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Professionalism and Self-Evaluation: Diverging Perspectives Among Physicians and Nurses

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Introduction: Professionalism among healthcare professionals is often defined in terms such as altruism, humanism, and excellence. The integration of such professionalism ideals to healthcare professionals' practice poses a challenge to medical tutors. We examined the assessment of professionalism among physicians and nurses by their peers and evaluated the significance of each professional role component within each sector. We also performed a cross-sector assessment whereby physicians assessed nurses' professionalism and vice versa.

Methods: A survey among physicians, interns, and nurses. The participants were asked to rate the extent that each of the 12 characteristics contributes to physicians' and nurses' professionalism of on a scale of 1 (does not contribute at all) to 10 (highly contributes). Each participant rated the contribution of each component to the professionalism of their own occupation (direct scoring) and to the professionalism of the other occupation (cross scoring).

Results: In total, 300 healthcare professionals (mean age 36.6, 46% males) responded to the survey. The most highly contributing characteristics to physicians' professionalism were knowledge, responsibility, decision-making and leadership, clustered as "strategic judgment". The most highly contributing characteristics to nurses' professionalism were responsibility, personal attention, empathy, and skills, clustered as "bedside approach" and "performance abilities". Cross-assessment among professionals was different: Nurses assigned higher ratings in general, interns assigned higher ratings to physicians' characteristics, whereas physicians assigned lower ratings to professionalism characteristics, and especially to those of nurses. Nurses emphasized patient centeredness and communication skills more than physicians. Nurses and interns appreciated teamwork compared to physicians. Major differences in how physicians and nurses perceive professionalism revealed physicians' emphasis on "strategic judgment" while nurses emphasis on "bedside approach".

Conclusion: Physicians and nurses hold differing viewpoints on many topics, including the objectives of their mission, expected performance, and activity types. Medical professionals can assess their colleagues and partners, recognizing both strengths and weaknesses in themselves and others.

Keywords: professionalism, healthcare professionals, physicians, nurses, cross-assessment, evaluation tool

Introduction

In the context of healthcare, "professionalism" is often described using broad and somewhat ambiguous terms, such as altruism, humanism, and excellence. The integration of such professionalism ideals to healthcare professionals' practice poses a challenge to medical educators. Recently, there have been initiatives aimed at establishing a more comprehensive curriculum to cultivate professionalism across all levels of medical education and practice. The greater goal of these efforts is to establish a culture of collective accountability within healthcare institutions while also emphasizing individual responsibility in fostering an "ecology of professionalism".[1] This approach inherently values and reinforces professional behavior.[2] Given the dynamic nature of the healthcare landscape, the roles of physicians and nurses continuously evolve and necessitate redefinition.[3,4] However, this evolving definition requires adaptive measurement scales for comparative analysis.

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Several characteristics have been suggested for measuring professionalism, with some of them overlapping. Epstein suggested a mixed assessment format for physicians and trainees, encompassing the habitual and judicious utilization of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served.[5] Another analysis, drawn from the responses of 765 medical students, identified seven factors of professionalism: accountability, altruism, duty, enrichment, equity, honor, integrity, and respect.[6]

Medical educators aim to assemble these intangible values, often guided by feedback from those who evaluate professional skills. Naturally, differences in perspectives emerge among supervisors, colleagues, patients, and families regarding various healthcare professionals' attributes. Moreover, the medical situation, its circumstances, the environment, culture, and regulations can have an impact on the evaluation. Thus, medical managers and educators worldwide seek to define the role of "the good doctor"[7] as a combination of characteristics, capabilities, and values, yet an optimal standardized assessment tool remains a necessity.

In Israel, an attempt has been made to delineate the key principles of professionalism, culminating in the summarization of 4 pathways for achieving best practice. These pathways include harmonizing professional skills, adapting to the changing environment, fostering academic collaboration, and providing ongoing longitudinal training throughout the professional journey, starting from medical students through interns, residents, and beyond. To achieve this, several practical topics have been proposed: (1) Implementing a foundational toolkit for professionalism encompassing knowledge, skills, and attitude,[8] incorporating medical ethics,[9] and patient-reported outcome measures (PROMs), utilizing simulators and peer groups for acquiring these skills. (2) Integrating family involvement both in-person and through telemedicine platforms.[10] (3) Establishing collaborations – both locally and abroad - to share clinical knowledge and engage in research activities to expand perspectives. (4) Guiding residents to choose medical topics based on identified national and organizational needs[11] and gaps while simultaneously developing an optimal methodology tailored to departmental requirements, thus facilitating the cultivation of excellent residents.[12]

Beyond the variety of the elements comprising professionalism, it is also essential to consider who conducts the assessment. In an era of patient-centered care, the traditional method of supervisory evaluation is insufficient. Medical educators seek a complete and thorough assessment by supervisors[13] and peers,[14] rather than relying solely on single feedback. However, such assessments often focus on skills and performance measures. As far as we know, interdisciplinary assessments of what comprises "good professional behavior" across sectors are seldom used, although they have the potential to offer valuable insights and new perspectives.[15] The evaluation process itself is challenging, and educators tend to compare achievements by comparing various educational strategies, such as simulations, peer discussion groups, clinical vignettes, and lectures (mainly described in nursing programs),[16] or comparing learning outcomes of new and traditional strategies,[17] rather than actually score their trainees. Only few reports of self evaluation of health professionals were reported focusing on technical skills.[18] To the best of our knowledge, a comprehensive self and cross evaluation was not described in the medical field. The evaluation process may be uneven, even when objective measures are used.[19] Moreover, self evaluations itself need to be standardized otherwise it may also determine bias;[20] gender differences are reported,[21] responders tend to estimate themselves higher or lower to their peer based on individual characteristics and a selection bias may occur – those responding to the survey may have higher confidence.[22]

In this study, we aimed to explore cross-sector assessment of professionalism to achieve a more comprehensive understanding of healthcare professionals' profile. Specifically, we examined the assessment of professionalism among physicians and nurses by their peers and evaluated the significance of each professional role component within each sector. We also performed a cross-sector assessment whereby physicians assessed nurses' professionalism and vice versa.

Methods
Setting and Participants
A nationwide survey was conducted from February to May 2022 using a self-reported questionnaire. The study population comprised physicians, medical interns, and nurses who were recruited to the study approached in person and by snowball method, to reach additional participants. Specifically, physicians and nurses working at five medical

centers across the country were approached directly by the researchers. Interns were approached via the national database of the Universities' Scientific Council and the Ministry of Health.

The study was approved by the leading institution's ethics committee (approval number 0218–22 ASF). All participants provided their informed consent upon agreeing to complete the questionnaire.

Study Tool

The characteristics of professionalism, derived by a literature review,[1,5] were discussed and finalized by a steering committee comprising a medical manager, a senior physician, two academic consultants in health management (an associated professor and a senior lecturer), and four nurses. Twelve characteristics were accepted and used in the survey: personal attention, responsibility, patience, compassion, empathy, decision-making, teamwork, leadership, skills, experience, knowledge, and accuracy.

The participants were asked to rate the extent that each of the 12 characteristics contributes to physicians' and nurses' professionalism of on a scale of 1 (does not contribute at all) to 10 (highly contributes). Each profession was assessed separately. Each participant was asked to rate the contribution of each component to the professionalism of their own occupation (direct scoring) and to the professionalism of the other occupation (cross scoring).

Three clusters emerged following the analysis of individual professional characteristics, using the mean of the scores of the following characteristics: (I) "Bedside approach", includes personal attention, patience, compassion and empathy. (II) "Strategic judgment", includes decision-making, shared teamwork and leading the case management, and (III) "performance abilities", includes technical skills, experience, knowledge and accuracy.

Statistical Analysis

We conducted a power analysis to determine the required sample size. For a statistical power of 80% and a significance level of 0.05, with an effect size of 0.2, a sample size of 246 participants is necessary. Increasing the power to 85% would require 279 participants while achieving a power of 90% necessitates 321 participants.

Statistical analysis was performed using R Statistical Software (v4.3.0; R Core Team 2021). Means, standard deviations, or frequencies and percentage were calculated for the demographics' characteristics by profession.

The ratings given to each professionalism component were analyzed by profession (medicine and nursing). Subgroup analysis was performed for physicians, interns, and nurses using one-way analysis of variance (ANOVA) with Bonferroni adjustment for multiple comparisons. Additionally, a mixed model ANOVA was used to compare the ratings of the professionalism components based on their perceived contribution to professionalism and the cluster analysis. The repeated measure was the rating of the various components or clustered component, and the independent measure was participant subgroup (physician, intern, or nurse). An interaction plot was generated to show significant differences among subgroups. A p-value of <5% was considered statistically significant.

Results

In total, 300 participants completed the questionnaire, and their responses were analyzed. The mean age of the study population was 36.6 years (Table 1). On average, physicians were older, and interns were younger than the average age of the study population (p < 0.001). Forty-six percent of participants were male, with a higher proportion of male physicians (58%), and interns (65%) compared to male nurses (35%; p < 0.001). The mean seniority of physicians, nurses, and interns was 11 years, 9 years, and 1 year, respectively. Almost half of the participants (49%) were native Hebrew speakers, with a higher proportion among physicians (56%), and 38% of the participants were native Arab speakers, with a higher proportion among interns (40%; p = 0.005). Most respondents (73%) reported living in urban areas, and the proportion of physicians, interns, and nurses in urban and rural areas was almost similar. Compliance was higher in the Northern and Central compared to the Eastern and Southern Districts (42%, 36%, 17%, 5%, respectively). Statistically significant differences in district of residence were observed among the professional subgroups' responders: 49% of the physicians were from the northern district compared to 40% of the nurses and 29% of the interns, whereas 61% of the interns, 36% of the physicians, and 30% of the nurses reported that they live in the central district (p < 0.001) (Table 1).

Table 1 Demographic Characteristics of the Study Population

Variable	Physicians N=112	Interns N=41	Nurses N=148	Total N=301	P-value
Gender, n (%)					
Male	65 (58.0)	23 (56.1)	51 (34.7)	139 (46.3)	<0.001
Female	47 (42.0)	18 (43.9)	96 (65.3)	161 (53.7)	
Age, years, mean (SD)	41.5 (11.3)	28.7 (3.8)	35.0 (10.0)	36.6 (10.8)	<0.001
Seniority, years, mean (SD)	11.1 (9.0)	1.0 (0.0)	9.0 (8.8)	8.7 (8.8)	<0.001
Native language, n (%)					
Hebrew	63 (56.2)	20 (48.8)	64 (43.5)	147 (49.0)	0.005
Arabic	33 (29.5)	21 (51.2)	59 (40.1)	113 (37.7)	
Russian	15 (13.4)	0 (0.0)	15 (10.2)	30 (10.0)	
Other	1 (0.9)	0 (0.0)	9 (6.1)	10 (3.3)	
District of residence, n (%)					
North	55 (49.1)	12 (29.3)	59 (39.9)	126 (41.9)	<0.001
Center	40 (35.7)	25 (61.0)	44 (29.7)	109 (36.2)	
East	9 (8.0)	2 (4.9)	41 (27.7)	52 (17.3)	
South	8 (7.1)	2 (4.9)	4 (2.7)	14 (4.7)	
Pattern of living, n (%)					
Urban	77 (68.8)	33 (80.5)	109 (73.6)	219 (72.8)	0.332
Rural	35 (31.2)	8 (19.5)	39 (26.4)	82 (27.2)	

Assessment of Physician Professionalism

The mean ratings assigned to the professionalism characteristics by each professional subgroup are presented in Table 2. The professional characteristics considered by the entire sample of participants as "highly contributing" to the professionalism of physicians (rated above 9 on a scale of 1–10) were: knowledge (9.2), responsibility (9.1), and decision-making (9.1). Personal attention and technical skills (8.9 each), experience, accuracy, and leadership (8.8 each), followed by empathy, compassion, teamwork (8.6 each), and patience (8.5) were also considered as highly contributing to physicians' professionalism (p = 0.019 for the difference among the characteristics).

Physicians viewed knowledge (9.1) as the most important characteristic contributing to their professionalism. Other characteristics considered important were decision-making (8.9), skills (8.8), responsibility and experience (8.7 each), and leadership (8.5). The rest of the professional characteristics were considered as contributing less to physicians' professionalism: attention, compassion, and accuracy (8.4 each), empathy (8.3), teamwork (8.1), and patience (8.0) (p < 0.001).

Nurses perceived responsibility and knowledge (9.3 each), personal attention and decision-making (9.2 each), accuracy (9.1), leadership and skills (9.0 each) as characteristics that highly contribute to physicians' professionalism. Nurses also perceived that experience, teamwork, patience, empathy, and compassion are also important to physicians' professionalism (8.9, 8.9, 8.7, 8.7, 8.6, respectively, p < 0.001).

Medical interns gave higher ratings to all physicians' professional characteristics compared to those given by nurses and physicians. According to the medical interns, the most highly contributing physician professionalism characteristics are responsibility (9.4) and knowledge (9.3). Other characteristics considered highly important were decision-making, experience, technical skills, teamwork and personal attention (9.1 each), and compassion and accuracy (9.0 each). Leadership, patience, and empathy were given slightly lower ratings (8.9, 8.9, and 8.8 respectively), yet they were still considered important (p = 0.633).

Assessment of Nurse Professionalism

Analysis of the responses of the entire study population revealed that responsibility (rated 8.9) was viewed as nurses' most highly contributing professional characteristic, followed by personal attention, empathy, and skills (8.7 each), knowledge and teamwork (8.6 each), accuracy and compassion (8.5), experience and patience (8.4). Decision-making and leadership (8.1 and 7.9 respectively) were rated as the characteristics that contribute the lowest to nurses' professionalism (p = 0.029; Table 2).

Table 2 Comparison of Professionalism Characteristics Rating by Participant Subgroup

Cluster	Professionalism Characteristic	Physicians' Professionalism Characteristics Rating Mean (SD)					Nurses' Professionalism Characteristics Rating Mean (SD)				
	Participant Subgroup	Physicians N=112	Interns N=41	Nurses N=148	Total N=301	P-value*	Physicians N=112	Interns N=41	Nurses N=148	Total N=301	P-value*
Bedside Approach	Personal attention	8.4 [a] (1.3)	9.1 [b] (1.7)	9.2 [b] (1.0)	8.9 (1.3)	<0.001	8.4 [a] (1.4)	8.6 (1.8)	8.9 [b] (1.2)	8.7 (1.4)	0.014
	Responsibility	8.7 [a] (1.2)	9.4 [b] (1.1)	9.3 [b] (1.1)	9.1 (1.2)	<0.001	8.6 [a] (1.4)	9.0 (1.5)	9.0 [b] (1.1)	8.9 (1.3)	0.019
	Patience	8.0 [a] (1.6)	8.9 [b] (1.6)	8.7 [b] (1.3)	8.5 (1.5)	<0.001	8.0 [a] (1.5)	8.5 [b] (1.9)	8.8 [b] (1.2)	8.4 (1.5)	<0.001
	Compassion	8.4 (1.4)	9.0 (1.2)	8.6 (1.4)	8.6 (1.4)	0.071	8.1 [a] (1.5)	8.6 [b] (1.5)	8.7 [b] (1.2)	8.5 (1.4)	0.001
	Empathy	8.3 [a] (1.4)	8.8 (1.9)	8.7 [b] (1.3)	8.6 (1.5)	0.028	8.3 [a] (1.5)	8.7 (1.8)	8.9 [b] (1.2)	8.7 (1.5)	0.001
Strategic judgment	Decision-making	8.9 (1.0)	9.1 (1.1)	9.2 (1.2)	9.1 (1.1)	0.242	7.5 [a] (1.7)	7.8 [a] (1.7)	8.6 [b] (1.3)	8.1 (1.6)	<0.001
	Teamwork	8.1 [a] (1.4)	9.1 [b] (1.4)	8.9 [b] (1.3)	8.6 (1.4)	<0.001	8.1 [a] (1.4)	9.2 [b] (1.2)	8.9 [b] (1.2)	8.6 (1.3)	<0.001
	Leadership	8.5 [a] (1.4)	8.9 (1.4)	9.0 [b] (1.1)	8.8 (1.3)	0.023	7.2 [a] (1.9)	7.8 [a] (1.8)	8.5 [b] (1.3)	7.9 (1.7)	<0.001
Performance abilities	Skills	8.8 (1.2)	9.1 (1.2)	9.0 (1.3)	8.9 (1.3)	0.228	8.3 [a] (1.4)	8.8 [b] (1.4)	8.9 [b] (1.3)	8.7 (1.4)	0.002
	Experience	8.7 (1.2)	9.1 (1.4)	8.9 (1.5)	8.8 (1.4)	0.198	8.3 (1.6)	8.5 (1.5)	8.4 (1.7)	8.4 (1.6)	0.807
	Knowledge	9.1 (1.0)	9.3 (1.1)	9.3 (1.1)	9.2 (1.0)	0.219	8.3 [a] (1.6)	8.7 (1.5)	8.9 [b] (1.2)	8.6 (1.4)	0.002
	Accuracy	8.4 [a] (1.4)	9.0 [b] (1.2)	9.1 [b] (1.2)	8.8 (1.3)	<0.001	8.1 [a] (1.5)	8.6 (1.5)	8.8 [b] (1.2)	8.5 (1.4)	0.001

Notes: *P-value of analysis of variance (ANOVA). Superscript letters [(a,b)] indicate statistically significant differences among the participants' (physicians, interns, and nurses) rating of each characteristic using multiple comparisons with Bonferroni adjustments. Identical letters means that there were no statistically differences between the ratings of the professionals.

Nurses viewed responsibility (9.0) as the most highly contributing characteristic to their professional role, followed by attention, knowledge, skills, empathy, and teamwork (8.9 each), patience and accuracy (8.8), and compassion (8.7). Decision-making, leadership, and experience were rated lower (8.6, 8.5, and 8.4, respectively, p < 0.001).

Physicians also considered responsibility and personal attention to the patient as the most highly contributing professional characteristics of nurses (8.6 and 8.4, respectively), followed by skills, experience, knowledge, and empathy (8.3 each), accuracy, teamwork, compassion (8.1 each), and patience (8.0). Decision-making and leadership were regarded by physicians as less important to nurses' professional roles (7.5 and 7.2 respectively) p < 0.001.

Interns viewed teamwork and responsibility (rated 9.2 and 9.0 respectively), as contributing the most to nurses' professionalism, followed by skills (8.8), knowledge, empathy (8.7 each), personal attention, accuracy, compassion (8.6 each), experience and patience (8.5 each). Similar to physicians' views, leadership, and decision-making (7.8 each) were also considered by interns as being less important to nurses' professional roles (p < 0.001).

Cluster Analysis of Professional Characteristics

Three clusters emerged following the analysis of individual professional characteristics, using the mean of the ratings of the relevant characteristics: (I) "bedside approach", which included personal attention, patience, compassion, and empathy. (II) "strategic judgment", which included decision-making, shared teamwork, and leading the case management, and (III) "performance abilities", which included technical skills, experience, knowledge, and accuracy (Table 3).

We investigated whether the differences between professional subgroups in relation to the rating given to each professional characteristic are sporadic or if they indicate a consistent pattern or "profile" of the healthcare professional. All three professional subgroups gave higher average ratings to *physicians'* professional characteristics within the "performance abilities" and "strategic judgment" clusters compared to the "bedside approach" cluster. On average, medical interns rated each cluster the highest among the three professional subgroups, while physicians rated each cluster the lowest (Figure 1).

In contrast, all three professional subgroups gave higher average ratings to *nurses'* professional characteristics within the "bedside approach" and "performance abilities" clusters compared to the "strategic judgment" cluster (Table 3 and Figure 1). On average, nurses rated each cluster the highest among the three professional subgroups, while physicians rated each cluster the lowest.

Discussion

While there is agreement on the formal definition of the roles of healthcare professionals, their perceived missions extend beyond this consensus. The current definition of the "good doctor" encompasses many aspects provided by various respondents and involves multiple stakeholders.[23] Some individuals go as far as to broaden the role of the physicians, positioning them as a cornerstone of society.[24] We used a cross-assessment methodology to cope with this challenge. Self evaluation may be bias, thus we aimed to establish a more balanced tool providing the insight of many stakeholders to

Table 3 Comparison of Cluster Professionalism Characteristics Rating by Participant Subgroup

Cluster	Physicians' professionalism characteristics ratings Mean (SD)					Nurses' professionalism characteristics ratings Mean (SD)				
	Physicians N=112	Interns N=41	Nurses N=148	Total N=301	P-value*	Physicians N=112	Interns N=41	Nurses N=148	Total N=301	P-value*
P-value**	<0.001	0.027	0.018	<0.001		<0.001	0.73	0.004	<0.001	
I Bedside approach	8.4^C (1.02)	9.0 (1.3)	8.9^B (1.0)	8.7^C (1.1)	<0.001	8.3^A (1.1)	8.7^A (1.5)	8.9^A (0.9)	8.6^A (1.1)	<0.001
II Strategic judgment	8.5^B (1.0)	9.1 (1.1)	9.0^A (0.9)	8.8^B (1.0)	<0.001	7.6^B (1.3)	8.2^B (1.3)	8.7^B (0.9)	8.2^B (1.3)	<0.001
III Performance abilities	8.7^A (0.8)	9.1 (1.0)	9.1^A (0.9)	9.0^A (0.9)	<0.001	8.3^A (1.2)	8.7^A (1.1)	8.8 (1.0)	8.6^A (1.1)	0.006

Notes: *P-value of the ANOVA for the difference among participant ratings. **P-value of the ANOVA for the difference among cluster ratings by each occupation (physicians, interns, and nurses). Superscript letters $^{(A,B,C)}$ indicate statistically significant differences among the ratings of each cluster characteristic using multiple comparisons with Bonferroni adjustments. Identical letters means that there were no statistically differences between cluster ratings by the professionals.
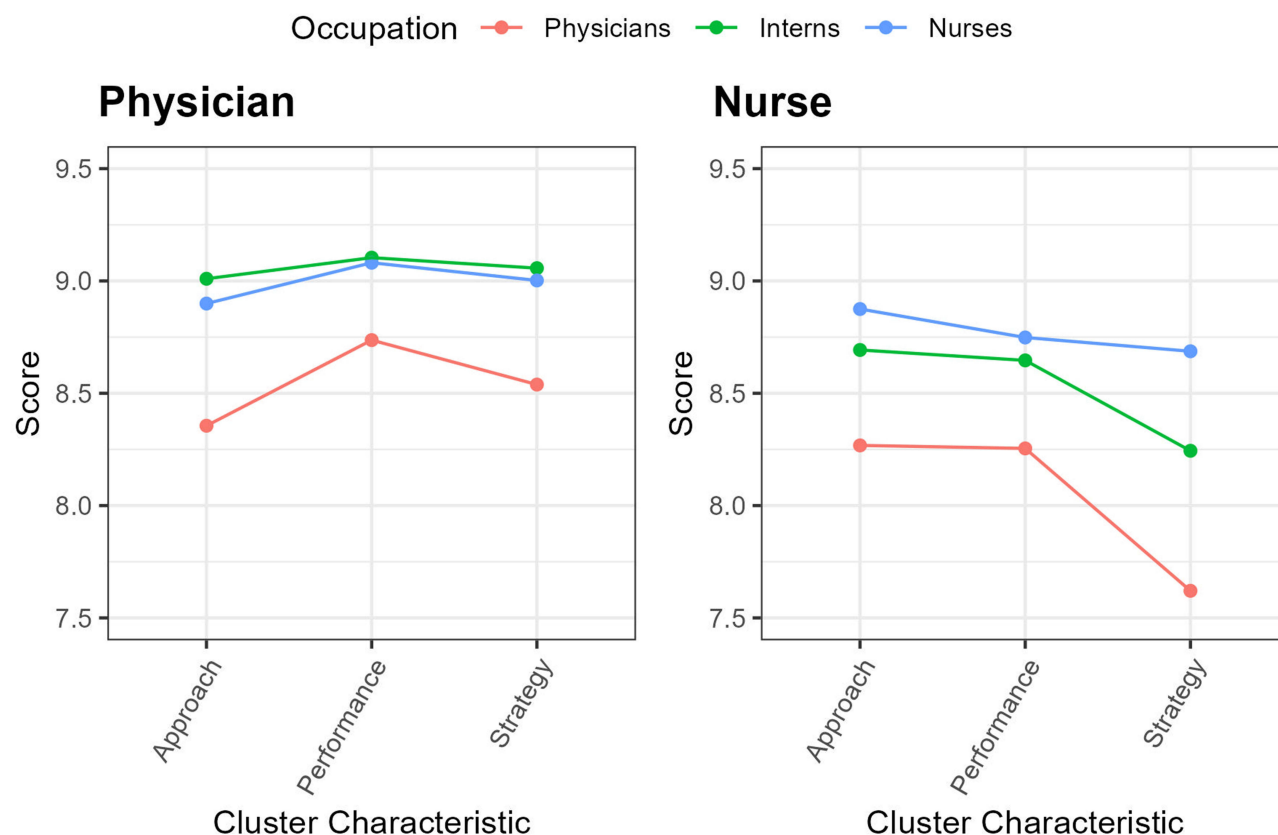
Figure 1 Mean rating of physicians' and nurses' professional characteristics by cluster and occupation.

professional skills. We created a cross assessment method that was used in two hospitals in practice and may be further used in health organizations.

The roles of physicians and nurses embrace various aspects that are integrated into their education and training. However, some of these elements are not explicitly addressed in their daily practice. These elements can be classified into four groups of professional abilities, regardless of the clusters formerly described: (a) Internal identity, which includes responsibility, empathy, compassion, and decision-making abilities. (b) External skill acquisition, which involves capabilities acquired externally, including knowledge, accuracy, technical/performance skills, and experience. (c) Emotional characteristics reflecting sensitivity/responsiveness to patient's needs, such as personal attention and patience. (d) Interpersonal communication and relationships, including teamwork and leadership.

Our analysis showed that most of the professional characteristics were perceived as highly contributing to physicians' professionalism, especially by nurses and interns, and to a lesser extent by physicians themselves. This finding may be explained by the "halo effect" whereby interns and nurses may attribute certain characteristics to physicians beyond what physicians themselves identify or prioritize. Due to their higher level of education and their role in leading treatment plans, physicians are often seen as leaders in conceptual strategy and policy within healthcare systems, despite potentially having limited expertise or involvement in those specific areas.[25–27]

We investigated whether the differences between professional subgroups in relation to the rating given to the contribution to professionalism of each characteristic are sporadic or if they indicate a consistent pattern or "profile" of healthcare professionals. To that end, we analyzed the responses using clusters encompassing sets of related characteristics. The analysis revealed that the "strategic judgment" cluster, which reflects leadership, was rated by all subgroups as highly contributing to physicians' professionalism increasing with experience.[28] Others, investigating pharmacists, suggest that the Academy should develop leadership and management skills in tandem with patient care-related skills to optimize care delivery and to merge into organizational behavior and evidence-based management. The

future of medical excellence is highly dependent on future leaders, and the development of successful leaders is imperative to the professionalism.[29]

This may be further improved to enhance good medical practice.[30] In contrast, this cluster was rated as contributing the lowest in relation to nurses' professional role, especially by physicians and interns. The "performance abilities" cluster was rated by all professional subgroups as highly contributing to physicians' professionalism. The physicians rated this cluster higher compared to the other subgroups. Although the interns tended to assign higher ratings overall, they emphasized the contribution of all clusters to physicians' professionalism more than their contribution to nurses' professionalism. We assume that this may stem from interns' perception of the "optimal doctor profile" as an ideal role model, reflecting their expectations at an early phase of their professional career.

A distinct rating pattern emerged when participants were asked to assess the contribution of professionalism components in relation to nurses' roles. In general, these ratings were lower and more homogeneous. Interestingly, the nurses themselves perceived the "strategic judgment" cluster, and specifically the leadership characteristic as contributing the lowest to their professionalism, compared to how they perceived these aspects in relation to physicians' roles. This discrepancy may be attributed to the perception that physicians are expected to lead in policy development and care planning, reinforcing the concept that physicians, rather than nurses, are the primary "care managers". This aligns with existing literature, wherein nurses often highlight their clinical value in supporting physicians, while physicians tend to view nurses in a supportive role rather than leading clinical activities.[31]

Both nurses and interns prioritized physician responsibilities and decision-making abilities while placing less emphasis on the patient- doctor relationship and the "bedside approach" cluster, which encompasses characteristics such as patience, compassion, and empathy. Moreover, our findings suggest that while nurses perceive physicians as clinical leaders, they may not necessarily view them as team players. Conversely, interns rated "teamwork" as contributing more to physicians' roles, whereas they rated leadership lower, possibly reflecting their own needs during the training period of their own professional journey.

Physicians placed greater emphasis on "knowledge" as a key component of their role, surpassing other elements, including those related to the patient–doctor relationship (patience, compassion, and empathy). Interestingly, they perceived "teamwork" as contributing the lowest to their role, indicating that they perceive themselves more as independent contributors rather than team players.

Figure 1 illustrates the primary focus on professionalism components within both occupations as analyzed by each subgroup. All participants view "decision-making" as a core element for physicians, representing a fundamental aspect of their professional role. Interns and nurses concurred that "responsibility" is also essential for physicians' role, while physicians themselves emphasize "knowledge" as a key component in their professional ability.

Regarding the elements comprising nurses' professional role, there was a consensus among all participants that "responsibility" is a leading characteristic. This aligns with findings from other studies where "responsibility" emerged as a leading principle of professionalism.[32]

Both interns and nurses prioritize "teamwork" as the second most contributing aspect of nurses' professional role. Nurses also consider "empathy" and "performance" equally important components of their approach to patient care, while physicians regard "personal attention" as a key characteristic in nurses' "bedside approach" cluster, reflecting the strategy of patient-centered care. This concept provides better outcomes of patient and family satisfaction, patient safety, and nursing quality.[33]

Upon closer examination of how physicians and nurses perceive professional characteristics, we noticed a divergence in their valuations and assessments. Generally, physicians tended to assign lower ratings, while interns assign higher ratings than nurses. We attribute this to physicians' self-critical nature, driven by aspirations for excellence and competitiveness. When utilizing the applicable tool, it is essential to consider these different perspectives and leverage them when comparing ratings within integrated teams. Joint efforts can help bridge the gap between the two professions and promote a more effective collaboration.

Although physicians and nurses hold different perceptions of nurse-physician collaboration, they share common themes in their perceptions on decision-making, teamwork, and communication.[34] A previous study conducted in Israel compared professional values of physicians and nurses, focusing on values related to the health system as a whole rather

than to each other's profession. Both groups ranked performance quality, cooperation, commitment, effectiveness, and efficiency as the most important characteristics, while competition, marketing, power, risk-taking, and assertiveness were ranked as the least important. Similar to our findings, nurses tended to assign higher ratings than physicians.[35]

We believe that some professional characteristics often influence the behavior of healthcare professionals towards patients and among themselves. Moreover, these perceived characteristics shape the "branding" of professional roles and may contribute to the segregation rather than the integration of these professional groups as into a cohesive treating team.

A systematic review of health professionals' experiences concluded that participation in teamwork education programs can guide organizations and educational facilitators in developing and implementing effective teamwork education in acute hospital settings.[36]

Mutual display can potentially lead to enhanced performance and increased engagement, thereby improving the daily efficiency of individuals as well as teamwork. To better understand mutual insights, we identified key characteristics, such as responsibility, that can be shared by both physicians and nurses to improve patient care. "Technical" and "patient-targeted" characteristics were assigned different ratings by different professional subgroups. These issues can be addressed by different methods to maximize adherence.

To expand the scope of our research to interventions that will improve performance' quality and standardization, a careful observation is required to medical professionals beyond those in hospitals; Health workers in the community and in rural setting present diversity in knowledge, skills, and abilities. They must also integrate the patient's environmental and specific cues in their clinical decision-making processes, emphasizing the importance of leadership and communication.[37] Our findings may be of the instant to other healthcare professionals and to interdisciplinary teamwork in broader contexts. Thus, further studies may consider using this methodology for relevant healthcare workers and departments. Moreover, unique conceptual values and strategies may be added to the parameter scoring such as patient-centered care, patient/family involvement, and interprofessional collaboration.

This study has some limitations. Firstly, the participants were recruited by the snowball method, which may introduce bias. Utilizing a representative statistical sample may reveal different findings. Secondly, we may have response bias. And lastly, the survey presented a theoretical role model, with assumptions that it would increase compliance and decrease rating bias. However, many healthcare professionals may have preconceived notions of an ideal physician or nurse based on their own perceptions or individual experiences. Providing a description of a standardized healthcare professional could offer a more comparable standardized prototype for evaluation.

Conclusions

Exposing the strengths of professional roles is a strategy to increase satisfaction and foster self-fulfillment for all healthcare professionals. This study introduced an innovative matrix tool enabling cross-assessment of professional characteristics of physicians by nurses and vice versa in a grouped indirect manner. We showed that medical professionals can assess their colleagues and partners, recognizing both strengths and weaknesses in themselves and others. Moreover, they are willing to provide their attitudes and feedback, understanding that it contributes to enhancing team cohesiveness. However, some individuals may hesitate to assess their peers due to concerns about potentially disrupting the delicate network and impeding workflow within daily practice. Achieving transparent unbiased ratings will require the involvement of the medical leadership.

Our analysis revealed that physicians and nurses hold differing viewpoints on many topics, including the objectives of their mission, expected performance, activity types, teamwork versus working independently, consideration of patient preferences, and the meaning of accountability. While this assessment is subjective and influenced by group dynamics, individual characteristics, organizational and health system culture, and changing circumstances, it can provide managers with insights into perceptions within each occupational subgroup, as well as an understanding of interrelationships. The feasibility of standardizing or adopting this tool across different health systems is acceptable, still would need to be addressed, considering cultural and political barriers. For example, the Professionalism Mini-Evaluation Exercise to evaluate professionalism, originally developed in Canada, was adopted in Turkey.[38] Furthermore, repeated assessments could lead to informed conclusions over time.

Enhancing our comprehension of professional elements and emphasizing specific desirable attributes that resonate with each occupation and align with individual aspirations has the potential to improve professional approaches, increase value and self-esteem, and foster dialogues among different professions. This collaborative effort would ultimately benefit everyone involved.

Institutional Review Board Statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of Shamir Medical Center (Approval #0218-22-ASF). All participants provided their informed consent upon agreeing to complete the questionnaire.

Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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