

Development and Validation of a Questionnaire to Assess the Knowledge of Dysphagia, Practice, and Barriers in Rehabilitation Among Physiotherapists.

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ABSTRACT

Context: Dysphagia is a medical disease that causes difficulty swallowing or eating. It affects an estimated 590 million individuals globally. It is essential to understand a physiotherapist's knowledge of dysphagia, practices, and barriers in its rehabilitation since delayed diagnosis and inadequate treatment can cause more complications. However, no validated instrument evaluates knowledge, practice, and barriers toward dysphagia.

Aim: To develop and validate a questionnaire to assess knowledge, practice, and barriers in dysphagia rehabilitation among physiotherapists

Settings and Design: An observational (exploratory) study targeted at physiotherapists, primarily neurophysiotherapists and physiotherapists dealing with dysphagia in tertiary care hospitals across India

Methods and Materials: A self-constructed questionnaire assessing the knowledge, practice, and barriers of dysphagia and its rehabilitation among physiotherapists was developed, followed by two rounds of content validation by an expert panel. Content Validity Index was used to validate the questionnaire domains. Pilot testing was conducted on 10 physiotherapists in which the developed questionnaire was administered.

Statistical analysis used: The validity and reliability of the questionnaire were analysed using the Content validity index and Cronbach's alpha. Data was analysed by using the SPSS software (spss Inc.; Chicago, IL) version 29.0.10.

Results: The computed content validity index (CVI) for the questionnaire was found to be 0.96. The internal consistency coefficients indicated excellent reliability of the questionnaire (Cronbach's $\alpha = 0.91$).

Conclusions: This study presents a statistical valid and reliable questionnaire that can be used to evaluate knowledge, practices, and barriers towards dysphagia among physiotherapist...

Keywords: Dysphagia, Physiotherapy, Knowledge, Rehabilitation practice, Barriers, Questionnaire development and validation.

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INTRODUCTION

Dysphagia is a swallowing disorder affecting the upper gastrointestinal tract, with an estimated global prevalence of 590 million individuals. It significantly impairs quality of life and, if untreated, can lead to serious complications, including malnutrition, aspiration pneumonia, and increased mortality^{1,3}. People with dysphagia have a lower quality of life, and those who lack access to the right care and therapies have a higher risk of complications, longer hospital stays, and a higher death rate. It is stated that 39.2% of dysphagia patients are at risk for malnutrition and that 13.6% of individuals at risk for malnutrition have dysphagia.⁶ There are many possible causes, ranging from neurological conditions like stroke and motor neuron disease, to cancers in the head and neck area. Other causes include muscle and nerve disorders such as

dermatomyositis, memory-related illnesses like dementia, injuries to the cervical spine, and even changes in the bones of the spine like anterior vertebral ossification.³ Dysphagia is a serious condition that can lead to high rates of illness and even death. If left untreated, it can cause dehydration, malnutrition, and respiratory infections. It is also often a warning sign of a poor overall outlook, with risks of long-term disability, longer hospital stays, limited progress in rehabilitation, and, in some cases, can be life-threatening.¹⁻⁵ Patients with dysphagia face considerable social and psychological burdens because of their swallowing difficulties, which may include anxiety during meals or avoidance of dining with others.¹ There is a range of treatment options for oropharyngeal dysphagia, and they are often tailored to each person's specific needs. These may include changing the texture of food and drinks to

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make swallowing easier, using certain head or body positions while eating, and doing exercises to strengthen the muscles used in swallowing. Therapies can also involve gentle electrical stimulation, temperature or touch-based techniques to help trigger the swallowing reflex, and even newer methods like brain stimulation to support recovery.⁵ In stroke patients with dysphagia who showed improvement after swallowing therapy, one of the brain areas that became more active was the supramarginal gyrus on the side of the brain that received stimulation—suggesting it plays a key role in the recovery of the swallowing network.² Making an early and accurate diagnosis of dysphagia, along with timely and appropriate treatment, can significantly improve a patient's quality of life—and may even help prevent or delay serious complications, including death.³ Since there is currently no established tool to evaluate how well physiotherapists understand and manage dysphagia, this study set out to develop and validate a questionnaire that explores their knowledge, clinical practices, and the challenges they face in rehabilitation.

METHODOLOGY: Institutional Ethical Board approved this study, and the development and validation of the KPB Dysphagia questionnaire followed a two-phase process. In Phase 1, items were created based on a thorough review of the relevant literature, and the content was evaluated by a panel of expert reviewers. Their feedback was used to refine and improve the questionnaire. In Phase 2, the revised questionnaire was tested in a pilot study to assess its validity.

PHASE 1:

1.1 Item generation: First, a literature review was conducted to define the construct of interest, identify relevant domains, and develop the initial version of the questionnaire. Searches were carried out across several databases, including PubMed, EBSCO, MEDLINE, Embase, and CINAHL, using carefully selected keywords, e.g., 'dysphagia', 'swallowing difficulty', 'physiotherapy rehabilitation', 'dysphagia knowledge, practice', and 'assessment tool'. A thorough review of the literature was done, and three domains were identified: knowledge, practice, and barriers. The "knowledge" questions were designed to assess knowledge of dysphagia. The "practice" domain covered questions focused on the assessment tools and physiotherapy rehabilitation. The "barrier" questions were developed to understand the barriers faced by practitioners, and a total of 30 items were included in the initial questionnaire.

1.2 Content validation: To ensure the content of the preliminary KPB Dysphagia questionnaire was valid, content validity indices (CVIs) were calculated based on feedback from expert reviewers. A CVI tool and the first draft of the questionnaire were sent to 10 carefully selected experts in the fields of academic research and clinical physiotherapy practice. All 10 experts voluntarily participated and completed the surveys. Each expert was asked to rate the relevance of each questionnaire item, assessing how well it reflected the specific domain it was intended to measure. The items were rated on a four-point Likert scale, with scores ranging from 1 (not relevant) to 4

(highly relevant). Both individual item validity (I-CVI) and overall scale validity (S-CVI) were calculated. Not relevant and somewhat relevant were considered 0, and relevant and highly relevant were considered 1 to calculate the I-CVI for the question. They were also asked to give comments regarding the wording and phrasing of the item and the general formulations of the questionnaire. Then, according to the suggestions of the first 10 expert panel, the questionnaire was revised and sent to another panel of 10 experts who were chosen based on their expertise and who agreed to participate. After that, again I-CVI was calculated by the same method for the 3 domains. The questionnaires' first part consisted of demographic characteristics, and the second part consisted of 30 items labelled into 3 domains: knowledge, practice, and barriers.

PHASE 2: Validity of questionnaire: After item generation and content validation, pilot study was conducted to validate the questionnaire using convenience sampling technique with sample size of 10. Participants inclusion criteria were qualified neurophysiotherapist or physiotherapist dealing with dysphagia of both genders presently working in academics/hospitals / private clinics, whereas participants not willing to participate were excluded from the study. A self-developed questionnaire was delivered to participants as a Google Form. In Google Form, the first part was a consent form where the participants who said yes to participate got access to solve the questionnaire.

STATISTICAL ANALYSIS: The collected data were summarized by using the Descriptive Statistics: frequency, percentage, mean, and S.D. The Content Validity Index (CVI) was computed to assess the validity of the questionnaire. Cronbach's Alpha was used to assess the reliability of the questionnaire. Data was analysed by using the SPSS software (SPSS Inc., Chicago, IL) version 29.0.10.

RESULTS: The validity of questionnaire domains was calculated using the content validity index for individual items (I-CVI). After round 1 of content validity by 10 experts, the CVI score for domain 1(knowledge) was 0.8. For domain 2, which focused on practice, the CVI score was 0.9. For domain 3 (barrier) was 0.9. These scores were obtained after the first round of evaluation, where ten experts rated the relevance of the questionnaire items. These results indicate strong content validity for domains 3 and 4, with the knowledge domain also being well-received (Table 1). After receiving feedback from the experts of the first round, the questionnaire was revised to incorporate the suggested corrections. The revised questionnaire was evaluated for the second round of validation. In this round, ten experts evaluated the relevance of items in each domain. The content validity index for each domain was improved; for domain 1 (knowledge), it was 0.9 and for domain 2 (practice) and domain 3 (barrier), it was 1. After revisions, all domains achieved excellent content validity (S-CVI = 0.96), indicating improved item clarity and relevance (Table 2). A total of 10 respondents participated in the study. The age distribution ranged from 21 to 50 years, with the majority aged 50 (25 %). Participants were predominantly

from urban healthcare facilities (75 %), while the remaining 25.0% were from rural settings. Regarding educational qualifications, half held a bachelor's degree (50 %), 41.7% held a master's degree, and 8.3% had a post-graduate diploma. Most respondents (91.7%) worked in hospitals, with only one participant (8.3%) from a rehabilitation centre. Additionally, 25 % reported having post-graduate qualifications.

KPB about dysphagia was analysed with the help of 30 questions, 10 questions in each domain, and respondents were requested to provide their views on the listed questions. To determine the reliability of the respondents, Cronbach's Alpha values were analysed. It was observed that the KPB domains scored 0.942, 0.948, and 0.853, respectively, and the overall was 0.915. that is statistically excellent (Tables 3 and 4).

DISCUSSION: This study aimed to develop and validate the knowledge, practices, and barriers in dysphagia rehabilitation. Physiotherapy stands at the forefront of rehabilitation, offering vital interventions to enhance the lives of individuals. Swallowing difficulty or dysphagia is frequently reported by individuals with neurological conditions when there are lesions in the supramarginal gyrus and in head and neck cancer, either as their presenting symptom or because of cancer treatment. Dysphagia leads to nutritional deficiencies and hampers social functioning. However, the effectiveness of physiotherapy treatment not only relies on the skills but also on knowledge, practices, and barriers faced by therapists.

The findings reflect those of previous work that highlighted the need for standardized tools in dysphagia assessment. One study emphasized that the integration of assessment tools, including questionnaires, is critical in planning individualized and effective dysphagia management. The availability of a validated questionnaire will therefore enhance early recognition and intervention planning by physiotherapists.

In terms of knowledge, the result of validation demonstrated that the questionnaire can effectively assess the key aspect of dysphagia. In particular, the knowledge domain allows insight into physiotherapists' understanding of dysphagia aetiology, symptoms, and complications. As seen in studies of post-stroke patients, early physiotherapy intervention can influence brain plasticity and rehabilitation

outcomes. However, the application of such interventions depends on a therapist's foundational knowledge.

The practice domain evaluates familiarity with assessment tools, referral pathways, and intervention strategies. This is especially relevant as dysphagia is often under-recognized in non-speech therapy settings. Empowering physiotherapists with the right tools and protocols ensures timely multidisciplinary care.

The barriers domain identifies institutional, educational, and logistical limitations faced by therapists. Understanding these constraints is crucial for system-level changes, such as the inclusion of dysphagia education in physiotherapy curricula or improving referral mechanisms.

The content validity score is 0.96, indicating that the questionnaire items were clear, relevant, and acceptable for the intended group. The content validity index (CVI) was high, indicating that the questionnaire adequately addressed the essential domains of dysphagia knowledge, practices, and barriers. The knowledge, practices, and barriers domains have Cronbach's alpha values of 0.94, 0.94, and 0.85, respectively. As a result, KPB dysphagia can be used to measure physiotherapists' knowledge, practices, and barriers in dysphagia rehabilitation. Hospitals, training centres, and professional organizations can use this questionnaire to get a clear picture of what physiotherapists currently know about dysphagia. It can help highlight areas where more training or support is needed, making it easier to design focused educational programs and improve the quality-of-care patients receive. The pilot testing was limited to a small sample of 10 participants, which may not fully capture the diversity of physiotherapists' experience across regions or specialties. Further testing with larger and more varied populations is needed to confirm the tool's broader applicability.

CONCLUSION: The KPB Dysphagia Questionnaire is a reliable and valid tool for assessing physiotherapists' knowledge, practices, and perceived barriers in dysphagia rehabilitation. It fills a critical gap in current assessment tools and can be effectively used for research, training, and practice evaluation. Future studies should explore broader applications of the tool across varied demographics and healthcare settings.

Table 1: Content validity index for round 1 based on the rating of relevance of items by 10 experts

Items	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10	I-CVI
Domain 1 (knowledge)	1	1	1	1	1	1	1	0	1	0	0.8
Domain 2	1	1	1	0	1	1	1	1	1	1	0.9

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(Practice)											
Domain 3 (barriers)	1	1	1	1	0	1	1	1	1	1	0.9
Average I-CVI											0.86

Table 2: Content validity index for round 2 based on the rating of relevance of items by 10 experts.

Items	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Expert 8	Expert 9	Expert 10	I-CVI
Domain 1 (knowledge)	1	1	1	1	1	1	1	0	1	1	0.9
Domain 2 (practice)	1	1	1	1	1	1	1	1	1	1	1
Domain 3 (barriers)	1	1	1	1	1	1	1	1	1	1	1
Average I-CVI											0.96

Table 3: Item-wise reliability analysis (Cronbach's Alpha)

Cronbach's Alpha = 0.942				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	26.67	24.242	.931	.927
Q2	26.67	24.242	.931	.927
Q3	25.25	28.205	.790	.937
Q4	25.92	27.174	.807	.935
Q5	24.75	31.659	.322	.951
Q6	24.42	28.447	.857	.936

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Q7	25.83	26.515	.779	.935
Q8	27.17	24.515	.832	.934
Q9	26.25	23.659	.840	.935
Q10	25.08	28.629	.707	.940
Cronbach's Alpha = 0.948				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q11	27.75	25.295	.957	.935
Q12	27.25	27.295	.826	.941
Q13	27.08	29.538	.811	.941
Q14	28.25	29.659	.647	.949
Q15	28.67	26.606	.971	.933
Q16	28.67	26.606	.971	.933
Q17	27.25	31.114	.783	.944
Q18	27.92	29.538	.881	.939
Q19	26.75	34.568	.362	.956
Q20	26.42	32.083	.701	.947
Cronbach's Alpha = 0.853				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q21	32.58	67.720	.492	.845
Q22	32.00	67.091	.302	.863
Q23	31.83	64.879	.636	.834
Q24	31.83	63.424	.730	.828
Q25	32.08	67.174	.414	.850
Q26	32.92	61.174	.708	.826
Q27	32.33	55.879	.766	.817
Q28	33.25	60.205	.635	.831

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Q29	32.92	57.538	.769	.818
Q30	33.00	67.273	.327	.853

Table 4. Reliability Analysis (Cronbach's Alpha)

Scale	Number of Items	Cronbach's Alpha
Q1-Q10	10	0.942
Q11-Q20	10	0.948
Q21-Q30	10	0.853
All Items (Q1-Q30)	30	0.915

REFERENCE

- Mitra, T., Dixit, V. K., Shukla, S. K., Yadav, D. P., Thakur, P., & Thakur, R. K. (2020). Clinical profile of patients presenting with dysphagia - an experience from a tertiary care center in North India. *JGH Open*, 4(3), 472–476. <https://doi.org/10.1002/jgh3.12284>
- Farpour, S., Asadi-Shekaari, M., Borhani Haghghi, A., & Farpour, H. R. (2023). Improving Swallowing Function and Ability in Post Stroke Dysphagia: A Randomized Clinical Trial. *Dysphagia*, 38(1), 330–339. <https://doi.org/10.1007/s00455-022-10470-0>
- Martino, R., Foley, N., Bhogal, S., Diamant, N., Speechley, M., & Teasell, R. (2005). Dysphagia After Stroke: Incidence, Diagnosis, and Pulmonary Complications. *Stroke*, 36(12), 2756–2763. <https://doi.org/10.1161/01.STR.0000190056.76543.eb>
- Panebianco, M., Marchese-Ragona, R., Masiero, S., & Restivo, D. A. (2020). Dysphagia in neurological diseases: A literature review. *Neurological Sciences*, 41(11), 3067–3073. <https://doi.org/10.1007/s10072-020-04495-2>
- Ciritella, C., Spina, S., Cinone, N., Pio Giordano, M., Facciorusso, S., & Santamato, A. (2024). Focal muscle vibrations improve swallowing in persistent dysphagia after traumatic brain injury: A case report. *Turkish Journal of Physical Medicine and Rehabilitation*, 70(2), 274–278. <https://doi.org/10.5606/tftrd.2023.11351>
- Ueshima, J., Momosaki, R., Shimizu, A., Motokawa, K., Sonoi, M., Shirai, Y., Uno, C., Kokura, Y., Shimizu, M., Nishiyama, A., Moriyama, D., Yamamoto, K., & Sakai, K. (2021). Nutritional Assessment in Adult Patients with Dysphagia: A Scoping Review. *Nutrients*, 13(3), 778. <https://doi.org/10.3390/nu13030778>
- Dodderi, T., Sreenath, D., Shetty, M. J., Chilwan, U., Rai, S. P. V., Moolambally, S. R., Balasubramaniam, R. K., & Kothari, M. (2024). Prevalence of Self-Reported Swallowing Difficulties and Swallowing-Related Quality of Life Among Community-Dwelling Older Adults in India. *Dysphagia*. <https://doi.org/10.1007/s00455-024-10696-0>
- Carnaby, G. D., LaGorio, L., Silliman, S., & Crary, M. (2020). Exercise-based swallowing intervention (McNeill Dysphagia Therapy) with adjunctive NMES to treat dysphagia post-stroke: A double-blind placebo-controlled trial. *Journal of Oral Rehabilitation*, 47(4), 501–510. <https://doi.org/10.1111/joor.12928>
- Salcedo Arroyo, P., Corona Bellostas, C., Vargova, P., Fernández Atuan, R., Bragagnini Rodríguez, P., García Romero, R., Ros Arnal, I., Romea Montañés, M., & Escartín Villacampa, R. (2023). Dysphagia in patients undergoing esophageal atresia surgery: Assessment using a functional scale. *Cirugía Pediátrica*, 36(4), 152–158. <https://doi.org/10.54847/cp.2023.04.10>
- Antonios, N., Carnaby-Mann, G., Crary, M., Miller, L., Hubbard, H., Hood, K., Sambandam, R., Xavier, A., & Silliman, S. (2010). Analysis of a Physician Tool for Evaluating Dysphagia on an Inpatient Stroke Unit: The Modified Mann Assessment of Swallowing Ability. *Journal of Stroke and Cerebrovascular Diseases*, 19(1), 49–57. <https://doi.org/10.1016/j.jstrokecerebrovasdis.2009.03.007>
- Vogel, A. P., Rommel, N., Sauer, C., Horger, M., Krumm, P., Himmelbach, M., & Synofzik, M. (2017). Clinical assessment of dysphagia in neurodegeneration (CADN): Development, validity and reliability of a bedside tool for dysphagia assessment. *Journal of Neurology*, 264(6), 1107–1117. <https://doi.org/10.1007/s00415-017-8499-7>
- Langmore, S. E., McCulloch, T. M., Krisciunas, G. P., Lazarus, C. L., Van Daele, D. J., Pauloski, B. R., Rybin, D., & Doros, G. (2016). Efficacy of electrical stimulation and exercise for dysphagia in patients with head and neck cancer: A randomized clinical trial. *Head & Neck*, 38(S1). <https://doi.org/10.1002/hed.24197>
- Yang, S., Park, J.-W., Min, K., Lee, Y. S., Song, Y.-J., Choi, S. H., Kim, D. Y., Lee, S. H., Yang, H. S., Cha, W., Kim, J. W., Oh, B.-M., Seo, H. G., Kim, M.-W., Woo, H.-S., Park, S.-J., Jee, S., Oh, J. S., Park, K. D., ... Choi, K. H. (2023). Clinical Practice Guidelines for Oropharyngeal Dysphagia. *Annals of Rehabilitation Medicine*, 47(Suppl 1), S1–S26. <https://doi.org/10.5535/arm.23069>
- Patterson, J. M., & Lawton, M. (2023). Dysphagia Advances in Head and Neck Cancer. *Current Otorhinolaryngology Reports*, 11(2), 166–173. <https://doi.org/10.1007/s40136-023-00445-6>