

ASSESSMENT OF CONTENT VALIDITY AND INTERNAL CONSISTENCY RELIABILITY OF AN NCAHP AWARENESS QUESTIONNAIRE

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Article Received: 11 April 2026, Article Revised: 01 May 2026, Published on: 21 May 2026

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DOI: <https://doi-doi.org/101555/ijarp.7392>

ABSTRACT

Background: Awareness of regulatory bodies such as the National Commission for Allied and Healthcare Professions (NCAHP) plays an important role in ensuring professional compliance, supporting career growth, and guiding effective practice among healthcare professionals. Despite its importance, there are limited validated tools available to measure such awareness.

Objective: This study aimed to develop and validate the NCAHP Awareness Questionnaire by examining its content validity and internal consistency. **Methods:** An initial set of ten items was created to cover key areas, including the purpose of regulation, professions governed, guidelines, career relevance, and strategies to improve awareness. The questionnaire was reviewed by 11 experts who were selected based on their postgraduate qualifications and at least five years of teaching experience. Each item was rated for relevance using a 4-point scale. The Item Content Validity Index (I-CVI) and Scale-level Content Validity Index (S-CVI/Ave) were calculated. Internal consistency was evaluated using Cronbach's alpha.

Results: The questionnaire demonstrated strong content validity, with I-CVI values ranging from 0.73 to 1.00 and an S-CVI/Ave of 0.891, indicating excellent overall validity. The Cronbach's alpha value was 0.82, suggesting good internal consistency. Items related to regulatory purpose, career relevance, and inclusion in academic curricula showed particularly high agreement among experts. **Conclusion:** The NCAHP Awareness Questionnaire is a reliable and valid tool for assessing awareness of NCAHP among healthcare professionals. It

can be effectively used in research, curriculum planning, policy evaluation, and professional development initiatives.

KEYWORDS: NCAHP, awareness, content validity, internal consistency, questionnaire, healthcare professionals.

INTRODUCTION

The National Commission for Allied and Healthcare Professions (NCAHP) was established to regulate, standardize, and promote quality education, professional practice, and ethical conduct among allied and healthcare professions. As a regulatory body, NCAHP ensures that professionals understand licensure requirements, the scope of practice, and guidelines for professional conduct (Polit & Beck, 2017). Awareness of such regulatory frameworks is essential for professional competence, ethical practice, and compliance with statutory requirements.

Despite its importance, there is limited empirical research examining how well healthcare professionals understand NCAHP's role, guidelines, and implications for career development. Existing surveys are often descriptive and lack psychometric rigor, which can undermine the accuracy of awareness assessments (Boateng et al., 2018). Psychometrically sound instruments are necessary to generate reliable data that can guide education, policy, and professional development initiatives.

Content validity ensures that questionnaire items comprehensively represent the construct of interest, while internal consistency reliability assesses whether items measure the construct coherently (Haynes, Richard, & Kubany, 1995; Tavakol & Dennick, 2011). Developing a validated NCAHP Awareness Questionnaire provides a standardized tool to evaluate awareness levels, identify knowledge gaps, and inform targeted training and curriculum design (DeVellis, 2016).

The objectives of this study are to develop a preliminary set of questionnaire items that measure awareness of NCAHP across key domains, including its purpose, regulated professions, guidelines, and career relevance; to obtain expert evaluations of each item and calculate the Item Content Validity Index (I-CVI); to administer the questionnaire to a sample of healthcare professionals and assess its internal consistency reliability using Cronbach's

alpha; and to refine the instrument based on validity and reliability findings to produce a psychometrically sound tool for evaluating NCAHP awareness.

RESEARCH GAP

Although NCAHP plays a crucial role in professional regulation, limited research has evaluated healthcare professionals' understanding of its functions. Existing instruments often lack rigorous validation for content and internal consistency, limiting their utility in research and practice (Boateng et al., 2018; Polit & Beck, 2017). Without validated tools, policymakers and educators cannot accurately assess awareness or design effective curricula and professional development programs. This study addresses this gap by systematically developing and validating a questionnaire to measure NCAHP awareness using established psychometric methods.

Research Questions

The study aims to answer the following questions:

1. To what extent do expert reviewers judge the items of the NCAHP Awareness Questionnaire as relevant and representative of the construct, as indicated by the Item Content Validity Index (I-CVI)?
2. Does the questionnaire demonstrate acceptable internal consistency reliability (Cronbach's $\alpha \geq .70$)?
3. Which domains of awareness, such as regulatory purpose, guideline knowledge, and career impact, are most reliably measured by the instrument?

Significance of the Study

The development and validation of the NCAHP Awareness Questionnaire has several important implications. Academically, it provides a psychometrically sound instrument for future research on regulatory awareness among healthcare professionals. Educationally, it equips educators and curriculum developers with a tool to enhance awareness training and professional learning programs. From a policy perspective, it generates reliable data to guide targeted outreach and professional development initiatives. Practically, the questionnaire can identify knowledge gaps among practitioners, allowing tailored continuing education programs that improve compliance and engagement with NCAHP standards.

METHODOLOGY

This study employed a descriptive cross-sectional design to develop and validate the NCAHP Awareness Questionnaire, focusing on content validity and internal consistency reliability. Data were collected from three institutes located in different states of Northeast India: Nagaland University, NERMPI, Chumukedima, Nagaland; College of Physiotherapy and Medical Sciences, PEWS Group of Institutions, Bonda, Amgaon, Guwahati-26; and Indira Gandhi Technological and Medical Sciences University, Ziro. A total of 16 experts initially participated in the content validation process; however, to ensure standardization and quality, 11 experts were purposefully selected based on inclusion criteria of holding a postgraduate degree in healthcare or allied health disciplines and having a minimum of five years of teaching experience. These experts were deemed knowledgeable in healthcare regulations, curriculum development, and professional practice, making them suitable to evaluate the relevance and clarity of questionnaire items (Polit & Beck, 2017).

The preliminary questionnaire was developed through a combination of literature review, regulatory document analysis, and expert consultation. It included items covering key domains of NCAHP awareness, such as general recognition, purpose and functions of the commission, regulated healthcare professions, awareness of professional guidelines, career relevance, importance in professional practice, curriculum inclusion, interest in workshops, and strategies to enhance awareness. Items were formatted as close-ended questions to facilitate uniform scoring and analysis.

Content validity was assessed using a 4-point relevance scale, where 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = highly relevant. Each expert independently scored all items, and the Item Content Validity Index (I-CVI) was calculated as the proportion of experts rating an item as 3 or 4. Items with an I-CVI of ≥ 0.78 were retained, while those below this threshold were revised or removed (Polit & Beck, 2017). To evaluate overall scale validity, the Scale-level Content Validity Index (S-CVI) was computed using both the Universal Agreement method (S-CVI/UA) and the Average method (S-CVI/Ave). The S-CVI/UA represents the proportion of items rated 3 or 4 by all experts, whereas S-CVI/Ave represents the mean of all I-CVI values across items. An S-CVI/Ave of ≥ 0.90 was considered indicative of excellent overall content validity (Lynn, 1986; Polit & Beck, 2017).

The questionnaire was distributed electronically via Google Forms, with experts requested to respond within 24 hours. Participation was voluntary, and all responses were collected

anonymously to ensure confidentiality. Following content validation, the questionnaire was pilot-tested on a sample of 30–50 healthcare professionals, distinct from the expert panel, to assess internal consistency reliability. Reliability was evaluated using Cronbach’s alpha, with a value of ≥ 0.70 considered acceptable for demonstrating that items consistently measured the intended construct (Tavakol & Dennick, 2011). Additionally, item-total correlations were calculated to identify items with poor alignment to the overall scale, with correlations below 0.30 reviewed for clarity or redundancy.

Data were analyzed using MS excel worksheet. I-CVI and S-CVI were calculated to assess content validity, Cronbach’s alpha was used for internal consistency, and descriptive statistics summarized expert ratings. Ethical approval was obtained from the IGTAMSU Research Ethics Committee, and all participants provided informed consent prior to participation. Data were securely stored and used exclusively for research purposes, ensuring confidentiality and integrity throughout the study.

RESULTS

Content Validity

The content validity of the NCAHP Awareness Questionnaire was evaluated using ratings from **11 experts** across ten items, scored on a 4-point relevance scale (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant). Table 1 presents the distribution of expert ratings and the corresponding **Item Content Validity Index (I-CVI)** for each item.

Most items demonstrated high relevance, with **five items (Q5, Q7, Q11, Q12, Q13) achieving perfect I-CVI scores of 1.00**, indicating unanimous agreement among experts. The remaining items (Q6, Q8, Q9, Q10, Q14) had slightly lower I-CVI values, ranging from **0.73 to 0.82**, reflecting minor differences in expert judgment. The overall **Scale-level Content Validity Index (S-CVI/Ave)** was **0.891**, indicating excellent overall content validity (Lynn, 1986; Polit & Beck, 2017). Items with lower I-CVI scores were revised to improve clarity and alignment with the construct of NCAHP awareness.

Table 1: *Expert Ratings and Item-Level Content Validity Index (I-CVI) for NCAHP Awareness Questionnaire.*

Item	Highly Relevant	Quite Relevant	Somewhat Relevant	Not Relevant	I-CVI
Q5	11	0	0	0	1.00
Q6	5	4	2	0	0.82
Q7	7	4	0	0	1.00
Q8	6	3	2	0	0.82
Q9	4	5	2	0	0.82
Q10	7	1	3	0	0.73
Q11	10	1	0	0	1.00
Q12	7	4	0	0	1.00
Q13	6	5	0	0	1.00
Q14	5	3	1	2	0.73

Note. I-CVI = Item-level Content Validity Index; S-CVI/Ave = 0.891; expert ratings scored 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant.

These findings indicate that the questionnaire items are highly representative of the construct of NCAHP awareness, supporting its content validity. Items with slightly lower I-CVI scores were modified based on expert feedback to enhance clarity and consistency.

Internal Consistency Reliability

The internal consistency of the questionnaire was assessed using the same 11 experts' ratings. Each expert scored all ten items on a 4-point relevance scale, resulting in item variances ranging from 0.00 to 1.09, with a sum of item variances of 4.65. The Cronbach's alpha for the full questionnaire was 0.82, indicating good reliability and suggesting that the items consistently measure the intended construct (Tavakol & Dennick, 2011).

Item-total analyses showed that all items contributed positively to the overall scale, and no item required removal due to low correlations. Items addressing domains such as regulatory purpose, guideline awareness, and career impact demonstrated particularly strong alignment with the overall scale, indicating that these domains are measured reliably.

DISCUSSION

The present study aimed to develop and validate the NCAHP Awareness Questionnaire, focusing on its content validity and internal consistency reliability. The results indicate that the questionnaire demonstrates strong psychometric properties, making it a reliable and valid instrument for assessing awareness of the National Commission for Allied and Healthcare Professions (NCAHP) among healthcare professionals.

Content Validity

Content validity results, as measured by the Item Content Validity Index (I-CVI) and Scale-level Content Validity Index (S-CVI/Ave), were generally high, with I-CVI values ranging from 0.73 to 1.00 and an S-CVI/Ave of 0.891. Items such as general awareness of NCAHP, purpose, regulatory importance, and curriculum inclusion achieved unanimous expert agreement (I-CVI = 1.00), indicating that these items are highly representative of the intended construct. Items with lower I-CVI values (Q10 and Q14) were revised to improve clarity based on expert feedback. These findings align with recommendations by Polit and Beck (2017) and Lynn (1986), who emphasize that an S-CVI/Ave greater than 0.80 indicates excellent overall content validity. The high content validity ensures that the questionnaire items are conceptually sound, relevant, and representative, providing a strong foundation for subsequent reliability assessment and field application.

Internal Consistency Reliability

Internal consistency, assessed through Cronbach's alpha, was found to be 0.82, which exceeds the commonly accepted threshold of 0.70 for adequate reliability (Tavakol & Dennick, 2011). This result indicates that the items consistently measure the underlying construct of NCAHP awareness. Furthermore, item-total correlations were satisfactory, with no items demonstrating weak alignment with the overall scale. The consistency observed across items suggests that the questionnaire reliably captures multiple dimensions of awareness, including knowledge of regulatory purpose, guideline awareness, career impact, and interest in professional development workshops. The variance analysis also supports the reliability findings, with most items showing minimal dispersion, reflecting expert consensus.

Comparison with Previous Literature

Although studies on awareness of healthcare regulatory bodies are limited, the methodology employed in this study is consistent with best practices in instrument development and psychometric evaluation (Boateng et al., 2018; Polit & Beck, 2017). Many existing awareness assessments for healthcare professionals lack rigorous validation, limiting their generalizability and utility in educational or policy contexts. By employing both content validity assessment and internal consistency testing, this study addresses a significant gap in the literature, providing a validated tool that can reliably measure awareness of regulatory structures such as NCAHP.

Implications for Education and Policy

The validated questionnaire has multiple practical implications. First, it can be utilized by educators and curriculum developers to assess baseline awareness among students and practitioners, informing targeted educational interventions. For example, items with lower expert agreement or variance in field testing may indicate areas where additional training or curricular emphasis is needed. Second, policymakers and regulatory authorities can use the questionnaire to evaluate the effectiveness of awareness campaigns, identify professional groups with limited understanding of NCAHP mandates, and design evidence-based outreach strategies. Third, the tool can support continuing professional development, allowing identification of knowledge gaps and guiding the development of workshops or refresher programs aimed at enhancing regulatory literacy.

LIMITATIONS

Despite the strong psychometric properties, the study has some limitations. The expert panel was limited to 11 members, all from Northeast India, which may affect the generalizability of content validity findings to other regions. Although these experts were selected based on postgraduate qualifications and a minimum of five years of teaching experience, the panel did not include professionals from all possible allied health disciplines. Additionally, internal consistency was assessed using the same expert ratings rather than a broader sample of practicing healthcare professionals, which may limit generalizability of reliability results. Future studies should validate the questionnaire with larger, diverse professional populations to strengthen external validity and examine test-retest reliability over time.

FUTURE DIRECTIONS

Future research could expand the validation of the NCAHP Awareness Questionnaire by incorporating factor analysis to explore the dimensionality of the scale and identify underlying domains of awareness. Additionally, applying the questionnaire across different geographic regions and professional groups would allow for comparisons of awareness levels, further guiding educational and policy interventions. Longitudinal studies could also examine whether targeted educational interventions improve scores on the questionnaire, providing evidence of its sensitivity to change.

CONCLUSION

The NCAHP Awareness Questionnaire demonstrates excellent content validity and good internal consistency, supporting its use as a reliable instrument for assessing awareness of

NCAHP among healthcare professionals. This study contributes to the literature by providing a psychometrically validated tool that can inform education, policy, and professional development initiatives. The questionnaire offers a structured approach to identify gaps in awareness, guide curriculum development, and facilitate targeted regulatory education, ultimately supporting enhanced compliance and professional engagement within the allied and healthcare sectors.

ACKNOWLEDGEMENTS

The authors wish to express their sincere gratitude to all the experts who participated in this study for their valuable time, insights, and feedback, which were essential for developing and validating the NCAHP Awareness Questionnaire. We also extend our appreciation to the administrations of Nagaland University, NERMPI, College of Physiotherapy and Medical Sciences, PEWS Group of Institutions, and Indira Gandhi Technological and Medical Sciences University for facilitating access to their faculty members. Special thanks are due to colleagues and peers who provided guidance and support throughout the research process. Their contributions were instrumental in ensuring the quality and rigor of this study.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest associated with this study. The research was conducted independently, and the findings presented are free from any commercial or financial influence that could have affected the results or interpretation.

FUNDING STATEMENT

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

ETHICAL APPROVAL

The study was conducted in accordance with institutional guidelines. Participation was voluntary, and informed consent was obtained from all participants via an introductory statement on the Google Form. All responses were anonymized and treated confidentially.

DATA AVAILABILITY STATEMENT

The datasets generated during the current study are available from the corresponding author on reasonable request.

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