EDUCATION
RESEARCH SERVICE

AWARD WINNING ORIGINAL ARTICLE

Assessment of professionalism in a chiropractic college: A design and implementation of a rubric

Jeana L. Voorhies, DC

ABSTRACT

Objective: To describe the design, implementation, and revision of a rubric used in assessing professionalism that was in alignment with Council on Chiropractic Education meta-competency 5 (professional ethics and jurisprudence, curricular objective C: Expected professional conduct).

Methods: The rubric was designed using a grading scale from 0 to 5 by which students needed to meet all criteria to earn full points for each defined dimension of professionalism. A comments section allowed for explanation of deductions and/or comments on exceptional behavior. Comments on professionalism were collected in a log during the trimester and used to populate the rubric. After initial use, the rubric was revised to incorporate criteria that had not initially been included and to allow for greater point deductions for multiple/repeat infractions or egregious behavior. Feedback from other faculty members was also gathered during in-service presentations of the rubric and taken into consideration. Professionalism score was 10% of the course grade.

Results: From 2016 to 2020, the average professionalism grade changed from 95.6% to 98.9%. A review of the frequency distributions of average professionalism grades in a calendar year showed that some students were earning grades between 70% and 79%. Only achieving 70% to 75% of the professionalism grade affected the final course grade by 2.5% to 3.0%.

Conclusion: In training chiropractic students on expected behaviors related to professionalism, a rubric assessment of professionalism guided communications between the clinical educator and students to discuss professionalism and remediate unprofessional behaviors. A rubric defining expected classroom behaviors aligns with educational best practices to use assessment methods to develop professionalism in health care students.

Key Indexing Terms: Chiropractic; Education; Professional Competence; Ethics

J Chiropr Educ 2023;37(2):162–170 DOI 10.7899/JCE-22-21

INTRODUCTION

The need to train future health care providers in professionalism is widely agreed upon among various health care fields, such as medicine, nursing, and pharmacy.[1–3] A method to assess professionalism can pose a challenge as it can often be more subjective and less objective than other knowledge, skills, or behaviors.[4] Beyond formative feedback, summative assessments can help train students to develop professional behaviors.[4,5] Summative assessments can be more impactful when the criteria are objective with identifiable expectations that can be changed or improved upon when not met.[4,5] The development of a professionalism rubric is one method to create dimensions with specific criteria that define the expectations, and it lends itself to quantitative scores.[4,5]

The Council on Chiropractic Education (CCE) recognizes the importance of training students in the expected professional conduct of a health care proider. The CCE requires chiropractic programs to provide evidence that

Jeana Voorhies (corresponding author) is an associate professor in the Clinical Sciences and Integrative Chiropractic Therapies Departments at the Northeast College of Health Sciences (2360 State Route 89, Seneca Falls, NY 13148; jvoorhies@northeastcollege.edu). This article was received October 1, 2022, revised April 5, 2023, and accepted July 8, 2023.

This paper was selected as a 2022 National Board of Chiropractic Examiners Research Award at the Association of Chiropractic Colleges – Research Agenda Conference.

First Published Online September 18 2023

their students successfully meet CCE meta-competency 5.C: Applying knowledge of expected professional conduct. The use of a professionalism rubric would allow chiropractic institutions to demonstrate compliance with CCE meta-competency 5.C. The literature identifies various professionalism dimensions to develop in health care training programs to improve the quality of patient care.[6–9] There are also relationships between unprofessional behaviors and loss of license and increased litigation in practicing professionals, as well as, increased clinical errors in practicing professionals and students.[4,7,10–13]

Defining professionalism of health care providers includes uncertainty in underlying theories, connotations, complexities, and nuances.[3,9] The definition of medical professionalism includes the dimensions of competence, knowledge, conscientiousness, integrity, respect, emotional intelligence, appropriateness, and confidence.[4–6,9] Defining professionalism as a set of characteristics and behaviors is the focus of training health care students.[3,9] However, the literature is still lacking consensus on the most effective methods to develop professionalism in health care students.[3,7,14,15] Role modeling and using assessment methods are main themes underlying the continuous development of professionalism in health care students throughout their curricula.[3,5,16]

Kinsinger[8] defined 7 principles of professionalism for manual therapists: (1) subordinate their own interests to the needs of the patient; (2) hold to high ethical and moral standards; (3) respond to the needs of society within their community; (4) be honest, caring, respectful, and trustworthy; (5) be accountable for themselves, and for and to their colleagues; (6) maintain competency by committing themselves to scholarship and lifelong learning; and (7) hold to higher standards in competence, behavior, decision-making, and accountability. These 7 principles for manual therapists align with the 9 behaviors that constitute medical professionalism.[9] Shrank et al[5] listed the elements of professionalism as defined by the American Board of Internal Medicine as being altruism, accountability, excellence, duty, honor and integrity, and respect for others.

In addition to health care professions defining professionalism, patients' perception of professionalism in a health care provider is an essential component of identifying dimensions and criteria of expected professional behavior. Previous work has identified 7 characteristics that embody professionalism in a health care provider, from a patient's perspective; the provider is honest, trustworthy, disciplined, and competent, communicates effectively, treats all patients equally, and works well in a team.[7] From these 7 themes, patient perspectives of professionalism emphasize communication, integrating patients into care teams, employing empathy, and demonstrating integrity.[17,18]

The topic of professionalism dimensions for the training of chiropractic students has not yet been systematically addressed in the literature, despite professionalism being a meta-competency in the accreditation standards for chiropractic institutions in the United States. Thus, the development of a professionalism rubric at chiropractic institutions seemed warranted. The objective of this study was to describe the design, implementation, and revision of a professionalism rubric. The goal of the professionalism rubric was also to serve a source of evidence to document compliance with CCE meta-competency 5.C.

METHODS

To demonstrate student learning of CCE meta-competency 5.C, students should be able to (1) maintain appropriate physical, communication (verbal and nonverbal), and emotional boundaries with patients; (2) maintain professional conduct with patients, peers, staff, and faculty; and (3) comply with the ethical and legal dimensions of clinical practice. Best practices call for institutions to measure student proficiency in each meta-competency outcome. To measure student learning in the area of professional ethics, a rubric was created to assess this meta-competency more objectively and less subjectively.

The use of the professionalism rubric (Table 1) occurred in a first trimester chiropractic technique laboratory course from January 2016 through December 2020. A total of 752 students were included. The frequency of students by calendar year is shown in Table 2. Each calendar year included students from 3 trimesters (winter, spring, and fall). The Northeast College of Health Sciences ethics committee classified the research as exempt from review, because the research was conducted in an established educational setting that specifically involved normal educational practices and educational assessments, with no apparent risks (protocol No. 21-05).

The professionalism rubric for the course (Table 1) includes the dimensions, criteria with expected behaviors, and associated grading scale, 0 to 5. The faculty reviewed the professionalism rubric with students during the first laboratory meeting. From that point on, students were aware that professionalism was being assessed on a continuous basis during every laboratory session and 3 practical examinations, totaling 14 assessments per trimester per student. Students needed to meet the criteria for the dimensions of demeanor, behavior, communication, and respect to demonstrate the CCE meta-competency professionalism outcome of maintaining appropriate physical, communication (verbal and nonverbal), and emotional boundaries with patients. Students needed to meet the criteria in all 4 dimensions to demonstrate professionalism outcomes of maintaining professional conduct with patients, peers, staff, and faculty and complying with the ethical and legal dimensions of clinical practice. The comments section explained deductions for unprofessional behaviors and/or recognized exceptional professional behaviors, which facilitated communication between the instructor and students on professionalism. There was no qualitative analysis of the comments section. The professionalism score was 10% of the course grade.

The initial step in developing the professionalism rubric was a review of the literature. The review of literature

Table 1 - Professionalism Rubric

Dimension	Criteria	Grading
Punctuality/attendance	☐ Attend class. ☐ Arrive at class on time. ☐ Remain for the entire length of class until dismissed. ☐ Notify the instructor if they will be late or absent. ☐ Arrive on time for examinations.	Full credit or only mild deductions Scale range: 5–3 *At least 3 of the following criteria* Moderate to significant deductions Scale range: 2–0 *2 or fewer of the stated criteria*
Preparedness	☐ Bring spine and textbook or other learning materials to class. ☐ Dress in gown before attendance is taken at the start of class. ☐ Demonstrate good personal hygiene/cleanliness, including having a clean/washed gown. ☐ Follow requirements regarding not wearing hats, jewelry, etc, and keeping long hair tied up. ☐ Arrive prepared for exams, ready to enter the room when their name is called.	Full credit or only mild deductions Scale range: 5–3 *At least 3 of the following criteria* Moderate to significant deductions Scale range: 2–0 *2 or fewer of the stated criteria*
Demeanor/behavior/ communication	☐ Demonstrate professionalism in oral and written communication. ☐ Avoid use of foul or unprofessional language. ☐ Demonstrate attentiveness and participate in class. ☐ Take accountability for personal behavior. ☐ Take responsibility for educational efforts. ☐ Demonstrate a good overall attitude.	Full credit or only mild deductions Scale range: 5–3 *At least 4 of the following criteria* Moderate to significant deductions Scale range: 2–0 *3 or fewer of the stated criteria*
Respect for others and campus/classroom policies	☐ Help to create a positive environment where everyone feels comfortable, safe, and respected. ☐ Respect the modesty of fellow classmates by using appropriate gowning procedures and communicating appropriately with them regarding the procedure being performed. ☐ Demonstrate compassion/empathy for others. ☐ Demonstrate respect for classmates, faculty, staff, and administration. ☐ Follow requirements regarding not bringing food or drink into the labs. ☐ Keep the lab room clean; throwing away face paper, disinfecting tables, when necessary, etc. ☐ Keep personal electronic devices put away with the sound turned off.	Full credit or only mild deductions Scale range: 5–3 *At least 5 of the following criteria* Moderate to significant deductions Scale range: 2–0 *4 or fewer of the stated criteria*

defined the dimensions of professionalism and identified a range of competencies as the criteria to establish the grading scale of expected behaviors within the context of providing evidence for CCE meta-competency 5.C, such that demonstrating behaviors reflect the application of knowledge of expected professional conduct. The second step in the development of the professionalism rubric included feedback from other faculty by conducting in-service presentations. The third step in the development of the professionalism rubric was pilot testing, which led to

Table 2 - Descriptive Statistics of Professionalism Scores

					Frequency Distributions (%)[a]		
Calendar Year	**n**	**Mean (%)**	**Low Score (%)**	**High Score (%)**	**70–79**	**80–89**	**≥90 to 100**
2016[b]	177	95.62	60	100	2.25	6.25	89.80
2017	185	97.16	75	100	0.55	3.25	96.20
2018	167	97.19	70	100	1.20	4.80	94.00
2019	128	97.66	75	100	1.00	3.00	96.00
2020	95	98.79	85	100	0.00	1.00	99.00

[a] Percentage of students in each grading category.
[b] In 2016, there were 3 students earning grades <70% (1.70% with grades in the 60% to 69% interval).

revisions of criteria and included greater point deductions for multiple/repeat infractions or egregious behavior. As described below, the professionalism rubric included 4 dimensions of professionalism that used focused evaluation, based on particular tasks, with written comments to improve assessment of professionalism.[5]

Punctuality/Attendance was identified as a dimension of professionalism because patient care requires health care providers to value their patients' time and reflects an organized and efficient practice management approach. The criteria of expected behaviors emphasized timeliness, physical presence, and communication that are also expectations of patients in a health care setting.[7,17,18] The grading scale deducted points for being late, not attending class, and not communicating effectively with the lead instructor when absent or late.

The dimension of preparedness addressed the importance of clinicians needing to be aware and mindful of what is happening at the very moment of each clinical encounter, to be patient centered. Patient-centered encounters include mindfulness and awareness when (1) greeting patients, (2) taking histories, (3) performing physical assessments, and (4) communicating differential diagnoses, treatment plans, and expected clinical outcomes. Preparedness allows each clinical encounter to occur without distractions, which enhances a clinician's understanding of the biopsychosocial characteristics of each patient and their expectations of clinical care, which in turn develops trust between clinicians and patients.[8,9] The criteria of expected behaviors in this dimension focused on avoiding distractions related to participating in learning activities. Students' expectations of preparedness included bringing needed learning materials to each class, being dressed appropriately for the laboratory session, and personal hygiene. The grading scale deducted points for not being prepared to start a laboratory session or examination.

The dimension of demeanor/behavior/communication was included for this course as a way of assessing a student's overall participation, attitude, and communication. This dimension served to train students on the importance of appropriate and respectful communication in a variety of situations and formats. This dimension addresses the professionalism of health care providers related to their overall attitude and demeanor toward patients, staff, and colleagues and accountability for their own actions.[8,9] Linking this professionalism dimension to criteria of expected behaviors for attitude and demeanor focused on students accepting blame for failure, not making inappropriate demands, not being abusive and critical in times of stress, and not being loud and disruptive.[4] Professional communication skills focused on listening well and avoiding hostile, derogatory, sarcastic language in words and tone.[4] Points were deducted in this dimension for the use of foul or inappropriate language, lack of participation or attentiveness in class, or lack of accountability for their own educational efforts.

Dimension 4 of the professionalism rubric was respect for others and for campus/classroom policies. This dimension was included as a way of teaching students to know and adhere to laws and regulations. In practice, this would relate to state laws, scope of practice, ethics, and jurisprudence. This dimension also asked students to demonstrate respect for their peers, faculty, staff, and administration. The translation of the respect dimension of professionalism was related to maintaining confidentially of patients, professional colleagues, staff, being sensitive to physical/emotional needs of others, and avoiding biased/discriminatory actions.[4] This dimension of respect also extends to representatives serving in leadership roles to promote the best interests of the profession through their involvement in professional organizations and local/state/federal government positions. Points were deducted in this dimension for any form of disrespectful actions that included not respecting a peer's modesty with appropriate gowning procedures, not adhering to classroom policies such as cleaning up after themselves, and unapproved use of electronic devices during class.

The professionalism grade was the primary outcome. Across the 14 assessments, the maximum point total toward the professionalism grade was 20 points, which reflected 5 maximum points for each of the 4 dimensions. At each assessment, students earned either full credit for each dimension or deducted points for not meeting criteria by dimension, as was defined in the rubric. The professionalism grade of 0 to 20 points were converted to a grading scale of 0% to 100%

Grading data were extracted from ExamSoft (ExamSoft Worldwide LLC, Dallas, TX, USA) into Excel (Microsoft Corp, Redmond, WA, USA) and were used to calculate the mean grade, the lowest grade, highest grade, and frequency distributions of grades in intervals of 70 to 79, 80 to 89, and $\geq$90 for each calendar year. The frequency distributions of rating scores by grade intervals and calendar year were used to describe changes in the 4 dimensions of professionalism.

RESULTS

From 2016 to 2020, the average professionalism grade changed from 95.6% to 98.8% (Table 2). Table 2 also summarizes the ranges of average professionalism grades for each calendar year. A review of the frequency distributions of average professionalism grades in a calendar year showed that some students were earning grades between 70% and 79% (Table 2). Only achieving 70% to 75% of the professionalism grade affected the final course grade by 2.5% to 3.0%. Changes in the distributions of professionalism scores revealed that by 2020, all students were meeting expectations of professionalism by earning grades of 90% or better, with the exception of 1 student (Table 2).

Tables 3–6 describe the frequency distributions of rating scores by calendar years and grade intervals for the 4 dimensions of professionalism. From 2016 to 2020, the percentage of students receiving full credit for punctuality/attendance changed from 67.8% to 85.3% (Table 3). The percentage of students receiving full credit for preparedness was greater than 87% in each calendar year (Table 4). Over 94% of students earned full credit in the profession-

Table 3 - Frequency Distributions of Rating Scores of the Criteria in the Dimension of Punctuality/Attendance

		Rating Scale for Criteria (0 to 5)					
Calendar Years	**Grade Intervals**	**0**	**1**	**2**	**3**	**4**	**5**
2016	60–69	1	2	0	0	0	0
	70–79	0	2	1	0	0	1
	80–89	0	0	3	4	3	1
	≥90–100	0	0	0	13	28	118
	All students, n	1	4	4	17	31	120
	All students, %	0.6	2.3	2.3	9.6	17.5	67.8
2017	70–79		0	0	0	1	0
	80–89		0	2	4	0	0
	≥90–100		0	0	5	36	137
	All students, n		0	2	9	37	137
	All students, %		0.0	1.1	4.9	20.0	74.1
2018	70–79		0	1	1	0	0
	80–89		0	1	1	4	2
	≥90–100		0	0	8	18	131
	All students, n		0	2	10	22	133
	All students, %		0.0	1.2	6.0	13.2	79.6
2019	70–79		0	1	0	0	0
	80–89		0	2	0	0	2
	≥90–100		0	0	0	16	107
	All students, n		0	3	0	16	109
	All students, %		0.0	2.3	0.0	12.5	85.2
2020	70–79		0	0	0	0	0
	80–89		0	1	0	0	0
	≥90–100		0	0	1	12	81
	All students, n		0	1	1	12	81
	All students, %		0.0	1.1	1.1	12.6	85.3

alism dimension related to their demeanor, behaviors, and communication skills in each calendar (Table 5). The professionalism dimension of respect for others and for campus and classroom policies was variable across the calendar years. The percentage of students earning full credit for the professionalism dimension of respect varied from 84% to 98% (Table 6).

DISCUSSION

This research described the development and implementation of a professionalism rubric for chiropractic students. The use of a professionalism rubric within a chiropractic training program has not been previously described. The use of a professionalism rubric aligned with best educational practices of using assessment methods to develop professionalism in training of health care students is important.[3,5,16] Specifically, meaningful and accurate student assessment with feedback from clinical educators is crucial to fostering professionalism.[5] However, the most effective methods to develop and assess professionalism in health care students still lack empirical evidence.[3,7,14,15] The implementation of the professionalism rubric in this project followed best educational practices by focusing on specific classroom encounters and tasks.[5] The professionalism rubric may have also provided an incentive for change in behaviors[5] because not meeting the professionalism expectations had an impact on the final course grade from the observed impact of 2.5 to 3 points to a maximum impact of 10 points.

There is limited empirical research assessing the 7 principles of professionalism for manual therapists[8] in relation to training chiropractic students. The development of the dimensions and criteria for the rubric in the current study aligned with the research that identifies the importance of training chiropractic students in professionalism as a curricular component of their bioethics education.[19–22] In other health care professions, rigorous research designs to assess professionalism are also limited.[23,24] A recent scoping review on assessing professionalism in health profession degree programs (comprehensive list to include interprofessional training programs) reported research gaps related to methodologies and effectiveness of formative and summative assessments and longitudinal assessments.[24] A conceptual model of nursing professionalism identified professional characteristics, caring attributes, and altruism attributes as the theoretical basis to develop valid and reliable assessment tools for future research.[25] A pharmacy professionalism survey instrument that measures 6 factors of professionalism (altruism, accountability, excellence, duty, honor and integrity, and respect for others) is published.[26] A previously developed survey instrument identified the following four factors of professional behaviors for pharmacy students: responsibility, interpersonal/social

Table 4 - Frequency Distributions of Rating Scores of the Criteria in the Dimension of Preparedness

		Rating Scale for Criteria (1 to 5)				
Calendar Years	**Grade Intervals**	**1**	**2**	**3**	**4**	**5**
2016	60–69	0	0	0	3	0
	70–79	0	0	1	1	2
	80–89	0	0	1	7	3
	≥90–100	0	0	1	9	149
	All students, n	0	0	3	20	154
	All students, %	0.0	0.0	1.7	11.3	87.0
2017	70–79	0	0	0	1	0
	80–89	0	0	0	0	6
	≥90–100	0	0	0	14	164
	All students, n	0	0	0	15	170
	All students, %	0.0	0.0	0.0	8.1	91.9
2018	70–79	0	0	0	0	2
	80–89	0	0	0	1	7
	≥90–100	0	0	1	2	154
	All students, n	0	0	1	3	163
	All students, %	0.0	0.0	0.6	1.8	97.6
2019	70–79	0	0	0	0	1
	80–89	0	0	0	2	2
	≥90–100	0	0	0	13	110
	All students, n	0	0	0	15	113
	All students, %	0.0	0.0	0.0	11.7	88.3
2020	70–79	0	0	0	0	0
	80–89	0	0	0	0	1
	≥90–100	0	0	0	2	92
	All students, n	0	0	0	2	93
	All students, %	0.0	0.0	0.0	2.1	97.9

skills, communication skills, and appearance.[27] Besides identifying different aspects of professionalism, both survey instruments require further research on their reliability and validity.[26,27]

Although medical school curricula have included professionalism training since 1995, there is still no consensus on the most effective teaching and assessment methods to develop professionalism in medical students.[28] Furthermore, there is a theoretical shift in medical school curricula from measuring observed professional behaviors to the process of professional identity formation, which further complicates the training and assessment of professionalism for medical students.[28,29] Although self-reflection, experience, and exploration contribute to the understanding of professionalism in medical students, summative assessments are an important incentive underlying behavioral changes.[23,28,29] Multiple summative assessments of professionalism provide a body of evidence to guide feedback on behavioral changes related to professionalism.[23] Although triangulation of different types of outcome measures, such as checklists, rubrics, interviews, reflection assignments, or portfolios, might improve the reliability and validity of assessing professionalism,[23] the students in the current study had 14 opportunities to demonstrate the development of professional behaviors during their first trimester.

In the current study, changes in professionalism scores from 2016 to 2020 may have been owing to changes in the feedback from the clinical educator to the students. The clinical educator more frequently released professionalism scores to students and provided explanations and reinforcement to the cohort of students during class meetings and to individual students as needed. These increased feedback processes helped the clinical educator identify areas where students typically struggled to maintain professionalism and then highlighted those areas during class to intervene before there were problems with professionalism. The professionalism rubric also provided a guide to promote communication between the clinical educator and students to discuss professionalism and remediate unprofessional behaviors, which clinical educators perceive as difficult conversations.[5,29]

This study design was descriptive of the development and implementation of a professionalism rubric at a single chiropractic institution. There is still uncertainty about the definition of professionalism.[3,9] The validity of the professionalism rubric was limited to face validity based upon the review of the literature by a single author, feedback from clinical educators, and pilot testing limited to a single clinical educator. In addition, there was no qualitative analysis of the comments section. Approaches to developing professionalism

Table 5 - Frequency Distributions of Rating Scores of the Criteria in the Dimension of Demeanor, Behaviors, and Communication

		Rating Scale for Criteria (1 to 5)				
Calendar Years	**Grade Intervals**	**1**	**2**	**3**	**4**	**5**
2016	60–69	0	0	0	1	2
	70–79	0	0	0	1	3
	80–89	0	0	1	1	9
	≥90–100	0	0	0	6	153
	All students, n	0	0	1	9	167
	All students, %	0.0	0.0	0.6	5.1	94.4
2017	70–79	0	0	0	1	0
	80–89	0	0	0	2	4
	≥90–100	0	0	0	2	176
	All students, n	0	0	0	5	180
	All students, %	0.0	0.0	0.0	2.7	97.3
2018	70–79	0	0	2	0	0
	80–89	0	0	0	0	8
	≥90–100	0	0	0	0	157
	All students, n	0	0	2	0	165
	All students, %	0.0	0.0	1.2	0.0	98.8
2019	70–79	0	0	0	0	1
	80–89	0	0	0	0	4
	≥90–100	0	0	0	1	122
	All students, n	0	0	0	1	127
	All students, %	0.0	0.0	0.0	0.8	99.2
2020	70–79	0	0	0	0	0
	80–89	0	0	0	0	1
	≥90–100	0	0	1	0	93
	All students, n	0	0	1	0	94
	All students, %	0.0	0.0	1.1	0.0	98.9

require a multidimensional assessment that maintains adequate reliability and validity.[3,6,7,14,15] Furthermore, the majority of assessment methods of professionalism focus on behavior-based characteristics that are easily observed, but these assessment methods fail to address attitude-based and identity-based perspectives on professionalism.[7,29] Personal characteristics contribute to an identity-based perspective of professionalism, while beliefs and values contribute to an attitude-based perspective of professionalism.[7,29]

There are also limitations of this study related to implementation. The summary of data by calendar year was deemed representative of the 3 cohorts of students who entered the college each year. However, previous ethical training of the students is unknown. Differences in ethical training backgrounds may contribute to differences in behavior-based characteristics and attitude-based perspectives on professionalism of each cohort of students by calendar year. The confounding variable of ethical training backgrounds may contribute to changes in professionalism observed in this descriptive study. All students were also enrolled in a first trimester professional ethics course that was taught by the same instructor as the laboratory-based course in this study. Personal equipoise or unconscious bias of the instructor may have led to a greater emphasis on professionalism from 2016 to 2020, which may have contributed to the observed changes in professionalism. In addition, sociodemographic variables of each cohort of students were not included in this descriptive study. Sociodemographic variables may contribute to differences in identity-based perspectives on professionalism and changes in professionalism observed in this descriptive study.

Future research needs to address the reliability and validity of this professionalism rubric in other chiropractic populations within this chiropractic institution throughout the curriculum and across chiropractic institutions.[3,6,7,14,15,26,27] Research addressing multidimensional assessments of professionalism to include behavior-based, attitude-based, and identity-based perspectives on professionalism would provide a multilevel professionalism framework for training chiropractors.[7,29] A recent study described the development of a rubric to analyze the process of professional identity formation of medical students during a clinical shadowing experience.[30] Analyzing the process of professional identity formation of chiropractic students may also have utility in chiropractic curricula. Situational judgment tests may also contribute to the assessment and development of professional behaviors in chiropractic students.[31]

Table 6 - Frequency Distributions of Rating Scores of the Criteria in the Dimension of Respect

		Rating Scale for Criteria (1 to 5)				
Calendar Years	**Grade Intervals**	**1**	**2**	**3**	**4**	**5**
2016	60–69	0	0	2	1	0
	70–79	0	0	2	1	1
	80–89	0	0	0	2	9
	≥90–100	0	0	1	6	152
	All students, n	0	0	5	10	162
	All students, %	0.0	0.0	2.8	5.6	91.5
2017	70–79	0	0	1	0	0
	80–89	0	0	0	4	2
	≥90–100	0	0	0	18	160
	All students, n	0	0	1	22	162
	All students, %	0.0	0.0	0.5	11.9	87.6
2018	70–79	0	0	1	1	0
	80–89	0	2	5	0	1
	≥90–100	0	0	0	18	139
	All students, n	0	2	6	19	140
	All students, %	0.0	1.2	3.6	11.4	83.8
2019	70–79	0	0	1	0	0
	80–89	0	1	1	1	1
	≥90–100	0	0	0	11	112
	All students, n	0	1	2	12	113
	All students, %	0.0	0.8	1.6	9.4	88.3
2020	70–79	0	0	0	0	0
	80–89	0	0	0	0	1
	≥90–100	0	0	0	2	92
	All students, n	0	0	0	2	93
	All students, %	0.0	0.0	0.0	2.1	97.9

CONCLUSION

In training chiropractic students on expected behaviors related to professionalism, a rubric assessment of professionalism guided communications between the clinical educator and students to discuss professionalism and remediate unprofessional behaviors. The rubric aligns with educational best practices to use assessment methods to develop professionalism in health care students.

FUNDING AND CONFLICTS OF INTEREST

The authors received no funding for this project and have no conflicts of interest to declare relevant to this work.

About the Author

Concept development: JLV. Design: JLV. Supervision: JLV. Data collection/processing: JLV. Analysis/interpretation: JLV. Literature search: JLV. Writing: JLV. Critical review: JLV.

REFERENCES

1. Holt SL, Lau MS, Wong FL, et al. Tenets of professionalism for pharmacy students. *Pharmacotherapy*. 2009;29:757–759. doi:10.1592/phco.29.6.757
2. Karadağ A, Hisar F, Baykara ZG, Çalışkan N, Karabulut H, Öztürk D. A longitudinal study on the effect of tailored training and counseling on the professional attitude of nursing students. *J Prof Nurs*. 2015;31:262–270. doi:10.1016/j.profnurs.2014.10.004
3. Passi V, Doug M, Peile E, Thistlethwaite J, Johnson N. Developing medical professionalism in future doctors: a systematic review. *Int J Med Educ*. 2010;1:19–29. doi:10.5116/ijme.4bda.ca2a
4. Kirk LM. Professionalism in medicine: definitions and considerations for teaching. *Proc (Bayl Univ Med Cent)*. 2007;20:13–16. doi:10.1080/08998280.2007.11928225
5. Shrank WH, Reed VA, Jernstedt C. Fostering professionalism in medical education: a call for improved assessment and meaningful incentives. *J Gen Intern Med*. 2004;19:887–892. doi:10.1111/j.1525-1497.2004.30635.x
6. Epstein RM, Hundert EM. Defining and assessing professional competence. *JAMA*. 2002;287:226–235. doi:10.1001/jama.287.2.226

7. Jha V, Bekker H, Duffy S, Roberts T. Perceptions of professionalism in medicine: a qualitative study. *Med Educ*. 2006;40:1027–1036. doi:10.1111/j.1365-2929.2006.02567.x
8. Kinsinger S. *Principles of Professionalism for Manual Therapists: A Guide to Building Relationships of Trust*. Toronto, ON: Canadian Memorial Chiropractic College Publishers; 2006.
9. Swick HM. Toward a normative definition of medical professionalism. *Acad Med*. 2000;75:612–616. doi:10.1097/00001888-200006000-00010
10. Bloom LK. *A Review of the Literature on Unprofessional Behavior in Healthcare Training* [dissertation]. Forest, IL: Concordia University Chicago; 2013.
11. Duffy TP. The Flexner report–100 years later. *Yale J Biol Med*. 2011;84:269–276.
12. O'Sullivan AJ, Toohey SM. Assessment of professionalism in undergraduate medical students. *Med Teach*. 2008;30:280–286. doi:10.1080/01421590701758640
13. Papadakis MA, Teherani A, Banach MA, et al. Disciplinary action by medical boards and prior behavior in medical school. *N Engl J Med*. 2005;353:2673–2682. doi:10.1056/NEJMsa052596
14. Hicks LK, Lin Y, Robertson DW, Robinson DL, Woodrow SI. Understanding the clinical dilemmas that shape medical students' ethical development: questionnaire survey and focus group study. *BMJ*. 2001;322:709–710. doi:10.1136/bmj.322.7288.709
15. Monrouxe LV, Rees CE. "It's just a clash of cultures": Emotional talk within medical students' narratives of professionalism dilemmas. *Adv Health Sci Educ Theory Pract*. 2012;17:671–701. doi:10.1007/s10459-011-9342-z
16. Passi V, Johnson N. The impact of positive doctor role modeling. *Med Teach*. 2016;38:1139–1145. doi:10.3109/0142159X.2016.1170780
17. Bulk L, Drynan D, Murphy S, et al. Patient perspectives: four pillars of professionalism. *Patient Exp J*. 2019;6:74–81. doi:10.35680/2372-0247.1386
18. Sari MI, Prabandari YS, Claramita M. Physicians' professionalism at primary care facilities from patients' perspective: the importance of doctors' communication skills. *J Family Med Prim Care*. 2016;5:56–60. doi:10.4103/2249-4863.184624
19. Gleberzon BJ. Survey of students' perception of the jurisprudence, ethics and business management course at the Canadian Memorial Chiropractic College. *J Can Chiropr Assoc*. 2021;65:105–120.
20. Gleberzon BJ. A comparative audit of jurisprudence, ethics and business management (JEB) courses taught at 21 accredited chiropractic programs worldwide. *J Can Chiropr Assoc*. 2022;66:172–201.
21. Kinsinger S. A proposed bioethics curriculum for chiropractic colleges. *Chiropr J Aust*. 2016;44:290–302.
22. Kinsinger S, Soave D. Ethics education in chiropractic colleges: a North American survey. *J Manipulative Physiol Ther*. 2012;35:486–490. doi:10.1016/j.jmpt.2012.07.005
23. Hodges BD, Ginsburg S, Cruess R, et al. Assessment of professionalism: recommendations from the Ottawa 2010 conference. *Med Teach*. 2011;33:354–363. doi:10.3109/0142159x.2011.577300
24. Smith KJ, Farland MZ, Edwards M, et al. Assessing professionalism in health profession degree programs: a scoping review. *Curr Pharm Teach Learn*. 2021;13:1078–1098. doi:10.1016/j.cptl.2021.06.006
25. Cao H, Song Y, Wu Y, et al. What is nursing professionalism? a concept analysis. *BMC Nurs*. 2023;22:34. doi:10.1186/s12912-022-01161-0
26. Chisholm MA, Cobb H, Duke L, McDuffie C, Kennedy WK. Development of an instrument to measure professionalism. *Am J Pharm Educ*. 2006;70:85. doi:10.5688/aj700485
27. Hammer DP, Mason HL, Chalmers RK, Popovich NG, Rupp MT. Development and testing of an instrument to assess behavioral professionalism of pharmacy students. *Am J Pharm Educ*. 2000;64:141–151.
28. Reimer D, Russell R, Khallouq BB, et al. Pre-clerkship medical students' perceptions of medical professionalism. *BMC Med Educ*. 2019;19:239. doi:10.1186/s12909-019-1629-4
29. Barnhoorn PC, Houtlosser M, Ottenhoff-de Jonge MW, Essers GTJM, Numans ME, Kramer AWM. A practical framework for remediating unprofessional behavior and for developing professionalism competencies and a professional identity. *Med Teach*. 2019;41:303–308. doi:10.1080/0142159X.2018.1464133
30. Owens JB, Tucker JE, Pearson WG. Clinical shadowing experience PIF rubric. *Clin Teach*. 2022;19:e13524. doi:10.1111/tct.13524
31. Sahota GS, Fisher V, Patel B, Ju JK, Taggar JS. The educational value of situational judgement tests (SJTs) when used during undergraduate medical training: a systematic review and narrative synthesis. *Med Teach*. 2023:1–8. doi:10.1080/0142159x.2023.2168183