, the relevance of dysphagia management is increasing with the continued expansion of healthcare, rehabilitation, critical care, stroke care, oncology, and long-term care services (11). Population ageing and the growing burden of chronic neurological and medical conditions may further increase the number of patients at risk of swallowing disorders (12). The UAE healthcare workforce is also culturally, educationally, and professionally diverse, with practitioners trained in different countries and healthcare systems (13). This diversity may enrich clinical practice but may also contribute to variation in dysphagia-related knowledge, training exposure, confidence, and management approaches. Despite the clinical importance of dysphagia as a patient safety issue, limited published evidence is available regarding knowledge, attitudes, and training exposure among healthcare and allied healthcare professionals in the UAE.

Therefore, this study aimed to assess knowledge, attitudes, and training exposure regarding dysphagia management among healthcare and allied healthcare professionals in the UAE. The study also examined the relationships among knowledge, attitudes, and training exposure and explored whether demographic and professional characteristics were associated with these variables. By identifying

current strengths and gaps in professional preparedness, the findings may support the development of interdisciplinary education, competency-based training, and evidence-informed strategies to improve dysphagia management and patient outcomes in UAE healthcare settings.

MATERIALS AND METHODS

This study used a quantitative cross-sectional survey design to assess knowledge, attitudes, and training exposure regarding dysphagia management among healthcare and allied healthcare professionals in the United Arab Emirates. The cross-sectional design was appropriate because the study aimed to measure existing levels of professional knowledge, attitudes, and prior training exposure at a single point in time and to examine associations among these variables. Data were collected from professionals working in inpatient rehabilitation, outpatient rehabilitation, and intensive care unit settings across the UAE.

The study population included licensed healthcare and allied healthcare professionals registered with the Ministry of Health and Prevention, Dubai Health Authority, or Department of Health – Abu Dhabi. Eligible participants were occupational therapists, physiotherapists, dietitians, nurses, and physicians who were licensed to practise in the UAE, were working in inpatient rehabilitation, outpatient rehabilitation, or intensive care unit settings, and provided informed consent. Professionals who did not hold a valid healthcare licence, were working outside the UAE, or did not provide informed consent were excluded.

A total of 75 participants were recruited using convenience sampling with equal professional representation. Five professional groups were included, with 15 participants recruited from each discipline: occupational therapy, physiotherapy, dietetics, nursing, and medicine. This balanced distribution was used to allow comparison of knowledge, attitudes, and training exposure across the selected professional categories. The questionnaire was distributed electronically to 110 healthcare and allied healthcare professionals, and 75 completed responses were received, giving a response rate of 68.2%.

Data were collected using a self-developed structured questionnaire prepared after reviewing literature related to dysphagia management, healthcare professionals' knowledge, attitudes, and training exposure. Relevant domains and items were generated from previously published studies and clinical guidance on dysphagia assessment and management. The initial questionnaire was reviewed by six subject experts with experience in dysphagia management and rehabilitation services. The experts evaluated item relevance, clarity, appropriateness, and content coverage. Their feedback was used to refine item wording, improve comprehensibility, and ensure that the final instrument adequately represented the intended domains.

The final questionnaire consisted of 35 items divided into four sections: demographic information, knowledge regarding dysphagia management, attitudes toward dysphagia management, and training exposure. The demographic section collected information on age, gender, profession, years of clinical experience, current work setting, and English proficiency. The knowledge section included 10 multiple-choice questions. Each correct response was awarded one point, and incorrect responses were scored as zero. The total knowledge score ranged from 0 to 10. Scores below 5 were categorized as poor knowledge, scores from 5 to 8 as average knowledge, and scores above 8 as good knowledge.

The attitude section consisted of 10 statements rated on a five-point Likert scale ranging from strongly disagree to strongly agree. The total attitude score ranged from 10 to 50. Scores from 10 to 23 were classified as negative attitudes, scores from 24 to 36 as neutral attitudes, and scores above 36 as positive attitudes toward dysphagia management. The training exposure section assessed participants' previous exposure to dysphagia-related education and clinical training. The total training exposure score ranged

from 0 to 30. Scores from 0 to 10 were classified as minimal exposure, scores from 11 to 20 as moderate exposure, and scores above 20 as adequate exposure.

The questionnaire was created using Google Forms and distributed electronically through email, WhatsApp, and other online communication platforms according to participant accessibility and preference. Participants were informed about the purpose of the study, voluntary nature of participation, confidentiality of responses, and their right to decline participation. Informed consent was obtained before questionnaire completion. The electronic format allowed standardized administration of the same questionnaire to all participants and minimized variation in data collection procedures.

Internal consistency of the questionnaire scales was assessed using Cronbach's alpha. Inter-item relationships were examined using correlation matrices to assess whether items within each scale were measuring related constructs. Data integrity was supported by using a structured electronic form with predefined response options, consistent scoring rules, and complete response review before analysis. Questionnaire scoring was applied uniformly across participants according to the predefined scoring categories for knowledge, attitudes, and training exposure.

Data were analysed using jamovi version 2.7.18. Descriptive statistics were used to summarize demographic characteristics and questionnaire responses. Frequencies and percentages were calculated for categorical variables, while means, standard deviations, medians, interquartile ranges, and ranges were calculated for continuous variables. Normality of continuous scale scores was assessed using the Shapiro-Wilk test. Since some variables were not normally distributed, non-parametric tests were used where appropriate. Associations between categorical variables were examined using chi-square tests or Fisher's exact tests when expected cell counts were small. Spearman's rank correlation analysis was used to assess relationships among knowledge, attitude, and training exposure scores. A p-value of less than 0.05 was considered statistically significant.

Ethical approval was obtained from the Department of Health, Abu Dhabi, before data collection under approval number DOH/ADHRTC/2026/744. Participation was voluntary, and informed consent was obtained from all participants. Confidentiality and anonymity were maintained throughout the study, and collected data were used only for research purposes.

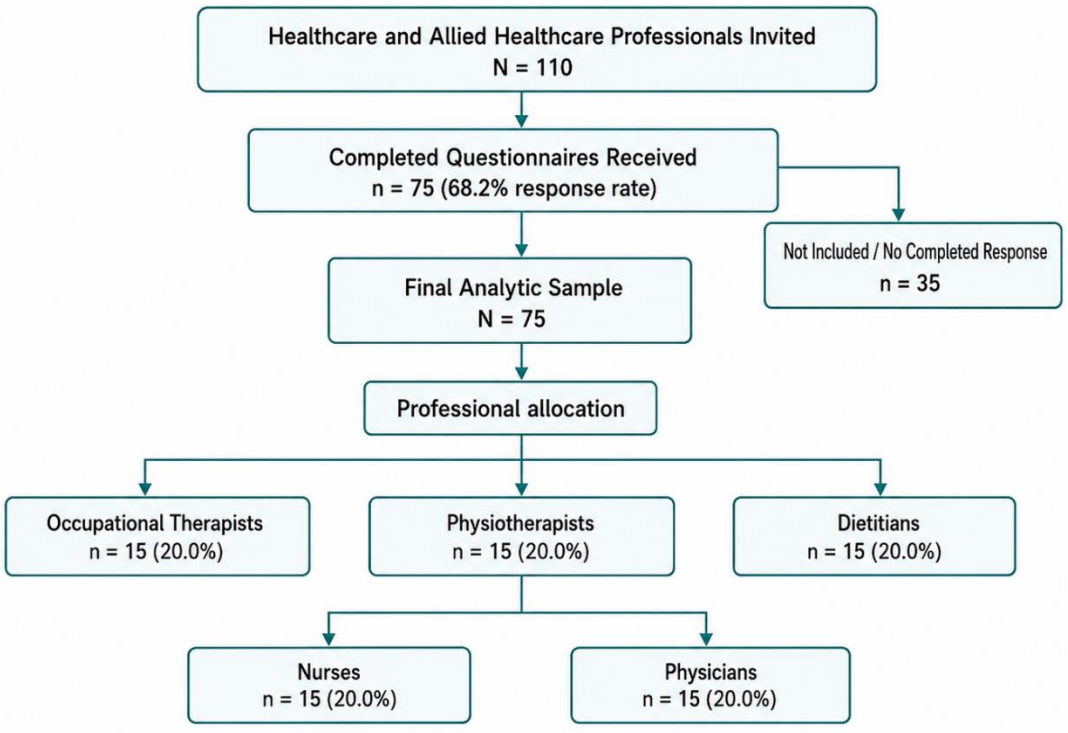

Figure 1 Participant Recruitment and Professional Allocation

RESULTS

A total of 75 healthcare and allied healthcare professionals were included in the final analysis. The largest age group was 25–34 years (49.3%), followed by 35–44 years (36.0%). Female participants represented 76.0% of the sample. Equal representation was maintained across the five professional groups, with occupational therapists, physiotherapists, dietitians, nurses, and physicians each contributing 15 participants. Most participants were working in outpatient rehabilitation settings (54.7%), followed by inpatient rehabilitation settings (40.0%) and intensive care units (5.3%). The most common clinical experience category was 6–10 years (41.3%).

Table 1. Demographic and professional characteristics of participants

Variable	Category	n (%)
Age, years	18–24	3 (4.0)
	25–34	37 (49.3)
	35–44	27 (36.0)
	45–54	6 (8.0)
	≥55	2 (2.7)
Gender	Female	57 (76.0)
	Male	18 (24.0)
Profession	Occupational therapist	15 (20.0)
	Physiotherapist	15 (20.0)
	Dietitian	15 (20.0)
	Nurse	15 (20.0)
	Physician	15 (20.0)
Clinical experience, years	<1	2 (2.7)
	1–5	16 (21.3)
	6–10	31 (41.3)
	11–15	12 (16.0)
	>15	14 (18.7)
Current work setting	ICU	4 (5.3)
	Rehabilitation–inpatient	30 (40.0)
	Rehabilitation–outpatient	41 (54.7)

Table 2. Reliability and descriptive statistics of questionnaire scales

Scale	Items	Cronbach's α	Mean ± SD	95% CI	Median	IQR	Range	Shapiro-Wilk W	p-value
Knowledge score	10	0.847	7.3 ± 2.7	6.68–7.92	8	6–10	0–10	0.863	<0.0001
Attitude score	10	0.797	41.0 ± 5.7	39.71–42.29	42	38–46	22–50	0.954	0.0086
Training exposure score	10	0.624	15.7 ± 4.6	14.64–16.76	16	12–19	8–27	0.971	0.0773

The knowledge scale demonstrated good internal consistency, with Cronbach's alpha of 0.847. The attitude scale showed acceptable internal consistency, with Cronbach's alpha of 0.797.

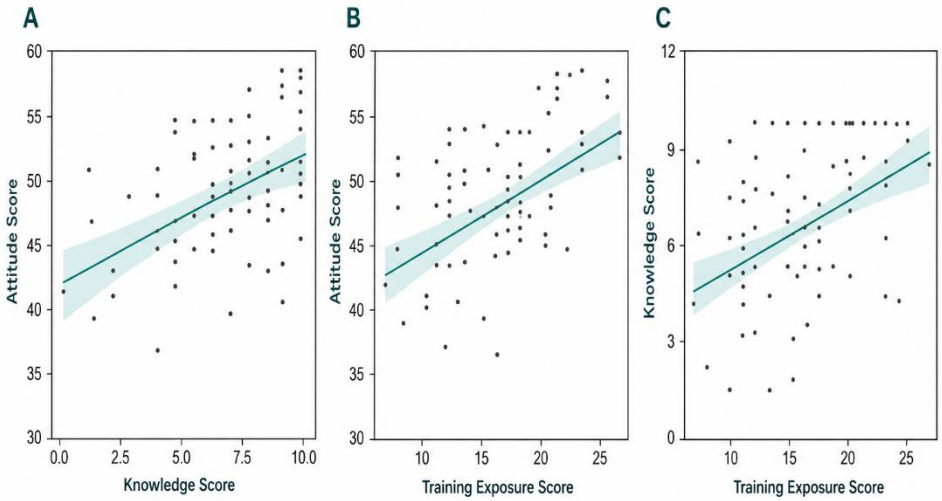

Figure 2. Inter-item correlation heatmaps for study scales. Panel A shows the inter-item correlation matrix for the knowledge scale, which demonstrated good internal consistency (α = 0.847). Panel B shows the inter-item correlation matrix for the attitude scale, which demonstrated acceptable internal consistency (α = 0.797). Panel C shows the inter-item correlation matrix for the training exposure scale, which demonstrated moderate internal consistency (α = 0.624). Values represent Pearson correlation coefficients.

The training exposure scale demonstrated moderate internal consistency, with Cronbach's alpha of 0.624. The mean knowledge score was 7.3 ± 2.7, the mean attitude score was 41.0 ± 5.7, and the mean training exposure score was 15.7 ± 4.6. Shapiro-Wilk testing showed non-normal distributions for knowledge and attitude scores, while the training exposure score did not significantly deviate from normality. Correct responses across individual knowledge items ranged from 40.0% to 93.3%. The highest correct response rate was observed for Q8 (93.3%), followed by Q9 (86.7%), Q10 (85.3%), and Q4 (84.0%). The lowest correct response rate was observed for Q3 (40.0%), followed by Q1 (57.3%).

Table 3. Correct responses for individual knowledge items

Knowledge item	Correct responses, n (%)
Q1	43 (57.3)
Q2	51 (68.0)
Q3	30 (40.0)
Q4	63 (84.0)
Q5	59 (78.7)
Q6	51 (68.0)
Q7	54 (72.0)
Q8	70 (93.3)
Q9	65 (86.7)
Q10	64 (85.3)

Most participants demonstrated average or good knowledge regarding dysphagia management. Overall, 44.0% of participants had average knowledge and 42.7% had good knowledge. Positive attitudes toward dysphagia management were observed in 82.7% of participants. Training exposure was most commonly moderate, reported by 70.7% of participants, while 16.0% had adequate training exposure.

Table 4. Distribution of knowledge, attitude, and training exposure categories

Scale	Category	n (%)	95% CI
Knowledge	Poor	10 (13.3)	5.6–21.0
	Average	33 (44.0)	32.8–55.2
	Good	32 (42.7)	31.5–53.9
Attitude	Negative	1 (1.3)	0.0–3.9
	Neutral	12 (16.0)	7.7–24.3
	Positive	62 (82.7)	74.1–91.3
Training exposure	Minimal	10 (13.3)	5.6–21.0
	Moderate	53 (70.7)	60.4–81.0
	Adequate	12 (16.0)	7.7–24.3

Responses to the attitude items showed a predominantly positive pattern. The highest agreement was observed for items related to interdisciplinary collaboration, referral for dysphagia assessment, continuing professional education, and shared responsibility in dysphagia management. Item A8 showed the highest proportion of disagreement, with 41.3% of participants selecting disagree or strongly disagree.

Table 5. Response distribution across attitude scale items

Item	Strongly Disagree, n (%)	Disagree, n (%)	Neutral, n (%)	Agree, n (%)	Strongly Agree, n (%)
A1	3 (4.0)	2 (2.7)	7 (9.3)	29 (38.7)	34 (45.3)
A2	1 (1.3)	5 (6.7)	13 (17.3)	38 (50.7)	18 (24.0)
A3	0 (0.0)	1 (1.3)	5 (6.7)	22 (29.3)	47 (62.7)
A4	0 (0.0)	1 (1.3)	10 (13.3)	20 (26.7)	44 (58.7)
A5	2 (2.7)	4 (5.3)	14 (18.7)	25 (33.3)	30 (40.0)
A6	2 (2.7)	1 (1.3)	5 (6.7)	25 (33.3)	42 (56.0)
A7	2 (2.7)	3 (4.0)	1 (1.3)	25 (33.3)	44 (58.7)
A8	10 (13.3)	21 (28.0)	12 (16.0)	23 (30.7)	9 (12.0)
A9	2 (2.7)	2 (2.7)	7 (9.3)	25 (33.3)	39 (52.0)

A10	2 (2.7)	9 (12.0)	13 (17.3)	24 (32.0)	27 (36.0)

Training exposure responses varied across items. Higher exposure-related scores were observed for TR7, TR8, and TR9. Lower exposure-related responses were more frequent for TR1 and TR2, where 48.0% and 46.7% of participants, respectively, selected score 0.

Table 6. Response distribution across training exposure items

Item	Score 0, n (%)	Score 1, n (%)	Score 2, n (%)	Score 3, n (%)
TR1	36 (48.0)	4 (5.3)	23 (30.7)	12 (16.0)
TR2	35 (46.7)	17 (22.7)	11 (14.7)	12 (16.0)
TR3	24 (32.0)	14 (18.7)	20 (26.7)	17 (22.7)
TR4	17 (22.7)	25 (33.3)	29 (38.7)	4 (5.3)
TR5	18 (24.0)	25 (33.3)	25 (33.3)	7 (9.3)
TR6	7 (9.3)	43 (57.3)	22 (29.3)	3 (4.0)
TR7	2 (2.7)	8 (10.7)	29 (38.7)	36 (48.0)
TR8	3 (4.0)	18 (24.0)	10 (13.3)	44 (58.7)
TR9	0 (0.0)	5 (6.7)	21 (28.0)	49 (65.3)
TR10	25 (33.3)	25 (33.3)	16 (21.3)	9 (12.0)

Table 7. Correlations among knowledge, attitude, and training exposure scores

Variable pair	N	Spearman's rho	95% CI	p-value
Attitude score and knowledge score	75	0.418	0.211–0.589	0.001
Training exposure score and knowledge score	75	0.463	0.264–0.624	0.001
Training exposure score and attitude score	75	0.427	0.222–0.596	0.001

Spearman rank correlation analysis showed significant positive correlations among knowledge, attitude, and training exposure scores. The strongest correlation was observed between training exposure and knowledge scores (rho = 0.463, p = 0.001), followed by training exposure and attitude scores (rho = 0.427, p = 0.001) and attitude and knowledge scores (rho = 0.418, p = 0.001).

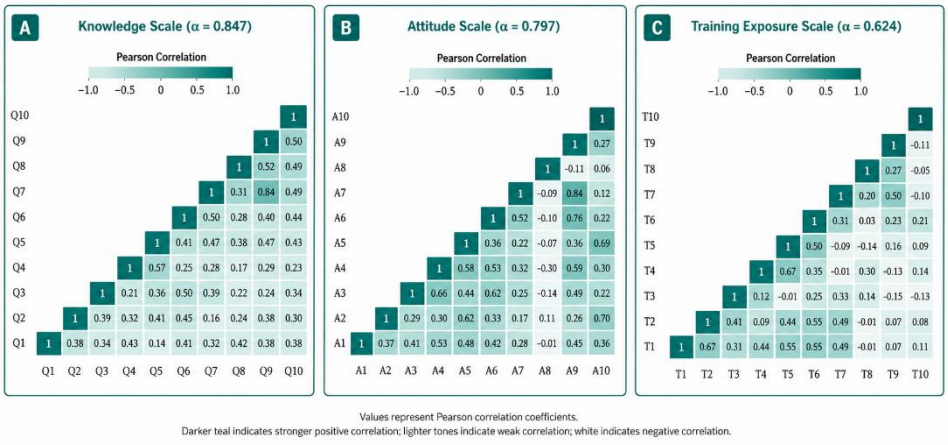

Figure 3. Relationships among knowledge, attitude, and training exposure scores. Panel A shows the relationship between knowledge score and attitude score. Panel B shows the relationship between training exposure score and attitude score. Panel C shows the relationship between training exposure score and knowledge score. The fitted trend lines show positive relationships across all three score pairs, consistent with the Spearman rank correlation analysis.

Knowledge categories were not significantly associated with age, gender, profession, clinical experience, or current work setting. Although numerical differences were observed across some professional and work-setting groups, none of these associations reached statistical significance.

For association analyses, negative and neutral attitude categories were combined into a single Negative/Neutral category because only one participant was classified as having a negative attitude. Attitude category was not significantly associated with age, gender, profession, clinical experience, or current work setting.

Training exposure categories were not significantly associated with age, gender, profession, clinical experience, or current work setting. Adequate training exposure was numerically higher among

participants with more than 15 years of experience and among those working in inpatient rehabilitation or ICU settings, but these differences were not statistically significant.

Table 8. Association of demographic and professional variables with knowledge categories

Variable	Category	Poor, n (%)	Average, n (%)	Good, n (%)	χ^2	p-value	Fisher's exact p-value
Age	<35 years	6 (15.0)	17 (42.5)	17 (42.5)	0.223	0.903	0.950
	≥35 years	4 (11.4)	16 (45.7)	15 (42.9)			
Gender	Female	8 (14.0)	24 (42.1)	25 (43.9)	0.361	0.816	0.931
	Male	2 (11.1)	9 (50.0)	7 (38.9)			
Profession	Occupational therapist	1 (6.7)	8 (53.3)	6 (40.0)	13.616	0.090	0.122
	Physiotherapist	3 (20.0)	8 (53.3)	4 (26.7)			
	Dietitian	5 (33.3)	5 (33.3)	5 (33.3)			
	Nurse	1 (6.7)	4 (26.7)	10 (66.7)			
	Physician	0 (0.0)	8 (53.3)	7 (46.7)			
Clinical experience	<1 year	0 (0.0)	1 (50.0)	1 (50.0)	4.954	0.803	0.753
	1–5 years	3 (18.8)	9 (56.3)	4 (25.0)			
	6–10 years	5 (16.1)	10 (32.3)	16 (51.6)			
	11–15 years	1 (8.3)	6 (50.0)	5 (41.7)			
	>15 years	1 (7.1)	7 (50.0)	6 (42.9)			
Current work setting	ICU	0 (0.0)	2 (50.0)	2 (50.0)	7.918	0.087	0.071
	Rehabilitation–inpatient	4 (13.3)	8 (26.7)	18 (60.0)			
	Rehabilitation–outpatient	6 (14.6)	23 (56.1)	12 (29.3)			

Table 9. Association of demographic and professional variables with attitude categories

Variable	Category	Negative/Neutral, n (%)	Positive, n (%)	χ^2	p-value	Fisher's exact p-value
Age	<35 years	9 (22.5)	31 (77.5)	1.597	0.238	0.238
	≥35 years	4 (11.4)	31 (88.6)			
Gender	Female	10 (17.5)	47 (82.5)	0.007	1.000	1.000
	Male	3 (16.7)	15 (83.3)			
Profession	Occupational therapist	3 (20.0)	12 (80.0)	4.280	0.481	0.374
	Physiotherapist	4 (26.7)	11 (73.3)			
	Dietitian	4 (26.7)	11 (73.3)			
	Nurse	1 (6.7)	14 (93.3)			
	Physician	1 (6.7)	14 (93.3)			
Clinical experience	<1 year	0 (0.0)	2 (100.0)	1.202	0.931	0.916
	1–5 years	4 (25.0)	12 (75.0)			
	6–10 years	5 (16.1)	26 (83.9)			
	11–15 years	2 (16.7)	10 (83.3)			
	>15 years	2 (14.3)	12 (85.7)			
Current work setting	ICU	0 (0.0)	4 (100.0)	1.784	0.470	0.519
	Rehabilitation–inpatient	4 (13.3)	26 (86.7)			
	Rehabilitation–outpatient	9 (22.0)	32 (78.0)			

Table 10. Association of demographic and professional variables with training exposure categories

Variable	Category	Minimal, n (%)	Moderate, n (%)	Adequate, n (%)	χ^2	p-value	Fisher's exact p-value
Age	<35 years	8 (20.0)	28 (70.0)	4 (10.0)	4.791	0.103	0.103
	≥35 years	2 (5.7)	25 (71.4)	8 (22.9)			
Gender	Female	9 (15.8)	38 (66.7)	10 (17.5)	1.966	0.411	0.486
	Male	1 (5.6)	15 (83.3)	2 (11.1)			
Profession	Occupational therapist	3 (20.0)	11 (73.3)	1 (6.7)	7.535	0.503	0.556
	Physiotherapist	3 (20.0)	11 (73.3)	1 (6.7)			
	Dietitian	1 (6.7)	11 (73.3)	3 (20.0)			
	Nurse	2 (13.3)	8 (53.3)	5 (33.3)			
	Physician	1 (6.7)	12 (80.0)	2 (13.3)			
Clinical experience	<1 year	0 (0.0)	2 (100.0)	0 (0.0)	9.389	0.299	0.304
	1–5 years	3 (18.8)	13 (81.3)	0 (0.0)			
	6–10 years	5 (16.1)	22 (71.0)	4 (12.9)			
	11–15 years	1 (8.3)	8 (66.7)	3 (25.0)			
	>15 years	1 (7.1)	8 (57.1)	5 (35.7)			
Current work setting	ICU	0 (0.0)	3 (75.0)	1 (25.0)	6.238	0.168	0.144
	Rehabilitation–inpatient	1 (3.3)	23 (76.7)	6 (20.0)			
	Rehabilitation–outpatient	9 (22.0)	27 (65.9)	5 (12.2)			

A significant association was observed between knowledge category and attitude category. Positive attitudes were present in 93.8% of participants with good knowledge, 78.8% of those with average knowledge, and 60.0% of those with poor knowledge. Knowledge category was not significantly

associated with training exposure category, and attitude category was not significantly associated with training exposure category.

Table 11. Associations among knowledge, attitude, and training exposure categories

Association	Category	Minimal / Negative-Neutral, n (%)	Moderate / Positive, n (%)	Adequate, n (%)	χ^2	p-value	Fisher's exact p-value
Knowledge and attitude	Poor knowledge	4 (40.0)	6 (60.0)	—	6.675	0.038	0.031
	Average knowledge	7 (21.2)	26 (78.8)	—			
	Good knowledge	2 (6.3)	30 (93.8)	—			
Knowledge and training exposure	Poor knowledge	2 (20.0)	8 (80.0)	0 (0.0)	6.862	0.140	0.150
	Average knowledge	5 (15.2)	25 (75.8)	3 (9.1)			
	Good knowledge	3 (9.4)	20 (62.5)	9 (28.1)			
Attitude and training exposure	Negative/Neutral attitude	3 (23.1)	10 (76.9)	0 (0.0)	3.723	0.192	0.146
	Positive attitude	7 (11.3)	43 (69.4)	12 (19.4)			

Overall, most participants demonstrated average-to-good knowledge, positive attitudes, and moderate training exposure regarding dysphagia management. Significant positive correlations were observed among knowledge, attitude, and training exposure scores. In categorical analyses, knowledge category was significantly associated with attitude category, while demographic and professional variables were not significantly associated with knowledge, attitude, or training exposure categories.

DISCUSSION

This study assessed dysphagia-related knowledge, attitudes, and training exposure among healthcare and allied healthcare professionals working in the United Arab Emirates. The findings showed that most participants demonstrated average-to-good knowledge, predominantly positive attitudes, and moderate training exposure regarding dysphagia management. These findings are clinically important because dysphagia is associated with preventable complications such as aspiration pneumonia, dehydration, malnutrition, prolonged hospitalization, and reduced quality of life when it is not identified and managed appropriately (1). Effective recognition and management are particularly relevant in rehabilitation, intensive care, and acute care settings where patients with neurological, oncological, and complex medical conditions are commonly encountered (5).

The mean knowledge score in the present study was 7.3 ± 2.7, and 86.7% of participants were categorized as having average or good knowledge. This indicates a generally acceptable level of awareness among the included professionals; however, item-level responses showed that knowledge was not uniform across all domains. The lowest correct response was observed for Q3, suggesting that some specialized aspects of dysphagia management, such as the risks and limitations of thickened liquids, may require further educational emphasis. Previous research has similarly reported gaps in healthcare professionals' understanding of dysphagia-related risk factors, referral pathways, screening, and management practices despite frequent clinical exposure to patients with swallowing difficulties (7). These knowledge gaps are relevant because delayed recognition of dysphagia may contribute to unsafe feeding practices, delayed referrals, and aspiration-related complications (2).

The attitude findings showed that 82.7% of participants had positive attitudes toward dysphagia management. High levels of agreement were observed for items related to interdisciplinary collaboration, referral, continuing education, and shared responsibility in dysphagia care. This pattern suggests that most participants recognized dysphagia management as a multidisciplinary responsibility rather than a task limited to Speech-Language Pathologists. This is consistent with contemporary dysphagia care models that emphasize coordinated involvement of nurses, physicians, dietitians, occupational therapists, physiotherapists, and Speech-Language Pathologists across the continuum of care (20). Nevertheless, the response pattern for A8 indicated that some participants still felt uncomfortable or unsure when caring for patients with suspected dysphagia, highlighting that positive professional attitudes may not fully translate into confidence without adequate training and supervised clinical exposure.

Training exposure was predominantly moderate, with only 16.0% of participants classified as having adequate exposure. This finding suggests that although professionals may encounter patients with dysphagia and recognize the importance of dysphagia care, access to structured training may remain limited. Training is important because dysphagia screening and early identification require practical understanding of clinical signs, aspiration risk, safe positioning, referral criteria, and interdisciplinary communication (9). Previous literature has emphasized that continuing professional development, supervised clinical practice, and interdisciplinary competency training can improve preparedness for dysphagia management (6). The present findings support the need for structured and practical education programs that address both basic recognition and discipline-specific roles in dysphagia care.

A significant positive correlation was observed between training exposure and knowledge scores, indicating that participants with greater training exposure tended to have higher knowledge scores. This association should be interpreted cautiously because the cross-sectional design does not establish causality. However, the finding is consistent with the expectation that repeated educational and clinical exposure may be related to better understanding of dysphagia assessment, referral, and management principles. Training exposure was also significantly correlated with attitude scores, suggesting that professionals with greater exposure may have more favorable perceptions of their role in dysphagia care. Similar associations between educational exposure, confidence, and professional engagement have been reported in studies examining healthcare professionals' dysphagia-related knowledge and attitudes (6).

Knowledge score was significantly correlated with attitude score, and categorical analysis also showed a significant association between knowledge category and attitude category. Positive attitudes were present in 93.8% of participants with good knowledge compared with 60.0% of those with poor knowledge. This finding suggests that better understanding of dysphagia may be linked with greater professional readiness and acceptance of shared responsibility in dysphagia management. Since positive attitudes alone may be insufficient for safe practice, educational interventions should focus not only on awareness but also on practical competencies such as aspiration risk identification, safe feeding support, oral hygiene, positioning, diet modification principles, and timely referral.

Most demographic and professional variables were not significantly associated with knowledge, attitude, or training exposure categories. Age, gender, profession, clinical experience, and work setting did not show statistically significant associations with the main categorical outcomes. These findings suggest that dysphagia-related educational needs may be distributed across professional groups and experience levels rather than confined to one discipline. Although some numerical differences were observed, such as higher proportions of good knowledge among nurses and inpatient rehabilitation participants, these differences did not reach statistical significance. Therefore, training initiatives should be designed for the broader multidisciplinary workforce rather than targeted only to selected professional groups.

The UAE context is particularly relevant because the country has undergone major development in healthcare delivery, rehabilitation services, specialty care, and long-term care systems (26). The UAE healthcare workforce is also diverse, with professionals trained across different countries and educational systems, which may contribute to variation in clinical preparation and practice patterns (27). In this setting, standardized dysphagia training may help promote consistency in screening awareness, referral decisions, and multidisciplinary management. Given the increasing burden of chronic neurological and medical conditions, strengthening dysphagia-related competencies among frontline professionals may contribute to safer patient care in UAE healthcare settings (28).

This study has several strengths. It included five professional groups with equal representation, allowing dysphagia-related knowledge, attitudes, and training exposure to be assessed across a multidisciplinary sample. The study also evaluated the relationships among knowledge, attitudes, and training exposure, providing insight into how these domains are interrelated in clinical practice. The questionnaire demonstrated good internal consistency for the knowledge scale and acceptable internal consistency for the attitude scale, supporting the reliability of the main study measures.

Several limitations should be considered when interpreting the findings. The study used convenience sampling and included a relatively small sample size, which may limit generalizability. The use of self-reported questionnaire responses may introduce response bias, particularly for attitude and training exposure items. The cross-sectional design also prevents causal interpretation of the observed associations among training exposure, knowledge, and attitudes. In addition, the training exposure scale demonstrated only moderate internal consistency, suggesting that future studies may need to refine this domain and examine different types of educational exposure more specifically. Larger multicenter studies across different emirates and healthcare sectors are recommended to confirm these findings and evaluate the impact of structured dysphagia training on professional competency and patient-related outcomes.

CONCLUSION

This study found that healthcare and allied healthcare professionals in the UAE generally demonstrated average-to-good knowledge and positive attitudes regarding dysphagia management, while training exposure was mostly moderate. Significant positive associations were observed among knowledge, attitudes, and training exposure, and knowledge category was significantly associated with attitude category. However, demographic and professional variables were not significantly associated with most outcomes, indicating that dysphagia-related educational needs may exist across the wider multidisciplinary workforce. These findings support the need for structured interdisciplinary training programs focused on dysphagia recognition, aspiration risk identification, safe feeding practices, referral pathways, and collaborative management to strengthen clinical preparedness and improve the safety and quality of dysphagia care in UAE healthcare settings.

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