

## CLINICAL PRACTICE

# Psychometric validity of the interprofessional professionalism assessment instrument in nursing education: Short report

Susan Welch\*

Capstone College of Nursing, University of Alabama, Tuscaloosa, AL, United States

**Received:** May 9, 2025

**Accepted:** July 1, 2025

**Online Published:** August 25, 2025

**DOI:** 10.63564/jnep.v15n9p17

**URL:** <https://doi.org/10.63564/jnep.v15n9p17>

## ABSTRACT

The demand for valid and reliable instruments to assess behaviors in interprofessional education (IPE) opportunities coincides with the recent shift in nursing education toward competency-based education (CBE). The purpose of the proposed study is to validate the Interprofessional Professionalism Assessment (IPA) instrument within the context of nursing education. The IPA instrument is used to assess individual interprofessional professionalism (IPP) in IPE and consists of 26 items clustered across six subscales: Accountability, Altruism and Caring, Communication, Ethics, Excellence, and Respect. The proposed study will be among the first to involve psychometric testing of the IPA instrument among the health professions and the first in nursing education, building upon the foundational work of the Interprofessional Professionalism Collaborative. The aim is to fill the gap in robust assessment tools that measure professionalism within IPE opportunities in a CBE framework. Potential participants for this study include clinical instructors overseeing prelicensure nursing students in the final year of their programs, ensuring a diverse representation of nursing students. The study will have a non-experimental, cross-sectional, and correlational design involving a web-based survey created with Qualtrics to validate the IPA instrument and explore the relationship between the IPA instrument and the Individual Teamwork Observation and Feedback Tool (i-TOFT). Confirmatory factor analysis will reveal the interrelationships among the items of the IPA instrument by investigating factor retention.

**Key Words:** Interprofessional education, Interprofessional professionalism, Interprofessional Professionalism Assessment

## 1. INTRODUCTION

The utilization of Interprofessional Education (IPE) is essential for preparing health care provider students in effective interprofessional collaborative practice.<sup>[1-5]</sup> The lack of utilization or ineffective implementation of IPE can hinder the development of collaborative skills, potentially compromising teamwork, and future patient outcomes.<sup>[1-7]</sup> Thus, ensuring successful integration of IPE in healthcare education programs is crucial to foster collaborative practice, enhance patient outcomes, and build a more cohesive healthcare sys-

tem.<sup>[4,8,9]</sup> To support this integration, national competencies for IPE have been established across health profession academic programs.<sup>[10-12]</sup> Assessing the successful integration of IPE requires reliable and valid instruments to evaluate students' (or instructors') competencies in IPE collaboration. However, despite this emphasis on IPE, a scarcity of valid and reliable behavioral assessment instruments remains that do not rely exclusively on self-report measures.<sup>[10-14]</sup> The use of objective instruments is crucial for minimizing biases and accurately measuring competencies. Additionally, the

\*Correspondence: Susan Welch; Email: [srwelch@ua.edu](mailto:srwelch@ua.edu); Address: Capstone College of Nursing, University of Alabama, Tuscaloosa, AL, United States.

growing need for behavioral assessment instruments in IPE aligns with the recent nationwide trend in nursing education toward competency-based education (CBE).<sup>[15]</sup> Addressing this gap is particularly important, as CBE emphasizes the use of objective and robust assessment methods to ensure that students achieve the required competencies in IPE collaboration.<sup>[15]</sup>

### 1.1 Competency-based education

Stakeholders and regulators acknowledge the increasing complexity of healthcare, highlighting the urgent need for CBE in the health professions.<sup>[16,17]</sup> Competency-based education, widely adopted across various health fields, is a learner-centered educational model that focuses on an individual's ability to demonstrate a predetermined standard of competence.<sup>[15,16,18]</sup> Through this approach, students are held accountable for mastering competencies pertinent to their field of study, which in turn requires the use of valid and reliable assessment methods and instruments to ensure that competence is accurately measured.<sup>[16,19]</sup> Competency-based education has now achieved national recognition as a standard in academic nursing education and aligns with the AACN.<sup>[15]</sup>

### 1.2 The AACN essentials framework

The AACN Essentials<sup>[15]</sup> provide a comprehensive framework for academic nursing education, facilitating the transition to CBE that aims to cultivate a highly skilled and adaptable nursing workforce. These Essentials define the curricular structure and competencies expected of prelicensure nursing graduates, ensuring alignment with disciplinary standards and programmatic outcomes through clearly articulated behavioral benchmarks. The development of competencies includes cognitive knowledge, technical skills, and professional attributes, reinforcing the foundational principles of nursing practice. Furthermore, the Essentials emphasize the critical significance of interprofessional partnerships and professionalism, recognizing these as essential domains for advancing collaborative practice and fostering IPP.<sup>[15]</sup>

## 2. INTERPROFESSIONALISM

The AACN<sup>[15]</sup> highlighted the significance of interprofessionalism (IP) partnerships as a strategic means to enhance patient care and overall health care experiences. These intentional collaborations unite health professionals to pursue optimal patient outcome.<sup>[15]</sup> Establishing IP competencies within health care programs creates a cohesive framework that promotes effective communication and understanding among various disciplines. This framework is essential for implementing and assessing IPE across health professions, fostering a collaborative approach to both learning and practice.<sup>[12,15,20,21]</sup>

In nursing education, integrating IP competencies is essential for nursing programs aiming to meet national accreditation standards. These competencies provide a structured framework that helps programs fulfill the IP requirements of various national accrediting bodies. This approach not only enhances the educational experience for students but also promotes IPE and collaborative practice (IPECP).<sup>[12,22–27]</sup> By embedding IPE into nursing curricula, programs equip future nurses to thrive in collaborative work environments, ultimately improving patient care quality.

To ensure that nursing students develop IP competencies, it is essential to intentionally integrate these competencies throughout the nursing education curriculum.<sup>[11,12,15,28–31]</sup> This purposeful incorporation of IP competencies fosters seamless collaborative practice experiences across both the didactic and clinical components of nursing education.<sup>[11,12,15,28–31]</sup>

Clinical nursing education presents numerous IPE opportunities, enabling nursing students to engage in collaborative practice.<sup>[32,33]</sup> Within the IPE framework, nursing students derive significant benefits from tailored guidance, support, and assessments designed to achieve specific competencies.<sup>[30,32–34]</sup> The evaluation of IPE competencies follows a systematic approach, employing assessments based on clearly defined competency criteria.<sup>[30,33,35–39]</sup> Therefore, ensuring an accurate assessment of IPE competencies in clinical nursing education necessitates the use of valid and reliable assessment tools.<sup>[22,31,40]</sup>

## 3. PROFESSIONALISM

Professionalism is vital to fostering professional relationships with others.<sup>[41–45]</sup> Culturing these traits among health profession students often begins within educational settings.<sup>[45,46]</sup> Frenk et al. emphasized the urgent need for substantial reform in training doctors and other health care professionals to meet the demands of the 21st century.<sup>[47]</sup> This appeal, supported by 20 leaders from professional and academic backgrounds, arose from concerns about fragmented, outdated, and rigid curricula that fail to adequately prepare graduates. Frenk et al. advocated for a comprehensive overhaul of the medical education system to develop competency-based curricula for the future.<sup>[47]</sup>

Furthermore, Frenk et al. emphasized the need for a new concept of professionalism within the health professions, citing outdated curricula that yield inadequately prepared graduates. In health professions education, achieving professionalism as a competency should foster excellence, encourage collaboration, uphold ethical standards, and enhance patient safety.<sup>[47]</sup> Moreover, professionalism and patient safety are closely in-

terconnected concepts that rely on one another. Therefore, cultivating professionalism in health profession students is crucial for ensuring patient safety as those students transition into professional practice.<sup>[48,49]</sup>

### Professionalism in nursing

Professionalism is a core tenet of all health disciplines, as interprofessionals universally champion ethical standards, technical competence, and a commitment to public service. Nursing, while sharing these values, distinguishes itself in the development of professionalism. The development of professionalism in nursing entails core values vital to the concept itself, including integrity, altruism, inclusivity, compassion, courage, humility, advocacy, caring, autonomy, humanity, and social justice.<sup>[22,50]</sup> As a result, professionalism in nursing emerges from a synthesis of scientific competence and empathetic practice, which is less emphasized in other health disciplines.<sup>[51–53]</sup>

Moreover, professionalism encompasses values and specific behaviors critical to the profession, particularly within the educational context.<sup>[52]</sup> As such, regardless of the various degree levels, nursing students are developing professionalism behaviors. Therefore, it is imperative to intentionally incorporate professionalism into programmatic core values, didactic courses, and clinical training throughout nursing education. This incorporation also requires valid and reliable assessment instruments, as a lack of such instruments currently exists.

In the context of required IPE within healthcare curricula, it is also essential to explore how these opportunities impact the development of professionalism in nursing students. Furthermore, it is important to determine whether such educational opportunities accentuate the unique aspects of nursing professionalism and contribute to narrowing the interprofessional gaps in professionalism between different health professions. This inquiry is paramount for developing strategies that support continuous professionalism development and interprofessional collaboration.<sup>[51,53,54]</sup>

As such, nursing educational leaders play a crucial role in creating learning environments that foster professionalism. Thus, cultivating supportive educational environments that encourage the development of professionalism is a key component in shaping a nurse's professional identity.<sup>[51,53]</sup>

## 4. INTERPROFESSIONAL PROFESSIONALISM

To improve the quality and outcomes of patient care through ICP, health professionals' education must incorporate socialization among future health care providers, equipping them to become agents of change. In these socialization experi-

ences, healthcare educators play a vital role in fostering IPP in students and instilling respect for the contributions and expertise of their fellow healthcare professionals.<sup>[45]</sup> As such, IPP encompasses a set of behaviors exhibited by health care professionals dedicated to accountability, communication, compassion, and excellence in promoting population health and wellness.<sup>[55]</sup>

Interprofessional professionalism is crucial in delivering high-quality, safe, and effective patient care by fostering, respecting, and supporting collaboration among IP teams.<sup>[56,57]</sup> As professionalism competencies are increasingly integrated into IPE,<sup>[15,58–60]</sup> the assessment of these competencies has become vital.

### 4.1 Interprofessional professionalism assessment (IPA) instrument

The IPA is a behavioral assessment tool designed to collect data on the professionalism demonstrated by entry-level health professional students in collaboration with fellow members of IP teams within IPE opportunities. Developed by the Interprofessional Professionalism Collaborative (IPC), a national organization representing 12 entry-level health professions, alongside one medical education assessment organization, the instrument can be used in academic and practice settings to foster environments that promote IPP and collaborative care models. The IPA instrument measures observable behaviors that reflect professionalism, which is crucial to providing person-centered care and aligns with the recent shift in nursing education toward competency-based CBE.<sup>[15]</sup>

The development of the IPA involves a comprehensive, multi-phase process over several years, including the establishment of relevant constructs and observable behaviors, instrument design, expert review, cognitive interviews, and rigorous psychometric testing. Consisting of 26 items across six domains, Professionalism, Altruism and Caring, Excellence, Ethics, Respect, Communication, and Accountability, the content validity of the IPA instrument was assessed by 233 preceptors who evaluated health profession learners during their practical training. The IPA instrument aims to enhance the professionalism of emerging health professionals.<sup>[61]</sup> However, while rigorous psychometric testing of the IPA instrument has been established in other health professions that specialize in specific areas of patient or animal care,<sup>[62,63]</sup> testing has not been conducted in the profession of nursing, a profession that focuses on providing comprehensive medical care and patient support. As such, the distinguishing characteristics of the nursing population have yet to be explored, as the original validation study consisted of only one nursing preceptor.<sup>[61]</sup>

## 4.2 Assessing interprofessional professionalism behaviors

As previously mentioned, the IPA instrument was created by the IPC, a national organization consisting of representatives from various health professions. The AACN was the only nursing organization involved in the IPC.<sup>[61]</sup> The IPC established a collective definition of IPP as “the consistent demonstration of core values by professionals working together, striving to wisely apply principles of altruism and caring, excellence, ethics, respect, communication, and accountability to achieve optimal health and wellness for individuals and

communities”.<sup>[55,61]</sup>

The terms encompassed in the definition of IPP represent a collective understanding across all health professions. Following the definition of IPP, a collaborative and iterative process was undertaken to identify and articulate IPP behaviors across six behavioral categories—accountability, altruism and caring, communication, ethics, excellence, and respect (see Table 1) and 26 observable behaviors. The observable behaviors included in the IPA instrument are grounded in an IP framework and are not confined to a single health care profession.<sup>[64]</sup>

**Table 1.** Interprofessional professionalism behavior definitions

| Behavior            | Description   |
|---------------------|---|
| Communication       | Communicates with members of other health professions in a way they can understand without using profession-specific jargon |
| Respect             | Demonstrates confidence, without arrogance, while working with members of other health professions.                         |
| Altruism and caring | Places the patient's needs above their own needs and those of other health professionals.                                   |
| Excellence          | Contributes to decisions about patient care regardless of hierarchy/profession-based boundaries                             |
| Ethics              | Reports or addresses unprofessional and unethical behaviors when working with members of other health professions           |
| Accountability      | Accepts the consequences for their actions without redirecting blame to members of other health professions                 |

*Notes.* Adapted from “Toward a Normative Definition of Medical Professionalism,” by H. Swick, 2000, *Academic Medicine*, 75(6), p. 61 (<https://doi.org/10.1097/00001888-200006000-00010>) and adapted with permission.

The IPA was developed to assess IPP, which extends beyond traditional definitions of professionalism by incorporating behaviors that foster effective collaboration among health professionals. While “professionalism” remains a core component of the conceptual framework, domains such as communication, respect, and accountability highlight a more comprehensive evaluation that prioritizes interpersonal and collaborative skills over mere individual professional conduct.

This instrument gauges whether a healthcare professional demonstrates ethical behavior and excellence at an individual level and examines how they engage with others in interprofessional contexts, ensuring that their actions align with teamwork and patient-centered care. The six domains, altruism and caring, excellence, ethics, respect, communication, and accountability, embody professional integrity and collaborative efforts in healthcare settings. In this regard, while the IPA evaluates professionalism, it does so within the framework of interprofessional practice, rendering its assessment more thorough than a conventional one.

## 4.3 IPA Instrument

The IPA instrument is designed to evaluate the professional behaviors of health professional students as they engage with IP teams within IPE. This observational behavioral rating

instrument is designed to be completed after clinical practice experiences that involve collaborative patient care among various professions. The instrument was also designed to serve as a self-assessment tool, allowing students to reflect on their own professional and collaborative behaviors in interprofessional contexts.

To accommodate the needs of both instructors and students, the instrument utilizes a five-point Likert scale along with supplementary response options. These include “No opportunity to observe in this environment” for clinical instructors and “No opportunity to perform in this environment” for students. This design ensures that users can accurately assess behaviors relevant to their specific circumstances without being required to evaluate situations where observation or performance was not feasible.

The psychometric properties of the IPA instrument have been tested with clinical instructors across various health professions, including medicine, pharmacy, physical therapy, occupational therapy, dentistry, veterinary medicine, social work, public health, speech-language pathology, athletic training, nutrition, and nursing. The authors selected these professions due to their engagement in interprofessional collaborations, making IPP behaviors crucial to successful outcomes in healthcare teamwork and, most importantly, patient care.<sup>[61]</sup>

Testing across this broad spectrum ensured that the instrument accurately measures professionalism. According to the IPC, the psychometric results affirm the IPA instrument's validity and reliability, indicating its potential application across all health professions in diverse practice settings.<sup>[64]</sup> However, only one participant ( $n = 1$ ) from the initial psychometric testing of the IPA instrument was from the nursing discipline.<sup>[61]</sup>

#### 4.4 IPA Instrument in nursing

Notable distinctions exist between nursing and other health professions, particularly in patient-centered care, interpersonal collaboration, ethical decision-making, and ongoing patient interaction. For instance, nursing strongly emphasizes comprehensive, patient-centered care that integrates the physical, emotional, psychological, and social dimensions of health.<sup>[12,65]</sup> In contrast, fields such as medicine, pharmacy, and physical therapy often concentrate more narrowly on diagnosis, treatment, or rehabilitation within their specific areas of expertise.<sup>[66–68]</sup>

Nurses consistently collaborate with various healthcare professionals to coordinate patient care and enhance patient outcomes, making IPP a vital component of their daily responsibilities.<sup>[69]</sup> In comparison, physicians, pharmacists, and therapists tend to engage in interdisciplinary work more episodically than nurses, resulting in observable differences in the social and teamwork dimensions of professionalism across these fields.<sup>[8,70–72]</sup>

Given these distinctions, validating the IPA for nurses is crucial to ensure that the instrument accurately reflects the most relevant professionalism behaviors in nursing practice. This includes maintaining consistency in how professionalism is measured across various nursing environments and confirming that the instrument effectively captures the unique professional behaviors of nurses, rather than merely those familiar to all healthcare professions. Additionally, it is essential to assess whether clinical instructors in nursing can accurately evaluate their learners. Since professionalism can manifest differently across disciplines, testing the IPA within the nursing profession is essential to ensuring the instrument is credible, meaningful, and applicable to this profession. In nursing education, reliability and validation studies of the IPA instrument are needed to assess IPP, because no validation studies currently exist.

Assessing professional behaviors is a complex, multifaceted task that requires careful observation, among other elements. Thus, assessing IPP using the IPA instrument necessitates examining the opportunities available within a nursing program to observe these professional behaviors. It is also important

to consider observers and the various settings in which nursing students will be assessed, as using multiple observers across diverse environments will enhance the accuracy and appropriateness of the IPA concerning measuring IPP.

Although no definitive gold standard for assessing IPP exists, assessments should be conducted in contexts that closely resemble real-life situations. This context is crucial to professionalism because social desirability, personal values, and organizational hierarchy significantly influence professional behavior (O'Rourke, 2021). The more an assessment mimics actual experiences, the more valid the assessment of professionalism will likely be.

The IPA instrument is recommended to be applied in a realistic setting that provides opportunities for conflict. However, it is equally important to incorporate additional foundational elements into the evaluation process. Among these elements, transparency and symmetry of the setting play crucial roles in influencing the observation of assessed behaviors.

To promote transparency, nursing students in their final year will be informed through an informational video about the research and how evaluations by clinical instructors will not impact their final course grades. Furthermore, clinical instructors will receive a recruitment video and an instructional video to ensure that all students are assessed using consistent methods. All videos will reference the IPA instrument and the iTOFT Advanced Version.

## 5. STATEMENT OF PURPOSE

As such, the proposed study's purpose is to assess the psychometric properties of the IPA instrument in nursing education. The IPA instrument assesses individual IPP behaviors within IPE opportunities.<sup>[61]</sup> This research aligns with the recently established AACN Essentials<sup>[15]</sup> framework, which emphasizes the assessment of behavioral competencies in individual learners through direct observations in various practice settings.

## 6. RESEARCH HYPOTHESES

**Hypothesis 1:** A six-factor structure corresponding to the six domains of the IPA instrument, Accountability, Altruism and Caring, Communication, Ethics, Excellence, and Respect, is expected to show acceptable model fit in confirmatory factor analysis (CFA).

**Hypothesis 2:** Each of the six domains of the IPA instrument—Accountability, Altruism and Caring, Communication, Ethics, Excellence, and Respect—is expected to exhibit acceptable internal consistency, as indicated by Cronbach's alpha of .70 or higher.

## 7. SIGNIFICANCE OF THE STUDY

Health care professionals are characterized by their unwavering commitment to professionalism.<sup>[55]</sup> For students entering the healthcare field, professionalism entails mastering specialized competency skills and cultivating a professional identity that fosters IP collaboration.<sup>[73]</sup> However, a notable gap exists in the literature concerning assessment instruments for assessing IPP behaviors within IPE. This gap is particularly significant, considering prior qualitative studies in medicine that underscore how IPP can enhance IP collaborations.<sup>[74]</sup> The most significant challenge in assessing professionalism has been the lack of valid and reliable instruments. This inability to assess and quantify professionalism can send a contradictory message to nursing students. When nursing students are not assessed on their professional behaviors, they may conclude that the profession does not prioritize professionalism, rendering it seemingly unimportant. Further, interprofessional teams may instead focus on enhancing clinical expertise rather than fostering professionalism.<sup>[15, 65, 75–77]</sup>

The growing need for valid and reliable instruments to assess behaviors in IPE<sup>[10–12, 69, 78–80]</sup> aligns with the recent shift in nursing education toward CBE.<sup>[15]</sup> National nursing accreditation standards have established quality benchmarks for professionalism within IP collaborations in curricula.<sup>[9, 57, 81]</sup> Assessing professionalism is a complex undertaking, and the development of the IPA instrument by Frost et al.<sup>[61]</sup> represents a significant advancement in this field, as the instrument is specifically designed to assess individual professionalism behaviors within IPE opportunities via the IPP construct.

The IPP construct emphasizes the importance of professionalism, communication, and collaboration across professional boundaries to facilitate safe, continuous IP care for patients. As such, the IPA instrument addresses a critical gap in the existing literature: Lack of validated and reliable assessment tools has led nursing educators to depend on self-report measures for assessing IPP.<sup>[82–87]</sup> Therefore, further studies are needed to validate the IPA instrument in nursing education to assess individual IPP behaviors within IPE environments.

This research has significant potential contributions. The anticipated contribution of this research is to validate an assessment instrument for use in nursing education. If the hypotheses are supported, this instrument can be utilized by clinical instructors to assess nursing students, potentially leading to long-term effects, such as improved health care quality and patient outcomes, a culture that fosters and values the competence of professionalism among IP team members, and enhanced education and practice environments.<sup>[57, 64, 88]</sup>

The research findings could also lead to long-term benefits, including improved healthcare quality and patient outcomes, a culture that fosters and values the competence of professionalism among IP team members, and enhanced education and practice environments.<sup>[57, 64, 88]</sup>

## 8. CONCEPTUAL BASIS OF THE STUDY

### 8.1 Interprofessional professionalism

In 2006, representatives from national health care organizations and various professions formed the IPC. Their goal was to explore the concepts of IPP among healthcare professionals, develop a conceptual framework, and create a reliable and valid instrument for measuring IPP among healthcare professionals and students. The vision established by the IPC is that IPP will enhance patient outcomes, promote competency, and improve academic and practice environments. The IPC developed the IPA instrument to collect IPP behavioral data across health professions to achieve this. This initiative aimed to foster environments prioritizing competence and enhancing overall healthcare quality, ultimately leading to better patient outcomes.<sup>[57, 64, 88]</sup>

The IPC defined IPP as “the consistent demonstration of core values evidenced by professionals working together, aspiring to, and wisely applying principles of altruism, excellence, caring, ethics, respect, communication, and accountability to achieve optimal health and wellness in individuals and communities”.<sup>[55]</sup> This definition highlights core values that are fundamental across all health professions, indicating that IPP is a vital link between education and the delivery of quality care.

### 8.2 Interprofessional professionalism and quality care framework

The Interprofessional Professionalism and Quality Care Framework image (see Figure 1), developed by the IPC, provides a comprehensive visual representation of the principles and practices essential for effective interprofessional collaboration in healthcare. The framework illustrates the relationship between professionalism (Stern, 2006) and the quality of patient care provided,<sup>[79]</sup> as IPP describes a higher-level, overarching philosophical approach to interprofessional practice and people-centered care. The Interprofessional Professionalism and Quality Care Framework image (see Figure 1) is the conceptual basis for the IPA instrument<sup>[57, 64, 88]</sup> and will inform the proposed study. The image was approved for use by others via the IPC website (<http://www.interprofessionalprofessionalism.org>), highlighting its credibility and relevance in the field.



**Figure 1.** IPP and quality care framework

Note. Original image. The image was approved for public use via the IPC website (<http://www.interprofessionalism.org>)

Within the IPP and quality care framework, the IPP construct emphasizes professionalism, communication, and collaboration across professional boundaries to enable the safe delivery of interprofessional patient care with ongoing, continuous assessment. Further, professionalism supports all framework elements with an expectation of continuous assessment for educational purposes within IPE opportunities. The ability of an IP student to work interprofessionally with professionalism contributes to safe, quality patient care. Shifting away from the individual behaviors of professionalism to shared professionalism creates shared values and a better understanding of professionalism within IPE.<sup>[57,64,88]</sup>

The conceptual framework for IPP focuses on observable behaviors that exemplify professionalism within IP teams, ultimately aimed at delivering high-quality, patient-centered care.<sup>[88]</sup> The IPC has treated IPP as a component of the broader concept of interprofessionalism. Consequently, IPP emphasizes the professional qualities that characterize effective teamwork rather than simply the act of working together as a team. According to the developed framework, the engagement of all health professionals in IPP enhances healthcare quality and patient outcomes, fosters a culture that values and promotes individual competence, and improves both educational and practice environments.<sup>[57,64,88]</sup>

While concepts such as collaboration, communication, and high-quality, patient-centered care are featured in various professional definitions, IPP uniquely emphasizes the importance of communication, collaboration, and cooperation across health professions. In this context, professionalism is emphasized to enhance IP care by fostering organizational

structures, skills, and values. Interprofessional professionalism prioritizes the competencies recognized by multiple health care professions as essential for promoting effective professional interactions while delivering patient care.<sup>[57,64]</sup>

Professionalism is essential to achieving key goals, such as providing quality patient-centered care and ensuring patient safety. Furthermore, the extensive discourse on professionalism contributes to these outcomes; however, practical strategies for realizing such goals within IP teams are currently lacking. In the context of modern health care, where care complexity is paramount, limited conceptual frameworks and definitions of IPP may hinder meeting safety and quality objectives by distracting health care professionals from effective collaboration across various professions.<sup>[57,64]</sup>

Interprofessional professionalism promotes effective communication and collaboration, essential for delivering safe, patient-centered, high-quality care in today's healthcare settings. The conceptual framework for IPP was developed with an emphasis on identifying the behavioral components of IPP across various health care professions.<sup>[57,64]</sup>

Interprofessional health care delivery involves various members of a health care team; however, the term "interprofessional" does not fully capture the essence of situations where IPP emerges.<sup>[55,57]</sup> Unlike traditional professionalism, which can be misused to justify unchallenged autonomy and hinder collaboration across professional boundaries, IPP represents a phenomenon that transcends these boundaries. It fosters enhanced collaboration, communication, and patient care coordination, ultimately benefiting patients and their families.<sup>[57]</sup>

This emphasis highlights professionalism as a key driver for fostering organizational structures, values, and skills for enabling IP care. The concept of IPP intersects with existing definitions of professionalism, drawing on previous research on team dynamics, relational coordination, IPE, and IP care.<sup>[89–91]</sup> Interprofessional professionalism focuses on the competencies, norms, and values that various professions consider essential for facilitating effective collaboration in delivering care.<sup>[57]</sup>

### 8.3 Interprofessional professionalism behaviors

Interprofessional professionalism is characterized by individual behaviors that can be taught, enhanced, monitored, measured, and evaluated.<sup>[92]</sup> Conceptually, behaviors reflecting IPP significantly influence the effectiveness of IP communication and teamwork, ultimately leading to improved quality of patient care and safety outcomes. Furthermore, IPP fosters a culture that prioritizes and values patient-, client-, and family-centered care.<sup>[64]</sup> Emphasizing professionalism within interprofessional collaborations can positively affect communication, teamwork, and overall quality and safety in healthcare settings. Interprofessional Professionalism necessitates that health professionals collaboratively engage with professionalism, moving beyond the confines of individual professions, as illustrated in the conceptual framework (see Figure 1). Instead of focusing solely on individual professional behaviors, this reimagining of shared professionalism cultivates a collective understanding of effective communication, collaborative teamwork, patient safety, and high-quality, patient-centered care.<sup>[64]</sup>

It is crucial to assess professional behaviors throughout a student's educational journey to effectively assess professionalism.<sup>[64,93]</sup> In this context, the IPC developed the IPP behaviors to promote a unified understanding, showcase competence among IP health care providers, and closely align IP education with practice (see Table 1). Following this guidance, the IPA instrument was created to assess the individual behaviors associated with IPP.<sup>[61]</sup>

## 9. CONCLUSION

The conceptual framework for IPP focuses on observable behaviors that demonstrate professionalism within IP teams. The goal of professionalism is to deliver high-quality, patient-centered care. The IPC has viewed IPP as part of the broader concept of interprofessionalism, and IPP thus emphasizes professional qualities that contribute to effective teamwork rather than mere collaboration as a team. According to the developed framework, engagement by all healthcare professionals in IPP improves the quality of healthcare and patient outcomes, fosters a culture that values and promotes indi-

vidual competence, and enhances educational and practice environments.

Interprofessional professionalism uniquely emphasizes the significance of communication, collaboration, and cooperation across health professions, prioritizing competencies recognized by multiple healthcare professions as essential for facilitating effective professional interactions in patient care. Shifting the focus to shared professionalism within IPP creates new means of communication within collaborative teams, allowing professionals to begin recognizing shared values. As such, patient-centered care, quality, and patient safety become the center of an IP team's efforts within the IPP and quality care framework.

The critical need to assess and evaluate IPP within health profession programs is due to the relationship between quality care and IPP. Assessment of IPP would improve quality care and patient safety and support a culture that fosters and values competence in practice and education settings.

### ACKNOWLEDGEMENTS

N/A

### AUTHORS CONTRIBUTIONS

N/A

### FUNDING

N/A

### CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

### INFORMED CONSENT

Obtained.

### ETHICS APPROVAL

The Publication Ethics Committee of the Association for Health Sciences and Education. The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

### PROVENANCE AND PEER REVIEW

Not commissioned; externally double-blind peer reviewed.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

### DATA SHARING STATEMENT

No additional data are available.



**OPEN ACCESS**

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

**COPYRIGHTS**

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

**REFERENCES**

- [1] Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Aff (Millwood)*. 2008; 27(3): 759-69. PMID:18474969 <https://doi.org/10.1377/hlthaff.27.3.759>
- [2] Kindig D, Stoddart G. What is population health? *Am J Public Health*. 2003; 93(3): 380-3. PMID:12604476 <https://doi.org/10.2105/AJPH.93.3.380>
- [3] Kindig DA. Understanding population health terminology. *Milbank Q*. 2007; 85(1): 139-61. PMID:17319809 <https://doi.org/10.1111/j.1468-0009.2007.00479.x>
- [4] Patel H, Perry S, Badu E, et al. A scoping review of interprofessional education in healthcare: evaluating competency development, educational outcomes and challenges. *BMC Med Educ*. 2025; 25(1): 409. PMID:40114152 <https://doi.org/10.1186/s12909-025-06969-3>
- [5] Swarthout M, Bishop MA. Population health management: review of concepts and definitions. *Am J Health Syst Pharm*. 2017; 74(18): 1405-11. PMID:28887342 <https://doi.org/10.2146/ajhp170025>
- [6] Healthy people: Centers for Disease Control and Prevention; 2020. Available from: [https://www.cdc.gov/nchs/healthy\\_people/hp2020.htm](https://www.cdc.gov/nchs/healthy_people/hp2020.htm)
- [7] Homeyer S, Hoffmann W, Hingst P, et al. Effects of interprofessional education for medical and nursing students: enablers, barriers and expectations for optimizing future interprofessional collaboration – a qualitative study. *BMC Nurs*. 2018; 17(1): 13. Mid:29643742 <https://doi.org/10.1186/s12912-018-0279-x>
- [8] O'Leary N, Salmon N, Clifford AM. 'It benefits patient care': the value of practice-based IPE in healthcare curriculums. *BMC Med Educ*. 2020; 20(1): 424. PMID:33183276 <https://doi.org/10.1186/s12909-020-02356-2>
- [9] Oudbier J, Verheijck E, van Diermen D, et al. Enhancing the effectiveness of interprofessional education in health science education: a state-of-the-art review. *BMC Med Educ*. 2024; 24(1): 1492. PMID:39696195 <https://doi.org/10.1186/s12909-024-06466-z>
- [10] Interprofessional Education Collaborative. IPEC core competencies for interprofessional collaborative practice: Version 3. Washington, DC: Interprofessional Education Collaborative, 2023.
- [11] Interprofessional Education Collaborative Expert Panel. IPEC core competencies for interprofessional collaborative practice: report of an expert panel. Washington, DC: Interprofessional Education Collaborative, 2011.
- [12] Interprofessional Professionalism Collaborative. IPEC core competencies for interprofessional collaborative practice: Version 2. Washington, DC: Interprofessional Education Collaborative, 2016.
- [13] Blue AV, Chesluk BJ, Conforti LN, et al. Assessment and evaluation in interprofessional education: exploring the field. *J Allied Health*. 2015; 44(2): 73-82.
- [14] Brandt BF, Stumpf Kertz J, Arenson C. National Center for Interprofessional Practice and Education 2023: reflecting back, looking forward. *J Interprof Care*. 2023; 37(sup1): S4-s14. PMID:37073117 <https://doi.org/10.1080/13561820.2023.2197939>
- [15] American Association of Colleges of Nursing. The essentials: core competencies for professional nursing education. American Association of Colleges of Nursing; 2021.
- [16] Anema MG, McCoy JL. Competency-based nursing education: guide to achieving outstanding learner outcomes: Springer Publishing; 2009.
- [17] Lenburg C. The framework, concepts and methods of the Competency Outcomes and Performance Assessment (COPA) model. *Online Journal of Issues in Nursing*. 1999; 4. <https://doi.org/10.3912/OJIN.Vo14No02Man02>
- [18] Wittmann-Price RA, Gittings KK. Fast facts about competency-based education in nursing. 1 ed. Glasgow MES, Wittmann-Price RA, editors. New York: Springer Publishing Company; 2020. <https://doi.org/10.1891/9780826136633>
- [19] Albarqouni L, Hoffmann T, Straus S, et al. Core competencies in evidence-based practice for health professionals: consensus statement based on a systematic review and Delphi survey. *JAMA Netw Open*. 2018; 1(2): e180281-e. PMID:30646073 <https://doi.org/10.1001/jamanetworkopen.2018.0281>
- [20] The ACGME common program requirements: Accreditation Council for Graduate Medical Education; 2023. Available from: <https://www.acgme.org/programs-and-institutions/programs/common-program-requirements>
- [21] Shrader S, Farland MZ, Danielson J, et al. A systematic review of assessment tools measuring interprofessional education outcomes relevant to pharmacy education. *Am J Phar Educ*. 2017;81(6):119. PMID:28970620 <https://doi.org/10.5688/ajpe816119>
- [22] Accreditation standards for nursing education programs. National League for Nursing Commission for Nursing Education Accreditation. Washington, DC National League for Nursing; 2021. p. 49.
- [23] Standards for accreditation of baccalaureate and graduate nursing programs. Commission on Collegiate Nursing Education; 2024.
- [24] Accreditation NCFNE. Standards for Nursing Education Programs. National League of Nursing; 2021.
- [25] Durkin AE, Feinn RS. Traditional and accelerated baccalaureate nursing students' self-efficacy for interprofessional learning. *Nurs Educ Perspect*. 2017; 38(1). PMID:29194239 <https://doi.org/10.1097/01.NEP.000000000000101>
- [26] Hall LW, Zierler BK. Interprofessional education and practice guide no. 1: developing faculty to effectively facilitate interprofessional education. *Journal Interprof Care*. 2015; 29(1): 3-7. PMID:25019466 <https://doi.org/10.3109/13561820.2014.937483>
- [27] Speakman E. Creating an infrastructure and culture of empowerment. *Clin Scholars Rev*. 2014; 7(2): 90-1. <https://doi.org/10.1891/1939-2095.7.2.90>
- [28] Committee for Assessing Progress on Implementing the Recommendations of the Institute of Medicine Report The Future of Nursing: Leading Change Advancing Health, Institute of Medicine, National Academies of Sciences Engineering and Medicine. Assessing progress on the Institute of Medicine report: the future of nursing.

- Altman SH, Butler AS, Shern L, editors. Washington (DC): National Academies Press (US); 2016.
- [29] Cooper J, Courtney-Pratt H, Fitzgerald M. Key influences identified by first year undergraduate nursing students as impacting on the quality of clinical placement: A qualitative study. *Nurse Educ Today*. 2015; 35(9): 1004-8. PMID:25828091 <https://doi.org/10.1016/j.nedt.2015.03.009>
- [30] Leighton K, Kardong-Edgren S, McNelis AM, et al. Traditional clinical outcomes in prelicensure nursing education: an empty systematic review. *J Nurs Educ*. 2021; 60(3): 136-42. PMID:33657230 <https://doi.org/10.3928/01484834-20210222-03>
- [31] Oates M, Davidson M. A critical appraisal of instruments to measure outcomes of interprofessional education. *Med Educ*. 2015; 49(4): 386-98. PMID:25800299 <https://doi.org/10.1111/medu.12681>
- [32] Billings DM, Halstead JA. *Teaching in nursing: a guide for faculty*. 7th ed: Elsevier; 2024.
- [33] Oermann MH, Shellenbarger T, Gaberson KB. *Clinical teaching strategies in nursing*: Springer; 2022.
- [34] Kavanagh JM, Szveda C. A crisis in competency: the strategic and ethical imperative to assessing new graduate nurses' clinical reasoning. *Nurs Educ Perspect*. 2017; 38(2). PMID:29194297 <https://doi.org/10.1097/01.NEP.000000000000112>
- [35] Amicucci B. What nurse faculty have to say about clinical grading. *Teach Learn Nurs*. 2012; 7(2): 51-5. <https://doi.org/10.1016/j.teln.2011.09.002>
- [36] Heaslip V, Scammell JME. Failing underperforming students: the role of grading in practice assessment. *Nurse Educ Pract*. 2012; 12(2): 95-100. PMID:21907621 <https://doi.org/10.1016/j.nepr.2011.08.003>
- [37] Lewallen LP, Van Horn ER. The state of the science on clinical evaluation in nursing education. *Nurs Educ Perspect*. 2019; 40(1). PMID:30095729 <https://doi.org/10.1097/01.NEP.0000000000000376>
- [38] Scanlan JM, Care WD, Gessler S. Dealing with the unsafe student in clinical practice. *Nurse Educ*. 2001; 26(1): 23-7. PMID:16372451 <https://doi.org/10.1097/00006223-200101000-00013>
- [39] Tanicala ML, Scheffer BK, Roberts MS. Defining pass/fail nursing student clinical behaviors phase I: moving toward a culture of safety. *Nurs Educ Perspect*. 2011; 32(3): 155-61. PMID:21834376 <https://doi.org/10.5480/1536-5026-32.3.155>
- [40] Lapkin S, Levett-Jones T, Gilligan C. A systematic review of the effectiveness of interprofessional education in health professional programs. *Nurse Educ Today*. 2013; 33(2): 90-102. PMID:22196075 <https://doi.org/10.1016/j.nedt.2011.11.006>
- [41] Burrell G, Morgan G. *Sociological paradigms and organisational analysis: elements of the sociology of corporate life*: Heinemann; 1979.
- [42] Comte A. *A general view of positivism*: Cambridge University Press; 1865.
- [43] Durkheim E. *The rules of sociological method*: The MacMillan Press Ltd; 1982. <https://doi.org/10.1007/978-1-349-16939-9>
- [44] Evetts J. *The management of professionalism: a contemporary paradox*. 2005.
- [45] Khalili H, Hall J, DeLuca S. Historical analysis of professionalism in western societies: implications for interprofessional education and collaborative practice. *J Interprof Care*. 2014; 28(2): 92-7. PMID:24383410 <https://doi.org/10.3109/13561820.2013.869197>
- [46] Zemlak J, Rodney T, Mangano E, et al. Professionalism in pre-licensure nursing education: Core values, didactic coursework and clinical training. *J Clin Nurs*. 2024; 33(2): 702-9. PMID:37941319 <https://doi.org/10.1111/jocn.16926>
- [47] Frenk J, Chen L, Bhutta ZA, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*. 2010; 376(9756): 1923-58. PMID:21112623 [https://doi.org/10.1016/S0140-6736\(10\)61854-5](https://doi.org/10.1016/S0140-6736(10)61854-5)
- [48] Al-Hamdan Z, Dalky H, Al-Ramadneh J. Nurses' professional commitment and its effect on patient safety. *Glob J Health Sci*. 2018; 10: 111-9. <https://doi.org/10.5539/gjhs.v10n1p111>
- [49] Charania NAMA, Ferguson DL, Bay E, et al. A professionalism and safety code of conduct designed for undergraduate nursing students. *J Prof Nurs*. 2017; 33(6): 460-3. PMID:29157576 <https://doi.org/10.1016/j.profnurs.2017.06.006>
- [50] The ICN code of ethics for nurses. Geneva, Switzerland: ICN - International Council of Nurses, 2012.
- [51] Cao H, Song Y, Wu Y, Du Y, et al. What is nursing professionalism? a concept analysis. *BMC Nurs*. 2023; 22(1): 34. PMID:36747180 <https://doi.org/10.1186/s12912-022-01161-0>
- [52] Forouzadeh M, Kiani M, Bazmi S. Professionalism and its role in the formation of medical professional identity. *Med J Islam Repub Iran*. 2018; 32(1): 765-8. PMID:30815425 <https://doi.org/10.14196/mjiri.32.130>
- [53] Owens RA, Kuhl LM, Hagopian CO, et al. Professionalism and professional identity. *Amer Nurs J*. 2024; 19(9): 14-9. <https://doi.org/10.51256/ANJ092414>
- [54] Carter M, Hesselgreaves H, Burford B, et al. Professionalism in healthcare professionals. Health and Care Professionals Council: 2014.
- [55] Stern DT. *Measuring medical professionalism*: Oxford University Press; 2005.
- [56] Gilbert JH, Yan J, Hoffman SJ. A WHO report: framework for action on interprofessional education and collaborative practice. *J Allied Health*. 2010;39 Suppl 1: 196-7.
- [57] Holtman MC, Frost JS, Hammer DP, et al. Interprofessional professionalism: linking professionalism and interprofessional care. *J Interprof Care*. 2011; 25(5): 383-5. PMID:21732724 <https://doi.org/10.3109/13561820.2011.588350>
- [58] Association AOT. *Standards of Practice for Occupational Therapy*. *Amer J Occup Ther*. 2021; 75(Supplement\_3). PMID:34939642 <https://doi.org/10.5014/ajot.2021.75S3004>
- [59] Care CoAfr. *Accreditation standards for advanced practice programs in respiratory care*. CoARC Advanced Practice Standards Commission on Accreditation for Respiratory Care; 2022.
- [60] American Physical Therapy Association. *Guide to physical therapist practice*, 3rd ed. American Physical Therapy Association; 2020.
- [61] Frost JS, Hammer DP, Nunez LM, et al. The intersection of professionalism and interprofessional care: development and initial testing of the Interprofessional Professionalism Assessment (IPA). *J Interprof Care*. 2019; 33(1): 102-15. PMID:30247940 <https://doi.org/10.1080/13561820.2018.1515733>
- [62] Andrews C. *Self-rated interprofessionalism between allied health professionals*. Electronic Theses and Dissertations: East Tennessee State University; 2024.
- [63] Tegzes JH, Frost JS. Alignment of selected veterinary education competencies with the Interprofessional Professionalism Assessment. *Front Vet Sci*. 2021; 8: 688633. Epub 20210709. PMID:34307528 <https://doi.org/10.3389/fvets.2021.688633>
- [64] Frost JS. *Interprofessional professionalism: Linking professionalism and interprofessional care [Paper presentation]*. Establishing Transdisciplinary Professionalism for Health; 05/14/2013; Washington, DC, United States. 2013.

- [65] Benner P, Stuphen M, Leonard V, et al. Educating nurses: a call for radical transformation. 2010. 183-4 p.
- [66] American Board of Medical Specialties. ABMS guide to medical specialties, 11th ed.: American Board of Medical Specialties; 2023.
- [67] American Pharmacists Association. Pharmacy practice in focus: Medication therapy management. American Pharmacists Association; 2022.
- [68] American Physical Therapy Association. Core competencies of a physical therapy resident. American Physical Therapy Association; 2020.
- [69] Reeves S, Xyrichis A, Zwarenstein M. Teamwork, collaboration, coordination, and networking: why we need to distinguish between different types of interprofessional practice. *Journal Interprof Care*. 2018; 32(1): 1-3. PMID:29131697 <https://doi.org/10.1080/13561820.2017.1400150>
- [70] Havyer RD, Wingo MT, Comfere NI, Nelson DR, Halvorsen AJ, McDonald FS, et al. Teamwork assessment in internal medicine: a systematic review of validity evidence and outcomes. *J Gen Intern Med*. 2014; 29(6): 894-910. PMID:24327309 <https://doi.org/10.1007/s11606-013-2686-8>
- [71] Suter E, Deutschlander S, Mickelson G, et al. Can interprofessional collaboration provide health human resources solutions? A knowledge synthesis. *J Interprof Care*. 2012; 26(4): 261-8. PMID:22390728 <https://doi.org/10.3109/13561820.2012.663014>
- [72] Zielińska-Tomczak Ł, Cerbin-Koczorowska M, Przymuszała P, Marciniak R. How to effectively promote interprofessional collaboration? – a qualitative study on physicians’ and pharmacists’ perspectives driven by the theory of planned behavior. *BMC Health Serv Res*. 2021; 21(1): 903. PMID:34474676 <https://doi.org/10.1186/s12913-021-06903-5>
- [73] Wald HS. Professional identity (trans)formation in medical education: reflection, relationship, resilience. *Acad Med*. 2015; 90(6): 701-6. PMID:25881651 <https://doi.org/10.1097/ACM.00000000000000731>
- [74] Keshmiri F, Hosseinpour A. Interprofessional professionalism as a motivating force in interprofessional collaboration. *J Med Ethics Hist Med*. 2022; 15: 8. PMID:37143523 <https://doi.org/10.18502/jmehm.v15i18.11050>
- [75] Cruess RL, Cruess SR, Boudreau JD, et al. Reframing medical education to support professional identity formation. *Acad Med*. 2014; 89(11). PMID:25054423 <https://doi.org/10.1097/ACM.0000000000000427>
- [76] Keeling AW, Hehman MC, Kirchgessner JC. History of professional nursing in the United States. 1 ed. New York: Springer Publishing Company; 2017.
- [77] Keller T, Ridenour N. Ethics. In: Giddens JF, editor. *Concepts for Nursing Practice*. 3 ed: Elsevier Health Sciences; 2021.
- [78] Committee on Measuring the Impact of Interprofessional Education on Collaborative Practice and Patient Outcomes, Board on Global Health, Institute of Medicine. *Measuring the impact of interprofessional education on collaborative practice and patient outcomes*. Washington, DC: National Academies Press (US); 2015.
- [79] Global Forum on Innovation in Health Professional Education, Board on Global Health, Institute of Medicine. *Assessing health professional education: workshop summary*. Washington, DC: National Academies Press (US); 2014.
- [80] Thistlethwaite J, Kumar K, Moran M, et al. An exploratory review of pre-qualification interprofessional education evaluations. *J Interprof Care*. 2015; 29(4): 292-7. PMID:25431833 <https://doi.org/10.3109/13561820.2014.985292>
- [81] Institute of Medicine Committee on the Health Professions Education Summit. *Health professions education: a bridge to quality*. Greiner AC, Knebel E, editors. Washington (DC): National Academies Press (US); 2003.
- [82] *Team performance in health care: assessment and development*. 1 ed. Heinemann GD, Zeiss AM, editors. New York, NY: Springer 2002.
- [83] Heinemann GD, Schmitt MH, Farrell MP, et al. Development of an Attitudes toward Health Care Teams scale. *Eval Health Prof*. 1999; 22(1): 123-42. PMID:10350960 <https://doi.org/10.1177/01632789922034202>
- [84] McFadyen AK, Maclaren WM, Webster VS. The Interdisciplinary Education Perception Scale (IEPS): An alternative remodelled sub-scale structure and its reliability. *J Interprof Care*. 2007; 21(4): 433-43. PMID:17654160 <https://doi.org/10.1080/13561820701352531>
- [85] Parsell G, Bligh J. The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Medical Education*. 1999; 33(2): 95-100. PMID:10211258 <https://doi.org/10.1046/j.1365-2923.1999.00298.x>
- [86] Pollard K, Miers ME, Gilchrist M. Second year scepticism: Pre-qualifying health and social care students’ midpoint self-assessment, attitudes and perceptions concerning interprofessional learning and working. *J of Interprof Care*. 2005; 19(3): 251-68. PMID:16029979 <https://doi.org/10.1080/13561820400024225>
- [87] Pollard KC, Miers ME, Gilchrist M. Collaborative learning for collaborative working? Initial findings from a longitudinal study of health and social care students. *Health Soc Care Community*. 2004; 12(4): 346-58. PMID:15272890 <https://doi.org/10.1111/j.1365-2524.2004.00504.x>
- [88] Hammer D, Anderson M, Brunson W, et al. Defining and measuring construct of interprofessional professionalism. *J Allied Health* 2012; 41(Summer): e49-53.
- [89] Clark PG. What would a theory of interprofessional education look like? Some suggestions for developing a theoretical framework for teamwork training. *J Interprof Care*. 2006; 20(6): 577-89. PMID:17095437 <https://doi.org/10.1080/13561820600916717>
- [90] Gittel JH, Weinberg DB, Bennett AL, et al. Is the doctor in? A relational approach to job design and the coordination of work. *Hum Resour Manag*. 2008; 47(4): 729-55. <https://doi.org/10.1002/hrm.20242>
- [91] McNair RP. The case for educating health care students in professionalism as the core content of interprofessional education. *Med Educ*. 2005; 39(5): 456-64. PMID:15842679 <https://doi.org/10.1111/j.1365-2929.2005.02116.x>
- [92] Swick HM. Toward a normative definition of medical professionalism. *Acad Med*. 2000; 75(6). PMID:10875505 <https://doi.org/10.1097/00001888-200006000-00010>
- [93] Cohen J. *Statistical power analysis for the behavioral sciences*. 2nd ed: Routledge; 1988.