

Research Article

Content validation of a structured questionnaire to assess the knowledge, attitudes, and practices of respiratory therapists regarding education for COPD self-management

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Abstract

Introduction

Self-management education is a fundamental pillar in the non-pharmacological management of chronic obstructive pulmonary disease (COPD), and respiratory therapists (RTs) play a central role in this process. In Colombia, the heterogeneity of training programs may lead to differences in the knowledge, attitudes, and practices (KAP) of RTs. In this context, the present study aimed to validate the content of an instrument designed to assess RTs' KAP regarding self-management education.

Methods

The instrument, consisting of 25 items distributed across three components (knowledge, attitudes, and practices), was developed by an interdisciplinary team and evaluated by experts in respiratory therapy with experience in COPD and teaching. The evaluation was conducted using an online questionnaire that assessed the dimensions of Relevance, Clarity, Coherence, and Vocabulary on a 0-to-5 Likert scale. To complement the analysis, the I-CVI, S-CVI/Ave, and Aiken's V coefficient were calculated.

Results

Ten of the twelve invited experts completed the evaluation (83.3%). All had training in respiratory therapy and extensive clinical and teaching experience in the management of patients with COPD ($n = 10$, 100%). Ninety-six percent of the items obtained an I-CVI ≥ 0.78 , with Aiken's V values ranging from 0.84 to 1.00. At the scale level, the S-CVI/Ave was 0.96 for Relevance, 0.88 for Clarity and Coherence, and 0.98 for Vocabulary, with a global S-CVI/Ave of 0.94. The lowest scores were observed in the Clarity and Coherence dimension of the Knowledge component (items Q1, Q3, and Q8).

Discussion

The results showed that the instrument has high content validity for assessing the KAP of RTs regarding self-management education for COPD. Although some items in the Knowledge component within the Clarity and Coherence dimension had an I-CVI < 0.78 , Aiken's V values indicated a positive evaluation by the experts, which justified not making any modifications. The differences observed in the Clarity and Coherence dimension are consistent with previous findings regarding the complexity of technical knowledge items. This instrument can guide the implementation of educational strategies, professional training, and future psychometric studies, such as construct validity and reliability assessments.

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Conclusion

The designed instrument demonstrated excellent content validity in Relevance and Vocabulary components and good validity in the Clarity and Coherence component, with items that were relevant, clear, coherent, and used appropriate vocabulary, as supported by I-CVI, S-CVI/Ave, and Aiken's V.

BACKGROUND

The treatment of chronic obstructive pulmonary disease (COPD) combines pharmacological and non-pharmacological strategies aimed at improving quality of life and reducing exacerbations.^{1,2} Among non-pharmacological interventions, self-management education has become an essential pillar, as it promotes disease understanding, active patient participation, and informed decision-making regarding their care.¹⁻⁵

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines define self-management as “a structured, personalized, and multicomponent intervention aimed at motivating, engaging, and supporting patients to adopt healthy behaviours and develop skills to better manage their disease.”¹ This approach highlights the value of education as a transformative tool for behaviour change, enabling patients to acquire effective strategies to manage symptoms, prevent exacerbations, and improve their quality of life.

Thus, self-management education constitutes an essential component of the non-pharmacological management of COPD, as it encourages patients to understand their condition, actively participate in their treatment, and assume a shared responsibility in decision-making.²⁻⁵ In this process, respiratory therapists (RTs) play a fundamental role as educational mediators, facilitating understanding and the learning of self-care strategies.⁶ However, in Colombia, respiratory therapy training programs present limitations in their pedagogical approach, including variability in curricular content related to patient education, a predominance of traditional lecture-based instruction, and limited incorporation of active learning and competency-based educational strategies. These factors may contribute to heterogeneity in the knowledge, attitudes, and practices (KAP) of RTs regarding educational interventions for patients with COPD, underscoring the need for a standardized instrument to assess these domains.

To address this topic and provide a valid methodological tool, an instrument was developed to assess the KAP of RTs regarding self-management education for COPD, based on the conceptual guidelines proposed by GOLD 2025. Although KAP-based instruments are practical for studying educational and healthcare processes, they are prone to biases related to item design, question interpretation, and contextual application. Therefore, their development requires careful consideration of the target population, item formulation, response option construction, scoring methods, and rigorous validation procedures.^{7,8} This highlights the need to validate their content before using it in research or clinical practice.⁹

In this context, the present study aimed to validate the content of the instrument designed to assess the KAP of

RTs regarding self-management education for COPD. This validation aims to ensure that the instrument's items are relevant, clear, coherent, and understandable with respect to the component and construct being measured, thereby guaranteeing the instrument's methodological consistency and robustness before its application in research.

METHODS

STUDY DESIGN

This was an observational, descriptive, cross-sectional study focused on the development and content validation of a questionnaire designed to assess the KAP of respiratory therapists regarding self-management education for patients with COPD, based on the GOLD 2025 framework.

ITEMS GENERATION

During the development of the main protocol, formal working meetings were held with an interdisciplinary team composed of a respiratory therapist, a public health physician, an education specialist, and several experts in research and education. The discussions were video recorded to facilitate subsequent analysis, and based on these discussions and the GOLD 2025 guidelines, the questionnaire items were defined and structured into three main domains: (a) knowledge, (b) attitudes, and (c) practices. After several rounds of review by the research team and the progressive refinement of the items, the final version of the instrument was consolidated with 25 questions (see [Table 1](#)). In addition, complementary questions were included to collect demographic, educational, occupational, and other relevant contextual information (see **Supplementary File 1**). The questionnaire, along with the other components of the instrument, was originally developed in Spanish, as the study was conducted in a Spanish-speaking context.

CONTENT VALIDATION

The content validation of the instrument was carried out by experts selected for their extensive experience in Respiratory Therapy, management of patients with COPD, and background in education or teaching. The identification of participants was conducted in collaboration with the Colegio Colombiano de Terapeutas Respiratorios (Colombian College of Respiratory Therapy), which recommended qualified professionals. Participants who agreed to take part in the validation process but did not submit their responses within the established timeframe were excluded.

Regarding the number of experts involved in the content validation process, it is important to note that methodological literature does not define large sample sizes as a re-

Table 1. Structure and content of the questionnaire

Knowledge Component		
N°	Question	Response options
1	How would you define the concept of self-management education for COPD?	Single-answer multiple choice
2	Which aspects of COPD self-management behaviors should be reviewed with the patient during a follow-up visit?	Single-answer multiple choice
3	The importance of educating patients with COPD about exacerbation symptoms lies in enabling them to better manage their disease. Why is this education essential for self-management?	Single-answer multiple choice
4	What type of COPD exacerbation action plans, combined with a brief educational component and ongoing support, have been shown to reduce hospital healthcare utilization?	Single-answer multiple choice
5	Why is it important to assess medication adherence in the context of COPD self-management?	Single-answer multiple choice
6	Regarding exacerbations, which specific aspects should be monitored for effective self-management according to the GOLD 2025 guidelines?	Single-answer multiple choice
7	Why might stress management be important for people with COPD?	Single-answer multiple choice
8	What should be done at the end of a remote follow-up visit to ensure good self-management and a clear plan for the patient?	Single-answer multiple choice
9	What is the main difference between traditional education and self-management education in patients with COPD?	Single-answer multiple choice
10	According to the GOLD guidelines, self-management education in COPD aims to:	Single-answer multiple choice
11	Which of the following roles does the respiratory therapist play in COPD self-management education?	Single-answer multiple choice
Attitudes Component		
N°	Question	Response options
1	I believe that self-management education improves the quality of life of patients with COPD	Five-point Likert scale
2	Incorporating self-management education strategies into clinical practice is a fundamental responsibility of the respiratory therapist	Five-point Likert scale
3	Patients with COPD are able to self-manage their disease if they receive appropriate education	Five-point Likert scale
4	I believe that self-management education for COPD should be a priority in pulmonary rehabilitation programs	Five-point Likert scale
5	I believe that I have the necessary skills and knowledge to educate patients with COPD about self-management of their disease	Five-point Likert scale
6	I believe that the university provided me with all the necessary tools to educate patients with COPD about the self-management of their disease	Five-point Likert scale
7	I believe that patients with COPD show initial resistance to self-management education	Five-point Likert scale
8	I believe that workload makes it difficult to dedicate time to self-management education	Five-point Likert scale
Practices Component		
N°	Question	Response options
1	I provide education to patients with COPD regularly in my clinical practice	Five-point Likert scale
2	I use specific strategies to educate patients about their treatment and self-care	Five-point Likert scale
3	I regularly use various strategies to educate my patients and their families in the self-management of their disease	Five-point Likert scale
4	I assess whether patients have understood the information provided about their disease	Five-point Likert scale
5	I involve family members or caregivers in the education of patients with COPD	Five-point Likert scale
6	I agree that I use written or audiovisual materials in patient education	Five-point Likert scale

COPD = Chronic Obstructive Pulmonary Disease; GOLD = Global Initiative for Chronic Obstructive Lung Disease. For the Knowledge Component, questions are multiple-choice with a single correct answer. For the Attitudes and Practices Components, responses are measured using a five-point Likert scale ranging from "Strongly disagree" to "Strongly agree."

quirement for expert-based content validity studies.^{7,10-13} Authors such as Lynn and Polit and Beck recommend panels of 5 to 10 experts as adequate to ensure robust judgment while maintaining feasibility and depth of evaluation, particularly when the panel has extensive clinical and educational experience.¹¹⁻¹³ In this study, ten of the twelve invited respiratory therapists with a high level of expertise in COPD management and education participated, which meets and exceeds the minimum recommended threshold. Furthermore, with ten experts, an I-CVI value ≥ 0.78 is considered evidence of excellent content validity, strengthening the methodological rigour of the validation process.^{7,10,11}

Each item was evaluated in three aspects: Relevance, Clarity and Coherence, and Vocabulary. The assessment was conducted using an online instrument, assigning a score from 0 to 5 (0–1 = inadequate, 2–3 = moderately adequate, 4–5 = excellent) (**Supplementary File 2**).

The method proposed by Lynn was applied, considering both the item-level content validity index (I-CVI) and the scale-level content validity index (S-CVI/Average).^{12,13} For the I-CVI, an item was considered essential if it obtained an average score ≥ 4.0 . The S-CVI/Average was calculated for each component (Relevance, Clarity and Coherence, and Vocabulary), and by subsequently integrating all items and components, a global S-CVI/Average was obtained.

Additionally, Aiken's V coefficient was calculated for each item, weighting the scores assigned by the experts to complement the results and assess the degree of agreement among them.^{14,15} The I-CVI was obtained by dividing the number of experts who rated an item as essential by the total number of experts, while the S-CVI/Average was calculated by averaging the I-CVI values of all items within each component, thus providing an overall view of content validity.

It was considered that an I-CVI ≥ 0.78 for each item constitutes evidence of excellent content validity. I-CVI values between 0.70 and 0.77 were interpreted as acceptable or moderate, whereas values below 0.70 indicated insufficient or low validity, in accordance with the criteria proposed by various authors.^{12,13}

An S-CVI/Ave ≥ 0.90 for the overall scale was considered indicative of excellent content validity, while values between 0.80 and 0.89 reflected good validity. In this case, values below 0.70 were also interpreted as evidence of insufficient or poor validity.^{12,13}

The evaluation was complemented by an analysis of Aiken's V coefficient, with values between 0.90 and 1.00 considered indicative of excellent validity, and values between 0.70 and 0.89 representing adequate or good validity. Values below 0.70 were deemed insufficient or inadequate, indicating low agreement among evaluators.^{14,15}

The I-CVI and Aiken's V coefficient were selected as the primary quantitative measures of content validity because they are widely recommended and extensively used methods for evaluating the relevance, clarity, and representativeness of instrument items based on expert judgment, particularly in healthcare research and instrument development.¹⁰⁻¹³ The I-CVI provides a straightforward, inter-

pretable estimate of the proportion of experts who consider an item relevant, making it especially appropriate for studies focused on expert-based content evaluation rather than on inter-rater reliability.¹⁰⁻¹² Aiken's V was additionally included as a complementary measure because it accounts for the ordinal nature of rating scales and provides a robust estimate of the degree of agreement among experts regarding item adequacy.¹⁴

Alternative approaches such as the Delphi technique, Content Validity Ratio (CVR), and the modified kappa statistic were not used in this study. The Delphi technique is primarily designed to achieve consensus through multiple iterative rounds, whereas this study aimed to conduct a structured quantitative evaluation of content validity in a single expert-review phase. The CVR was not selected because it relies on dichotomous ratings (essential vs. non-essential), which provide less sensitivity than ordinal scales for evaluating multiple content dimensions such as relevance, clarity, and coherence. Similarly, the modified kappa statistic is mainly intended to adjust for chance agreement, whereas the primary objective of this study was to evaluate expert-perceived content adequacy rather than chance-corrected agreement. Therefore, the combined use of the I-CVI and Aiken's V coefficient was considered the most appropriate and methodologically robust approach to ensure a comprehensive and reliable quantitative assessment of content validity.

STATISTICS

Data were initially entered and cleaned in Microsoft Excel before being exported to the statistical software Jamovi version 2.5.3 for further analysis. For the evaluators' characteristics, categorical variables were described using frequencies and percentages, while numerical variables were tested for normality and reported as means and standard deviations as appropriate. The values provided by the experts were recorded as quantitative variables for calculating the I-CVI, categorizing items as essential or non-essential according to the established criterion (score ≥ 4.0). In parallel, these data were also used to compute Aiken's V coefficient to complement the content validity analysis.

ETHICAL CONSIDERATIONS

This report is part of the research project entitled "*Knowledge, attitudes, and practices of respiratory therapists from Medellín and the Eastern Antioquia region regarding education for self-management of chronic obstructive pulmonary disease*", which was approved by the Ethics Committee of the Institute of Medical Research at the University of Antioquia, as recorded in minutes No. 095 dated October 9, 2025.

RESULTS

CHARACTERISTICS OF EXPERTS

Of the 12 invited experts, 10 completed and submitted the data collection form within the established time frame (response rate: 83.3%). All participants were professionals in

Table 2. Characteristics of the experts (n = 10)

Variable	f (%)
Undergraduate degree	
<i>Bachelor's degree in Respiratory Therapy</i>	10 (100.0)
Postgraduate education	
<i>Specialization</i>	10 (100.0)
<i>Master's degree</i>	5 (50.0)
<i>Doctorate</i>	0 (0.0)
<i>Two or more postgraduate degrees</i>	7 (70.0)
<i>Three postgraduate degrees</i>	1 (10.0)
<i>Postgraduate training in education or pedagogy</i>	5 (50.0)
Professional experience in education	
<i>Yes</i>	10 (100.0)
Variable	Mean (SD)
<i>Professional experience (years)</i>	20.2 (± 7.6)
<i>Specific experience in COPD (years)</i>	15.3 (± 7.2)

Categorical variables are presented as frequency and percentage, and continuous variables are expressed as mean $\pm$ standard deviation. COPD = chronic obstructive pulmonary disease. Postgraduate academic qualifications are not mutually exclusive, and experts may hold more than one postgraduate qualification.

Respiratory Therapy ($n = 10$; 100%), with an average professional experience of 20.2 ± 7.6 years. The mean experience specifically in managing patients with COPD was 15.3 ± 7.2 years, and all participants reported experience in teaching or education ($n = 10$; 100%).

Regarding academic qualifications, all experts held at least one postgraduate degree (100%). Notably, five experts ($n = 5$; 50%) had formal postgraduate training in education, pedagogy, or teaching, including specialization and master's degrees in education-related fields. Additionally, several experts held postgraduate degrees in public health ($n = 2$; 20%), project management ($n = 3$; 30%), and healthcare administration ($n = 2$; 20%), further supporting the academic and methodological strength of the expert panel. Detailed descriptive results are presented in [Table 2](#).

The normality analysis using the Shapiro–Wilk test indicated a normal distribution for the quantitative variables of professional experience ($W = 0.952$; $p = 0.696$) and COPD experience ($W = 0.932$; $p = 0.469$).

ITEM-LEVEL CONTENT VALIDITY

A total of 96% (72 out of 75) of the evaluated items belonging to the three components of the KAP instrument achieved I-CVI values of 1.00 or 0.90. When analyzing the three assessment dimensions—Relevance, Clarity and Coherence, and Vocabulary—it was observed that the lowest I-CVI values were concentrated in the Clarity and Coherence dimension of the Knowledge component ([Table 3](#)). In this dimension, items Q1, Q3, and Q8 obtained an I-CVI of 0.70, corresponding to the lowest recorded value.

Aiken's V values ranged from 0.84 to 1.00 across all items of the instrument. In the Knowledge component, within the Clarity and Coherence dimension where the lowest I-CVI values were recorded, items Q1, Q3, and Q8 showed Aiken's V values between 0.84 and 0.86, while the

remaining items were above 0.90. In the Attitudes and Practices components, I-CVI and Aiken's V values were consistent across the three dimensions, mostly ranging from 0.90 to 1.00.

SCALE-LEVEL CONTENT VALIDITY

The S-CVI/Ave demonstrated excellent content validity in two of the evaluated criteria and good validity in one ([Table 4](#)). Specifically, Relevance showed an S-CVI/Ave of 0.96, Clarity and Coherence 0.88, and Vocabulary 0.98. The overall average for the instrument reached an S-CVI/Ave of 0.94.

DISCUSSION

This report showed that the overall S-CVI/Ave value (0.94) exceeds the recommended minimum threshold of 0.90 for acceptable content validity, indicating that the items were evaluated as appropriate and representative of the content on knowledge, attitudes, and practices regarding self-management education for COPD across the dimensions of Relevance, Clarity and Coherence, and Vocabulary.^{12,13} Complementarily, Aiken's V coefficients ranged from 0.84 to 1.00, supporting the relevance and adequacy of the items according to the weighting provided by the expert judges.^{14, 15}

Previous studies have documented the content validation of KAP-type instruments in various fields, where values above 0.70 or 0.78 are interpreted as evidence of excellent quality and semantic consistency of the items. For example, in the study by Kusi-Amponsah et al., which compared the content validity of two instruments used to measure knowledge and attitudes regarding pediatric pain, a cutoff of I-CVI ≥ 0.70 was applied.¹⁶ In contrast, other studies have used a cutoff of 0.78 as a reference.¹⁷⁻¹⁹ In the

Table 3. Item-level content validity of each component of the KAP instrument

Relevance			Clarity and Coherence			Vocabulary		
Knowledge								
Question	I-CVI	Aiken's V	Question	I-CVI	Aiken's V	Question	I-CVI	Aiken's V
Q1	0.90	0.96	Q1	0.70	0.86	Q1	1.00	0.98
Q2	1.00	1.00	Q2	0.80	0.90	Q2	1.00	0.98
Q3	0.90	0.96	Q3	0.70	0.84	Q3	1.00	0.98
Q4	1.00	0.96	Q4	0.80	0.88	Q4	1.00	1.00
Q5	1.00	0.98	Q5	0.90	0.94	Q5	1.00	0.98
Q6	1.00	0.98	Q6	0.90	0.92	Q6	1.00	1.00
Q7	0.90	0.92	Q7	0.90	0.86	Q7	1.00	0.98
Q8	1.00	0.98	Q8	0.70	0.84	Q8	1.00	0.98
Q9	1.00	0.96	Q9	0.80	0.90	Q9	0.90	0.94
Q10	1.00	0.98	Q10	0.80	0.90	Q10	1.00	1.00
Q11	1.00	0.98	Q11	0.80	0.88	Q11	1.00	0.98
Attitudes								
Question	I-CVI	Aiken's V	Question	I-CVI	Aiken's V	Question	I-CVI	Aiken's V
Q1	1.00	1.00	Q1	1.00	0.98	Q1	1.00	1.00
Q2	1.00	1.00	Q2	1.00	1.00	Q2	1.00	1.00
Q3	0.90	0.96	Q3	0.80	0.92	Q3	0.90	1.00
Q4	0.90	0.96	Q4	1.00	0.98	Q4	0.90	1.00
Q5	1.00	0.98	Q5	1.00	1.00	Q5	1.00	1.00
Q6	0.90	0.90	Q6	0.80	0.92	Q6	0.90	0.98
Q7	0.90	0.92	Q7	0.90	0.92	Q7	0.90	0.96
Q8	0.90	0.94	Q8	0.90	0.92	Q8	0.90	0.92
Practices								
Question	I-CVI	Aiken's V	Question	I-CVI	Aiken's V	Question	I-CVI	Aiken's V
Q1	1.00	1.00	Q1	1.00	0.96	Q1	1.00	1.00
Q2	1.00	1.00	Q2	1.00	0.98	Q2	1.00	1.00
Q3	0.90	0.94	Q3	0.90	0.92	Q3	0.90	0.94
Q4	1.00	1.00	Q4	1.00	0.96	Q4	1.00	1.00
Q5	0.90	0.94	Q5	0.90	0.92	Q5	0.90	0.94
Q6	1.00	1.00	Q6	1.00	0.96	Q6	1.00	0.98

I-CVI = Item-Level Content Validity Index; Aiken's V = Aiken's V coefficient; Q = Question. I-CVI values ≥ 0.78 indicate excellent content validity, values between 0.70 and 0.77 indicate acceptable or moderate validity, and values < 0.70 indicate insufficient or low validity. Aiken's V values ≥ 0.90 indicate excellent agreement among experts, values between 0.70 and 0.89 indicate adequate or good agreement, and values < 0.70 indicate insufficient agreement among evaluators.

present report, the obtained values exceed both reference thresholds, demonstrating a robust content validity of the evaluated items.

Our findings contribute to the growing international use of structured KAP instruments to evaluate healthcare professionals' competencies across diverse clinical and educational contexts.^{7,8} Several studies have reported the development or use of KAP-based questionnaires to assess professionals' knowledge, perceptions, and practices in areas such as pediatric pain management, radiation safety, geriatric care, and chronic disease education, demonstrating their usefulness as standardized tools to identify educational needs and guide professional training strategies.²⁰⁻²⁴ Although these instruments have demonstrated acceptable

psychometric properties, the content validation process is not always described comprehensively, particularly with respect to the use of quantitative agreement indices and standardized expert-based validation procedures. Given that rigorous content validation is essential to ensure the conceptual relevance, clarity, and representativeness of instrument items, the present study contributes to the international body of evidence by providing a rigorously content-validated tool specifically designed to assess respiratory therapists' KAP regarding COPD self-management education, addressing an important methodological and clinical gap in the availability of validated instruments for this purpose.

Table 4. Average scale-level content validity index by criterion

Variable	Instrument (25 items)
Relevance	
Number of items with I-CVI > 0.78	25 (100.0%)
Number of items with I-CVI < 0.78	0 (0.0%)
Minimum–Maximum I-CVI	0.90 - 1.00
S-CVI/Ave	0.96
Clarity and Coherence	
Number of items with I-CVI > 0.78	22 (88.0%)
Number of items with I-CVI < 0.78	3 (12.0%)
Minimum–Maximum I-CVI	0.7 - 1.00
S-CVI/Ave	0.88
Vocabulary	
Number of items with I-CVI > 0.78	25 (100.0%)
Number of items with I-CVI < 0.78	0 (0.0%)
Minimum–Maximum I-CVI	0.90 - 1.00
S-CVI/Ave	0.98

Among the three evaluated criteria, the Clarity and Coherence dimension showed the lowest S-CVI/Ave value (0.88), primarily in the Knowledge component. Although this value remains acceptable, it suggests opportunities to improve the wording of certain items, specifically Q1, Q3, and Q8, which obtained the minimum I-CVI value (0.70).^{11–13} These variations are consistent with the observations of Polit and Beck, who note that differences often occur in items involving higher cognitive load or technical terminology.¹³ In this study, the Knowledge section was designed with multiple-choice questions with a single correct answer, a format that generally presents greater difficulty for participants and may explain part of the observed variability, aligning with Polit and Beck's observations.¹³ Although expert feedback indicated that potential improvements related mainly to the Clarity and Coherence of the items, no modifications were made.

Specifically, the research team's decision not to modify items Q1, Q3, and Q8, despite lower ratings in the Clarity and Coherence dimension, was influenced by assessments from a minority of experts (3 out of 10), who assigned a score of 3.00 in this dimension. In their qualitative comments, these evaluators preferred to assess these concepts using open-ended questions. However, given the quantitative nature of the study and the instrument's standardized multiple-choice format, no changes were introduced, as the items were considered relevant and representative of the evaluated component, as supported by both the S-CVI/Ave and Aiken's V values.

The high indices achieved in the Relevance (0.96) and Vocabulary (0.98) criteria confirm that the content of the instrument closely aligns with the theoretical components of the KAP model and the conceptual framework of the GOLD 2025 strategy for COPD self-management. This supports the theoretical consistency of the instrument, as the items reflect the multidimensional approach proposed by

GOLD, which integrates knowledge acquisition, attitude formation, and practice modification as interrelated components of the educational process.^{1–4}

The inclusion of experts with extensive professional and teaching experience in respiratory therapy strengthened the validity of the process. The judges' profiles (with an average of over 15 years of professional experience and active involvement in education) enabled them to provide informed, contextualized judgments on the relevance and wording of the items. This approach aligns with methodological literature, which recognizes expert evaluation as the reference standard for assessing conceptual and linguistic adequacy in the validation of educational and clinical instruments.^{25–27}

From a practical perspective, the results support the use of this instrument as a reliable Spanish-language tool for assessing the KAP of respiratory therapists regarding patient self-management education in COPD. Instruments of this nature can guide the design of targeted training strategies and contribute to the development of pedagogical models that strengthen the non-pharmacological management of COPD.^{2–5} Furthermore, they provide a methodological foundation for future psychometric evaluations, such as construct validity and reliability, which are necessary steps for the full consolidation of the instrument.^{28–30}

Nevertheless, this report has important limitations. One major limitation is that construct validity (Cronbach's alpha) and Kendall's W coefficient were not assessed, as the primary objective of this study was to evaluate content validity through expert judgment and the instrument was not administered to a sample of respondents, making these analyses methodologically inappropriate at this stage. Consequently, evidence regarding internal consistency and inter-rater reliability could not be established.^{29,31,32} Additionally, although the selected experts were highly qualified, the sample was restricted to professionals from

a single country, and the instrument was developed exclusively in Spanish without formal cross-cultural or linguistic adaptation, which may limit the generalizability and applicability of the findings in other linguistic contexts. Although indices such as the I-CVI and S-CVI/Ave are numerical and inherently language-independent, the absence of formal transcultural and linguistic validation may affect the interpretation and use of the instrument across languages and cultural settings. Therefore, it is recommended that future research incorporate construct validity analyses, calculate Kendall's W, expand participation to international judges, adapt the instrument to different languages, and conduct cognitive interviews with practicing professionals to optimize item comprehension and clarity. Following the completion of content validation and consideration of the research team's available resources, the next phase will involve evaluating the instrument's construct validity and internal consistency, followed by its application within the broader research project framework. This process will allow the identification of educational gaps among respiratory therapists and support the development and evaluation of targeted educational interventions in COPD self-management. These steps will help ensure that the instrument is not only methodologically robust but also reliable and applicable across clinical, academic, and research settings.

CONCLUSION

The instrument designed to assess the knowledge, attitudes, and practices (KAP) of respiratory therapists regarding COPD self-management education demonstrated excellent content validity in the Relevance and Vocabulary components, and good validity in the Clarity and Coherence component, supported by I-CVI, S-CVI/Ave, and Aiken's V values. These results confirm that the items are relevant, clear, coherent, and use appropriate vocabulary. Nevertheless, further studies are needed to evaluate the instrument's construct validity and reliability.

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CONTRIBUTORS

All authors contributed to the conception or design of the work, the acquisition, analysis, or interpretation of the data. All authors were involved in drafting and commenting on the paper and have approved the final version.

COMPETING INTERESTS

The authors declare no conflict of interest.

ETHICAL APPROVAL

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AI STATEMENT

No generative AI or AI-assisted technology was used to generate this manuscript or its content.

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REFERENCES

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease (COPD). GOLD. 2025. <https://goldcopd.org/2025-gold-report/>
2. Bollmeier SG, Hartmann AP. Management of chronic obstructive pulmonary disease: A review focusing on exacerbations. *Am J Health Syst Pharm.* 2020;77(4):259-268. doi:[10.1093/ajhp/zxz306](https://doi.org/10.1093/ajhp/zxz306)
3. Zwerink M, Brusse-Keizer M, van der Valk PD, et al. Self management for patients with chronic obstructive pulmonary disease. *Cochrane Database Syst Rev.* 2014;2014(3):CD002990. doi:[10.1002/14651858.CD002990.pub3](https://doi.org/10.1002/14651858.CD002990.pub3)
4. Effing T, Monninkhof EM, van der Valk PD, et al. Self-management education for patients with chronic obstructive pulmonary disease. *Cochrane Database Syst Rev.* 2007;2007(4):CD002990. doi:[10.1002/14651858.CD002990.pub2](https://doi.org/10.1002/14651858.CD002990.pub2)
5. Schrijver J, Lenferink A, Brusse-Keizer M, et al. Self-management interventions for people with chronic obstructive pulmonary disease. *Cochrane Database Syst Rev.* 2022;1(1):CD002990. doi:[10.1002/14651858.CD002990.pub4](https://doi.org/10.1002/14651858.CD002990.pub4)
6. Rickards T, Kitts E. The roles, they are a changing: Respiratory Therapists as part of the multidisciplinary, community, primary health care team. *Can J Respir Ther.* 2018;54(4). doi:[10.29390/cjrt-2018-024](https://doi.org/10.29390/cjrt-2018-024)
7. Andrade C, Menon V, Ameen S, Kumar Praharaj S. Designing and Conducting Knowledge, Attitude, and Practice Surveys in Psychiatry: Practical Guidance. *Indian J Psychol Med.* 2020;42(5):478-481. doi:[10.1177/0253717620946111](https://doi.org/10.1177/0253717620946111)
8. Zarei F, Dehghani A, Ratansiri A, et al. ChecKAP: A Checklist for Reporting a Knowledge, Attitude, and Practice (KAP) Study. *Asian Pac J Cancer Prev.* 2024;25(7):2573-2577. doi:[10.31557/APICP.2024.25.7.2573](https://doi.org/10.31557/APICP.2024.25.7.2573)
9. Mokkink LB, Herbelet S, Tuinman PR, Terwee CB. Content validity: judging the relevance, comprehensiveness, and comprehensibility of an outcome measurement instrument - a COSMIN perspective. *J Clin Epidemiol.* 2025;185:111879. doi:[10.1016/j.jclinepi.2025.111879](https://doi.org/10.1016/j.jclinepi.2025.111879)
10. Maldonado-Suárez N, Santoyo-Telles F. Validez de contenido por juicio de expertos: integración cuantitativa y cualitativa en la construcción de instrumentos de medición. *REIRE Rev Innov Rec Educ.* 2024;17(2):1-19. doi:[10.1344/reire.46238](https://doi.org/10.1344/reire.46238)
11. Yusoff MSB. ABC of content validation and content validity index calculation. *Educ Med J.* 2019;11(2):49-54. doi:[10.21315/eimj2019.11.2.6](https://doi.org/10.21315/eimj2019.11.2.6)
12. Lynn MR. Determination and quantification of content validity. *Nurs Res.* 1986;35(6):382-385. doi:[10.1097/00006199-198611000-00017](https://doi.org/10.1097/00006199-198611000-00017)
13. Polit DF, Beck CT. The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health.* 2006;29:489-497. doi:[10.1002/nur.20147](https://doi.org/10.1002/nur.20147)
14. Aiken LR. Three coefficients for analyzing the reliability and validity of ratings. *Educ Psychol Meas.* 1985;45(1):13142. doi:[10.1177/0013164485451012](https://doi.org/10.1177/0013164485451012)
15. Juárez-Hernández LG, Tobón S. Analysis of the elements implicit in the validation of the content of a research instrument. *Rev Espacios.* 2018;39(53):23-30. <https://www.revistaespacios.com/cited2017/cited2017-23.pdf>
16. Kusi Amponsah A, Bam V, Stolt M, Korhonen J, Axelin A. Evaluating the content validity of two versions of an instrument used in measuring pediatric pain knowledge and attitudes in the Ghanaian context. *PLoS One.* 2020;15(11):e0241983. doi:[10.1371/journal.pone.0241983](https://doi.org/10.1371/journal.pone.0241983)
17. Peirce D, Brown J, Corkish V, Lane M, Wilson S. Instrument validation process: a case study using the Paediatric Pain Knowledge and Attitudes Questionnaire. *J Clin Nurs.* 2016;25(11-12):1566-1575. doi:[10.1111/jocn.13130](https://doi.org/10.1111/jocn.13130)
18. Dikken J, Hoogerduijn JG, Kruitwagen C, Schuurmans MJ. Content Validity and Psychometric Characteristics of the "Knowledge about Older Patients Quiz" for Nurses Using Item Response Theory. *J Am Geriatr Soc.* 2016;64(11):2378-2383. doi:[10.1111/jgs.14476](https://doi.org/10.1111/jgs.14476)
19. Elmorabit N, Obtel M, Azougagh M, Marrakchi A, Ennibi OK. Development and validation of a questionnaire on radiation protection knowledge, attitudes, and practices among Moroccan dentists. *J Appl Clin Med Phys.* 2025;26(1):e14555. doi:[10.1002/acm2.14555](https://doi.org/10.1002/acm2.14555)

20. Alabdulaziz HM, Alghamdi S, Alabbadi SM, Halawani RJ, Alsulami RA, Hakami SH. Knowledge and Attitudes of Nursing Students Regarding Children's Pain. *Cureus*. 2024;16(9):e69321. doi:[10.7759/cureus.69321](https://doi.org/10.7759/cureus.69321)
21. Kyei KA, Addo HB, Daniels J. Radiation safety: knowledge, attitudes, practices and perceived socioeconomic impact in a limited-resource radiotherapy setting. *Ecancermedicalscience*. 2025;19:1855. doi:[10.3332/ecancer.2025](https://doi.org/10.3332/ecancer.2025)
22. Shabani F, Hasanzadeh H, Emadi A, et al. Radiation Protection Knowledge, Attitude, and Practice (KAP) in Interventional Radiology. *Oman Med J*. 2018;33(2):141-147. doi:[10.5001/omj.2018.26](https://doi.org/10.5001/omj.2018.26)
23. Amoateng E, Wireko MB, Assah AY, et al. Knowledge, Attitude, and Practice of Geriatric Care Among Health Care Professionals in Kumasi, Ghana. *Health Serv Insights*. 2024;17:11786329241285529. doi:[10.1177/11786329241285529](https://doi.org/10.1177/11786329241285529)
24. Zhang Q, Huang H, Li J, Niu Y, Sun P, Cheng F. Knowledge, attitudes and practices of patients with chronic pharyngitis toward laryngopharyngeal reflux in Suzhou, China. *BMC Public Health*. 2023;23(1):2542. doi:[10.1186/s12889-023-17463-0](https://doi.org/10.1186/s12889-023-17463-0)
25. Hyrkäs K, Appelqvist-Schmidlechner K, Oksa L. Validating an instrument for clinical supervision using an expert panel. *Int J Nurs Stud*. 2003;40(6):619-625. doi:[10.1016/s0020-7489\(03\)00036-1](https://doi.org/10.1016/s0020-7489(03)00036-1)
26. Galicia Alarcón LA, Balderrama Trápaga JA, Edel Navarro R. Validez de contenido por juicio de expertos: propuesta de una herramienta virtual. *Apert (Guadalajara, Jal)*. 2017;9(2):42-53. doi:[10.32870/ap.v9n2.993](https://doi.org/10.32870/ap.v9n2.993)
27. Balderas Sánchez AV, Cruz Navarro C, Zapata Garay N, Salazar Mata JM. La validación por juicio de expertos como estrategia para medir la confiabilidad de un instrumento. *TECTZAPIC: Revista Académico-Científica*. 2022;8(1):9-18. doi:[10.51896/tectzapic/IQCL5337](https://doi.org/10.51896/tectzapic/IQCL5337)
28. Strauss ME, Smith GT. Construct validity: advances in theory and methodology. *Annu Rev Clin Psychol*. 2009;5:1-25. doi:[10.1146/annurev.clinpsy.032408.153639](https://doi.org/10.1146/annurev.clinpsy.032408.153639)
29. Böhn S, Mathes T, Prengel P, et al. The risk of bias in systematic reviews tool showed fair reliability and good construct validity. *J Clin Epidemiol*. 2017;91:121-128. doi:[10.1016/j.jclinepi.2017.06.019](https://doi.org/10.1016/j.jclinepi.2017.06.019)
30. Colliver JA, Conlee MJ, Verhulst SJ. From test validity to construct validity ... and back? *Med Educ*. 2012;46(4):366-371. doi:[10.1111/j.1365-2923.2011.04194.x](https://doi.org/10.1111/j.1365-2923.2011.04194.x)
31. Willerman B. The adaptation and use of Kendall's coefficient of concordance (W) to sociometric-type rankings. *Psychol Bull*. 1955;52(2):132-133. doi:[10.1037/h0041665](https://doi.org/10.1037/h0041665)
32. Sijtsma K. On the Use, the Misuse, and the Very Limited Usefulness of Cronbach's Alpha. *Psychometrika*. 2009;74(1):107-120. doi:[10.1007/s11336-008-9101-0](https://doi.org/10.1007/s11336-008-9101-0)

SUPPLEMENTARY MATERIALS

Supplementary File 1_Survey Instrument.

Download: <https://cjrt.ca/article/161832-content-validation-of-a-structured-questionnaire-to-assess-the-knowledge-attitudes-and-practices-of-respiratory-therapists-regarding-education-for-c/attachment/343405.docx>

Supplementary File 2_Question Validation Instrument.

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