

ORIGINAL ARTICLE

An investigation of preceptors' perceptions of behavioral elements of “professionalism” among genetic counseling students

Paula Delk  | Isabella Bowling  | Courtney Schroeder | Theodore E. Wilson |
Melissa Wesson | Leah Wetherill 

Department of Medical and Molecular Genetics, Indiana University School of Medicine, Indianapolis, Indiana, USA

Correspondence

Paula Delk, Department of Medical and Molecular Genetics, Indiana University School of Medicine, Indianapolis, IN, USA.
Email: pwinter@iu.edu

Funding information

Indiana University School of Medicine

Abstract

Professionalism in health care is a loosely defined but increasingly studied concept. In genetic counseling, “professional development” expectations for entry-level genetic counselors are described in the “Practice-Based Competencies for Genetic Counselors,” but the teaching and evaluation of “professionalism” among genetic counseling students is relatively unexplored. This study investigated program leaders' and clinical supervisors' perceptions of professionalism demonstrated by genetic counseling graduate students to learn about their associated strengths and lapses. Members of program leadership and clinical supervisors at Accreditation Council for Genetic Counseling (ACGC) accredited genetic counseling graduate programs in the United States and Canada were surveyed regarding their observations of genetic counseling students for the years 2017–2019 regarding four domains of professional behavior: integrity, accountability/conscientiousness, teamwork, and patient care, with the Merriam-Webster definition of each behavior provided for each domain. Participants also provided open-text descriptions. Descriptive results showed that the 263 participants found all facets of these professional behaviors to be essential. Patient care had the highest importance and was the domain with the most strengths observed among genetic counseling students. Lapses in professional behavior were identified for self-awareness, time management, and thoroughness. Free responses noted that suggestions or strategies for education about professional behavior from ACGC may improve the professional behavior of genetic counseling students and in turn, genetic counselors. Participants voiced the importance of consideration of diverse professional and cultural backgrounds in setting the expectations for professional behavior among genetic counseling students and genetic counselors so that “professionalism” in genetic counseling is not defined through a White lens. Further investigation into challenges that genetic counseling students face regarding professional behavior during their graduate training and strategies for education about these behaviors will aid in the growth and improvement of the training of genetic

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counselors. Given the sensitive nature of this topic, portions of this discussion may be triggering for some readers.

KEYWORDS

genetic counseling, genetic counseling education, genetic counseling students, genetic counselors, professionalism, program evaluation, underrepresented population

1 | INTRODUCTION

“Professionalism” in healthcare has been an increasingly investigated topic over the past two decades, yet it seems to have eluded a consensus definition. Merriam-Webster’s (n.d.) definition, “the conduct, aims, or qualities that characterize or mark a profession,” lacks specificity, while in medicine, “professionalism” has been variably described in the contexts of expected traits, values, and behaviors (Kirk, 2007) or as a societal contract (Cruess & Cruess, 2008). In collaboration with the American College of Physicians-American Society of Internal Medicine (ACP-ASIM) Foundation and the European Federation of Internal Medicine, The American Board of Internal Medicine (ABIM) published a physician charter on medical professionalism, which comprises three fundamental principles and a set of ten responsibilities deemed essential for effective provision of healthcare (“Medical Professionalism in the New Millennium: A Physician Charter,” 2002). Considered a seminal document, the charter is endorsed around the world by over 100 organizations, including the American College of Medical Genetics and Genomics (ACMG) (ABIM Foundation, “Endorsements of the Charter,” n.d.) and explicitly promotes the principles of primacy of patient welfare, personal autonomy, and social justice (“Medical Professionalism in the New Millennium: A Physician Charter”, 2002).

However, in some contexts, the term “professionalism” has come to describe qualities that are a “cultural fit” that favor White employees and Western cultures (Gray et al., 2019). This can lead individuals from underrepresented populations to engage in “codeswitching,” the practice of changing one’s dress, hairstyle, dialect, or mannerisms, to assimilate into the workplace (McCluney et al., 2021). The critical importance of recognizing and embracing cultural differences across gender identities, races, sexual orientation, religious beliefs, language accents, and generations has been increasingly espoused in medical professionalism research and editorial commentaries (Cory, 2021; Frye et al., 2020; Paltiel et al., 2017). Alexis et al. (2020) found that among medical trainees and practitioners, “professionalism” is experienced differently across various marginalized groups, who are pressured to assimilate to fit expectations rooted in White privilege and supremacy. In fact, despite attempts at reducing discrimination throughout medical school training, medical students of color face biases in the application process, performance metrics, and even through the matching process (Nguemni Tiako et al., 2021). This constant battle to assimilate in the name of “professionalism” can result in emotional and psychological exhaustion,

What is known about this topic

Expectations for professional behavior are explicitly outlined for physicians and medical students by The American Board of Internal Medicine. Previous studies have evaluated lapses in professional behavior by medical students as observed by their preceptors.

What this paper adds to this topic

This study explores the perceptions of professional behavior in genetic counseling students as observed by program leaders and clinical supervisors. All facets of professional behavior in the survey were considered essential for genetic counseling practice. Patient care was determined to be the domain of highest importance to respondents.

poorer engagement in work, and disconnection from peer groups (McCluney et al., 2021).

Most educators would agree that they strive to teach students to be committed to their work, exercise efficient time management, demonstrate respect for others and exert compassion and respect for diversity. These qualities are encompassed by the ABIM definition of what genetic counselors as a field would “profess” to be standards of competency, and as such, could be considered qualities of professional behavior. These traits can be explicitly defined, for example, integrity is the consistency between principles, values, and behavior to help reduce individual subjective interpretation based on popular normative values. However, professional behavior as a set of competency standards is not well-defined in the field of genetic counseling.

Domain IV of the Practice-Based Competencies (PBCs) for genetic counselors details the “Professional Development and Practice”-based expectations for practicing genetic counselors (Accreditation Council for Genetic Counseling (ACGC), “Practice-Based Competencies for Genetic Counselors”, 2019). As such, these guidelines are focused on tasks to promote growth and maturation as a genetic counselor in the workplace. Specifically, the six PBCs in Domain IV include: (1) act in accordance with the ethical, legal, and philosophical principles and values of the genetic counseling profession and the policies of one’s institution or organization; (2) demonstrate understanding of the research process; (3) advocate for individuals, families, communities and the genetic counseling

profession; (4) demonstrate a self-reflective, evidenced-based and current approach to genetic counseling practice; (5) understand the methods, roles and responsibilities of the process of clinical supervision of trainees; and (6) establish and maintain **professional** (boldface added) *interdisciplinary relationships* in both teams and one-on-one settings, and recognize one's role in the larger healthcare system. Absent from this domain and the entirety of the Practice-Based Competencies is a definition of "professionalism."

Although the Standards of Accreditation for Graduate Programs in Genetic Counseling necessitates that "an entry-level counselor must demonstrate attainment of the ACGC PBCs," including "Professional Development and Practice," the Standards are also devoid of well-defined expectations for what behaviors comprise professional behavior (ACGC, "Standards of Accreditation for Graduate Programs in Genetic Counseling," 2019). Based on our review of the current literature, research on "professionalism" in the field of genetic counseling primarily pertains to career development and career advancement activities (e.g., licensure, continuing education, self-care) rather than professional behaviors and skills that comprise professionalism (Baty, 2018; Biesecker, 2020).

Medical schools are mandated to assess the professional behavior of students and faculty alike. The curriculum for medical schools accredited by the Liaison Committee on Medical Education (LCME) is outlined in their standards for accreditation (LCME, "Functions and Structure of a Medical School", 2019). This document necessitates that medical schools evaluate for "the ongoing development of explicit and appropriate professional behaviors in its medical students, faculty, and staff at all locations" (LCME, "Functions and Structure of a Medical School", 2019), yet provide only two examples of "core professional attributes: for example, altruism, accountability." There has been an attempt in other fields to determine what behaviors or qualities are considered professional or unprofessional; however, a recent review of publications describing health care educational methods found that there was no consistent method for teaching or for evaluating interprofessional education (Fox et al., 2018). This lack of consensus on a definition of "professionalism" in education can lead to an environment where "white culture" is the status quo (Bell, 2021). These White biases go unnoticed in medical training institutions where the majority of faculty are White and cultural norms based on the primarily White faculty dictate standards of professionalism (Harding, 2021).

With the lack of specificity surrounding the expectations of professional behavior in genetic counseling students coupled with the increasingly dominating theme that "professionalism" is defined in terms of White cultural norms comes a need to clearly define specific behavioral competencies and skills that are relevant to the education of genetic counselors, and to assess if students are performing as expected by program leaders and supervisors. These competencies should be clearly delineated in a culturally responsible way to prevent White-biased interpretations and to encourage that the competencies are performed due to internal motivation rather than perfunctorily (Frye et al., 2020). This study is one of the first to ask program leaders and clinical supervisors that oversee genetic

counseling students to identify which specific skills and competencies related to professional behaviors that they deem important for training, and in which of these skills and competencies are lapses observed among their students. These results can begin the process of informing genetic counseling education programs of specific professional skills and behaviors that are distinct from the encroaching take-over of the term "professionalism" by White norms.

2 | METHODS

2.1 | Participants and procedures

Program leadership members and clinical supervisors who were affiliated with accredited genetic counseling training programs in North America during the calendar years of 2017–2019 were recruited to participate in this study. If the program director was new in 2020 and had not otherwise participated in program leadership or supervision in another capacity between 2017 and 2019, that individual was ineligible. In June 2020, study information and a survey link were emailed to all members of the Association of Genetic Counseling Program Directors (AGCPD). These members were asked to participate and to forward the study information and survey link to all eligible individuals affiliated with their training program who were currently overseeing students. A reminder email was sent out 2 weeks after the initial email. In July 2020, an e-blast with the study information was sent to members of the National Society of Genetic Counselors (NSGC) in an effort to reach as many clinical supervisors as possible. A reminder e-blast was sent to members 2 weeks later. All participants provided informed consent. This study was approved by the Indiana University Institutional Review Board (Protocol # 2004336986).

2.2 | Instrumentation

Study data were collected and managed using REDCap electronic data capture tools (Harris et al., 2009, 2019) hosted at Indiana University. The survey contained seven sections. The first two sections determined eligibility to participate in the study and collected demographic information describing gender, age, profession, training program from which they graduated if they were a genetic counselor, and year and age at graduation. Additional questions assessed leadership-related demographics, including in which genetic counseling program the participant oversaw students, role, specialty, setting, location, number of genetic counseling students they had overseen from 2017 through 2019, and whether the participant received formal or didactic education about professionalism during their own training (yes/no).

We explored participants' perceptions of four domains of professional behavior pertaining to genetic counseling students and the profession in general: integrity, accountability and conscientiousness, teamwork, and patient care, by inquiring about eight

facets describing specific characteristics of professional behavior for each domain. Domains, facets, and their definitions were compiled from previous studies as well as Webster's dictionary and determined to be relevant to genetic counseling practice by all authors (Hayes et al., 1999; Martinez et al., 2018; McIntosh et al., 2006; Phelan et al., 1993). A description and definition of each domain and facet were provided for participants to review before answering questions. In addition, at the beginning of each section, the Merriam-Webster definition of professionalism was provided as "the conduct, aims, or qualities that characterize or mark a profession or a professional person" along with a description of "a lapse in professionalism can be observed if one considers an action, statement, or behavior to be inappropriate for the given setting." These definitions are available in Table 1. For each facet, participants were asked: (1) was the facet *essential* for a genetic counselor to display (yes/no), (2) how *concerning* was a lapse in that facet during a student's final semester, and (3) the *proportion of students demonstrating a lapse* in that facet at any point during their training. Most domains and facets were identified from a list of professional behaviors observed in physicians early in their careers (Cullen et al., 2017).

The final section of the survey inquired about professionalism education in the participant's genetic counseling training program. Participants were asked whether didactic professionalism education (e.g., lectures, workshops, webinars) was part of the curriculum at the program(s) with which they are affiliated and whether they thought formal professionalism education was beneficial. The ACGC sets accreditation standards and publishes the PBCs; however, despite examples provided throughout the PBCs about activities or skills that a student might do to demonstrate specific competencies, there are no specific examples of activities or skills to demonstrate proficiency in the domains of professional behavior described in this study. Therefore, we asked whether the ACGC should provide strategies for the education on professional behavior. Participants were provided with open-text boxes to explain their answers and to provide additional comments about the content of the survey. At the close of the survey, participants were offered an opportunity to enter a drawing for one of eight \$50 gift cards by providing an email address, which remained confidential and separate from their other survey answers.

2.3 | Data analysis

2.3.1 | Quantitative data analysis

The survey collected data describing demographics, roles, and workplace, resulting in small sample sizes for some of these options. Categories were collapsed within each of these questions when feasible to facilitate analyses. Specifically, the following roles were combined: program director/co-director, assistant or associate program director, course instructor, or other program leadership into "program leadership." All other participants indicated that they were

some type of clinical supervisor. Individuals who answered "course instructor only" did not qualify for this study. Individuals who answered "other" were asked to explain their role, which was used to assign the participant to one of the two categories. Individuals who held roles in both categories were placed in the program leadership category. A Fisher's exact test was used to examine if a participant's knowledge about didactic education on professional behavior was associated with the type of role. Information about whether the participant's work included direct patient interaction was also collected. Those who supervised students in a hospital or clinic setting were categorized as "patient-facing" and those who worked for a laboratory or in the industry were categorized as "not patient-facing." The number of students overseen through 2017–2019 was recoded to three categories so that each category represented about one-third of participants: those who had supervised 0–6 students, 7–15 students, and more than 15 students.

Due to the large number of facets, answer options for the question assessing the *proportion of genetic counseling students showing a lapse* in a facet of professional behavior at any point during their training were collapsed to two categories: "none and few" and "many, most, or all" to provide categorical summary information across all facets and all domains. For statistical analyses, the *proportion of genetic counseling students showing a lapse* was coded as the sum of the Likert responses (Likert scale ranging from 1 = none to 5 = all) across all eight facets within a domain, to create an overall scale for each domain, with lower values (minimum value of 8) indicating fewer students and higher values (maximum value of 40) indicating more students. A similar scale for each domain was created to represent responses to the questions of how *concerning* a lapse was (demonstrated by a genetic counseling student during the final semester) for each of 8 facets within each domain by adding the Likert responses (Likert scale ranging from 1 = not at all concerning to 4 = very concerning) across all eight facets. Thus, low numbers (minimum value of 8) represent less concern and high numbers (maximum value of 32) represent more concern. Cronbach's alpha was computed for each of the 4 domain scales representing the *proportion of genetic counseling students demonstrating a lapse*, and how *concerning* lapses in that domain were.

An analysis of variance (ANOVA) was used to test if variables of interest predicted the four scales (one for each domain) describing the level of *concern* and the four scales (one for each domain) representing the *proportion of genetic counseling students showing lapses*. Variables tested included participant gender (male or female), age, role (program leader or clinical supervisor), setting in which genetic counseling students were overseen (patient- or non-patient-facing), number of genetic counseling students overseen from 2017 to 2019, whether or not formal training on professionalism is part of the current training program (yes/no), and opinion on whether genetic counseling students benefit from professionalism education (yes/no). As this is an exploratory study, variables with $p < 0.10$ were retained in the final model in order to provide maximum information to the reader. All other variables ($p \geq 0.10$) were excluded.

TABLE 1 Definitions of professional behavioral domains and facets

Domain/facet	Definition	Domain/facet	Definition
Domain: Integrity	Showing consistency between principles, values, and behavior; choosing an ethical course of action and doing the right thing; being truthful and direct; maintaining confidentiality; remaining free from substance abuse; avoiding conflicts of interest; obeying health system and regulatory policies	Domain: Accountability and Conscientiousness	Accountability: accepting responsibility for individual and group performance; accepting the consequences of one's behavior, admitting mistakes, and attempting to learn from mistakes Conscientiousness: demonstrating a high degree of reliability by following through on commitments, approaching work in a methodical manner, and completing work tasks thoroughly and systematically; displaying high standards of attendance, punctuality, enthusiasm, and vitality in approaching and completing tasks
Trustworthiness	Being truthful in all dealings with patients and interprofessional staff	Self-awareness	Accurately identifying own strengths, weaknesses, and personal limitations; taking action to address personal limitations; monitoring and attending to burnout/work-life balance issues; observing appropriate boundaries with patients
Maturity	Behaving in a sensible way; handling awkward or uncomfortable situations with tact; considering the needs of others	Dependability	Being reliable and responsible; following through on commitments
Discretion	Respecting confidentiality of information; discussing sensitive subjects with tact and diplomacy	Time management	Uses time effectively and productively; appropriately prioritizes responsibilities; understands the importance of planning and organizing uses of time
Work commitment	Pursuing work with energy, drive, and a strong accomplishment motivation; concentrating on work without becoming bored or distracted; setting high standards of personal competence; producing high-quality work under time pressure or other stress	Thoroughness	Meticulously keeping track of details; completing work thoroughly and systematically; being exact, precise, and accurate
Motivation to learn	Demonstrating interest in learning new skills; continually engaging in self-directed learning to increase knowledge and skill base; seeking constructive feedback from others; sharing the products of learning with others	Knowing limitations	Realizes and accepts situations when overwhelmed, confused, or unsure; seeks the appropriate assistance in these situations
Appropriate demands	Understands the abilities of superiors; does not think too highly of own needs; has appropriate expectations of their supervisors	Competence	Displays the ability to effectively utilize knowledge and skills expected in role
Ethics	Follows a sound system of moral principles that apply value to the practice of genetic counseling; seeks insight into ethical dilemmas	Timeliness	Being finished with tasks at expected, favorable, or useful times
Dress code	Respects and follows the expectations of the dress code in place at their institution/rotation site	Accepting of feedback	Looks at self objectively, realizes weakness, takes steps to correct shortcomings, accepts constructive criticism
Domain: Teamwork	Collaborating and coordinating with others to achieve work goals; showing concern for and providing assistance and support to others; interacting respectfully with others; creating a desire for team accomplishment	Domain: Patient Care	Understanding patients' needs and feelings and treating them with respect; focusing one's efforts on discovering and meeting patients' needs; handling challenging patient situations effectively; promoting and striving to create a workforce and environment that represents and values the diversity of people and ideas
Communication	Clear and respectful communication with team members, listens to others well	Compassion	Understanding patients' needs and feelings; having a genuine interest in patients and their welfare; patiently tolerating rudeness and anger and responding with tact and empathy

(Continues)

TABLE 1 (Continued)

Domain/facet	Definition	Domain/facet	Definition
Respectful interaction	Looks for opportunities to connect with and support team members; makes effort to engage with team members	Respect for diversity	Understanding and showing respect and appreciation for the uniqueness of all individuals, cultures, and values; promoting a workforce that represents and values diversity of people and ideas
Team building	Engages in conversations that add value to the team; is aware of others, makes sure people are included and participating; encourages others to express ideas or opinions; offers praise when appropriate	Patient advocacy	Empowering and engaging patients and their families by including them in the decision-making process; actively seeking ways to help patients and their families be part of the healthcare team by listening to them, asking questions, clearly communicating, and finding answers to their questions; paying attention to how patients are responding and changing approach if necessary
Availability	Is responsive to the requests of others; makes time for priorities; gives word and keeps it	Availability	Attentiveness and concern for patient and patient's situations; responds to patient's follow-up questions and provides follow-up information in a timely manner
Respect for peers	treats team members respectfully regardless of their position; is respectful of team members who are not present; chooses language that expresses respect; uses simple courtesies	Empathy and Altruism	Displays the ability to understand and share the feelings of others through primary and secondary empathy statements and other appropriate ways; displays selfless concern for others
Open mind	Shows curiosity in the views of others; reacts appropriately to the ideas of others; places oneself outside of comfort zone	Scope of practice	Recognizes the scope of his/her abilities and asks for supervision and assistance when appropriate; does not think too highly of self as a provider
Respect for superiors	Chooses language that expresses respect for superiors; respects superiors' time; uses superiors' ideas to improve or change work	Code of conduct	Takes measures to comply with institutional and federal guidelines of patient confidentiality; effectively obtains informed consent
Resourcefulness	Seeks out resources or assistance in situations where it would benefit a team; is honest about weaknesses and seeks help to make improvements	Kindness	Displays qualities of being friendly, genuine, gentle, and considerate

2.4 | Qualitative data analysis

Free-response answers were analyzed via a thematic framework (Kiger & Varpio, 2020; Nowell et al., 2017). Answers were reviewed and coded, and themes were collaboratively decided upon by two authors, IB and PD. Any responses that produced a discrepancy in theme (or themes) were reviewed and a theme (or themes) was determined by a third author, MW. Some answers fell under more than one theme and were coded as such. There were two answers out of 38 (5.3%) that did not align with what the question asked; these two responses were excluded. The authors considered the two questions regarding formal and informal education about professional behavior as different themes. One question asked respondents to describe what their formal didactic education program involved, including lectures, workshops, and seminars. A separate question asked for a description of informal, less structured education, for example, mentoring and role modeling, and was coded separately from the formal education question.

3 | RESULTS

3.1 | Quantitative results

3.1.1 | Sample demographics

Emails were sent to individuals representing approximately 54 programs, and to roughly 4000 people as part of the NSGC blast to recruit clinical supervisors. We are unable to provide a specific response rate because the total number of program leadership positions and clinical supervisors across all programs is not known. Surveys from 263 participants were at least 51.0% complete, with answers provided for the demographic questions and at least one question about the varying domains and facets of professional behavior. Of these 263 participants, 237 (90.1%) completed the entire survey. All available data were utilized. The majority of study participants were female (94.3%) and reported their role was patient-facing in some capacity (90.9%). The average participant age was 35.8 years (standard deviation [SD] = 9.7 years), with a range from 25 to 81.

Members of program leadership made up 12.2% of participants and the remaining 87.8% of participants were categorized as clinical supervisors. Most participants identified as genetic counselors (97.3%). Some participants were physicians or other healthcare providers. The proportion of respondents from the six NSGC regions was fairly similar to the distribution of 2020 NSGC members reported in the Professional Status Survey, with the exception of a slight overrepresentation of Region 4 (Midwest, 36.3% vs. NSGC 24.2%), and an underrepresentation of Region 6 (West, Hawaii, Alaska, Canada; 4.1% vs. NSGC 19.3%). Additional demographic information is available in [Table 2](#).

3.1.2 | Essential facets of professional behavior

The Patient Care domain received the highest average percent of endorsements (99%) across all facets for being essential to genetic counseling professional behavior ([Table 3](#)). All respondents agreed that the code of conduct was an essential facet of genetic counseling professional behavior in patient care. Other patient care facets that were endorsed as essential by 99% of respondents included compassion, respect for diversity, patient advocacy, empathy and altruism, and scope of practice. These were followed closely by availability, supported as essential by 98% of respondents, and the lowest support facet, kindness, supported by 96.6% of respondents.

The domain ranked second-most essential based on a 98% average endorsement across all eight facets was Accountability and Conscientiousness ([Table 3](#)). One hundred percent of respondents supported both dependability and competence as essential facets. Between 96% and 98% of respondents agreed that the facets of self-awareness, knowing limitations, thoroughness, accepting feedback, and timeliness were essential. Time management was the lowest rated facet in this domain, endorsed as essential by 94% of participants.

The domain of Integrity contained the most facets endorsed by 100% of respondents as being essential; those included trustworthiness, maturity, discretion, and ethics ([Table 3](#)). However, Integrity was the third-highest ranked professional behavior domain, with average support of 97% across all facets, due to lower support for the facets of appropriate demands (93.5%) and dress code (91.2%). Motivation to learn and work commitment was endorsed as essential by 98% and 95.8% of respondents, respectively.

Teamwork was the lowest-scoring domain with a 95% average endorsement across all facets for their being essential to professional behavior ([Table 3](#)). It was the only domain that failed to receive unanimous support by respondents for any of its eight facets being essential. Support ranged from 99% of respondents endorsing both respect for peers and communication as essential to 82.9% endorsing the facet of team building as essential. Other facets in this domain and their level of support included respectful interaction (98%), open-minded (96%), respect for superiors and resourcefulness (95% each), and availability (93.8%).

3.1.3 | Observed strengths and lapses in professional behavior

A facet of a professional behavioral domain was considered to be a strength among genetic counseling students if a clear majority, defined as over 90.0% of survey participants, reported they observed “none” or “few” genetic counseling students exhibit lapses in that facet. Overall, 53.1% of facets were considered to be strengths, which are highlighted in gray in [Table 3](#). The domain with the most perceived strengths in “professionalism” facets was patient care. Specifically, over 97.0% of participants reported they observed zero or few genetic counseling students exhibit lapses in respect for diversity, compassion, kindness, and code of conduct in this domain.

A facet of professional behavior was considered to be a weakness among genetic counseling students if over 10.0% of participants reported they observed many, most, or all of their genetic counseling students exhibit a lapse in that facet. The most perceived weaknesses were under the domain of accountability and conscientiousness. Over 30.0% of participants reported observing many, most, or all genetic counseling students exhibiting a lapse in self-awareness, time management, and thoroughness at any point during their training. These results along with information gathered from other questions about the facets of professional behavior are provided in [Table 3](#).

3.1.4 | Level of concern about lapses in the final semester of training

The scales for each domain, representing the *level of concern about lapses* in a genetic counseling student's final semester of training, were consistent with how *essential* participants viewed each domain. The domain with the highest *level of concern* was patient care (mean = 26.9, SD = 6.7). Concerns regarding lapses in the domains of accountability and conscientiousness, as well as integrity were similar (mean = 25.6, SD = 5.5 and mean = 25.5, SD = 5.9, respectively). There was least concern for the domain of teamwork (mean = 24.8, SD = 6.1). These scales also demonstrated high internal consistency within each domain, yielding Cronbach's alpha values of 0.89 to 0.96. Summary results for the Likert scales and Cronbach's alpha for the four domains of professional behavior are provided in [Table 1](#) of the Supplementary Information.

As seen in [Figure 1](#), individuals who responded that genetic counseling students would benefit from formal/didactic education about professional behavior reported more *concern about lapses* than those who felt there was no benefit, for all domains (patient care $p < 0.0001$, integrity, accountability and conscientiousness, and teamwork all $p < 0.029$). In addition, female participants were more concerned about lapses in three domains, including accountability ($p = 0.021$), teamwork ($p = 0.026$), and marginally more with patient care ($p = 0.053$). Finally, older participants reported that lapses were more concerning for integrity ($p = 0.0055$) and teamwork

TABLE 2 Summary demographics. GC = genetic counseling, NSGC = National Society of genetic counselors

	Responses	N	% (% NSGC 2020)
Gender	Male	15	5.7
	Female	248	94.3
	Other	0	0
	Prefer not to answer	0	0
Age	20–29	82	31.2
	30–39	101	38.4
	40–49	40	15.2
	50–59	19	7.2
	60–69	7	2.7
	70–79	0	0
	80–89	1	0.4
	90–99	0	0
	Not answered	13	4.9
Region of Program(s) Participant Oversees Students	Region 1 (CT, MA, ME, NH, RI, VT, CN, maritime provinces)	51	10.4 (7.1)
	Region 2 (DC, DE, MD, NJ, NY, PA, VA, WV, PR, VI, Quebec)	102	20.8 (23.1)
	Region 3 (AL, FL, GA, KY, LA, MS, NC, SC, TN)	83	16.9 (14.4)
	Region 4 (AR, IA, IL, IN, KS, MI, MN, MO, NE, ND, OH, OK, SD, WI, Ontario)	178	36.3 (24.2)
	Region 5 (AZ, CO, MT, NM, TX, UT, WY, Alberta, Manitoba, Saskatchewan)	56	11.4 (11.9)
	Region 6 (AK, CA, HI, ID, NV, OR, WA, British Columbia)	20	4.1 (19.3)
Role	Program Leader	102	38.8
	Clinical Supervisor	161	61.2
Specialty (or specialties) In Which Participant Oversees Students	Assisted Reproductive Technology/Infertility Genetics	10	2.4
	Cancer Genetics	86	20.8
	Cystic Fibrosis Genetics	22	5.3
	Cardiovascular Genetics	8	1.9
	Fetal Intervention and Therapy Genetics	8	1.9
	Hematology Genetics	4	1
	Metabolic Genetics	19	4.6
	Neurogenetics	23	5.6
	Pediatric Genetics	91	22
	Personalized Medicine Genetics	3	0.8
	Prenatal Genetics	91	22
	Post-Mortem Genetic Testing	4	1
Way(s) Participant Oversees GC Students	Other	44	10.7
	Teaching and grading	110	19.7
	Supervising in a patient-facing clinical setting	238	42.6
	Supervising in a non-clinical setting	47	8.4
	Mentoring and/or providing advice	153	27.4
Experience (# of GC Students Overseen 2017–2019)	Other	11	1.9
	0–15	177	67.3
	>15	86	32.7
Genetic Counselor Demographics			
Genetic Counselor?	Yes	255	97.3
	No	7	2.7

TABLE 2 (Continued)

	Responses	N	% (% NSGC 2020)
Decade Graduated	1980–1989	11	4.2
	1990–1999	23	8.7
	2000–2009	52	19.8
	2010–2019	167	63.5
	Not answered	10	3.8
Age at Graduation	20–29	236	89.7
	30–39	15	5.7
	40–49	1	0.4
	Not answered	11	4.2
Didactic Education About Professional Behavior During Training ^a	Yes	87	33.1
	No	58	22.1
	Maybe/cannot remember	108	41.1
	Not answered	10	3.8

^aNo definition of professional education was provided.

($p = 0.025$), and marginally more concerning for accountability and conscientiousness ($p = 0.054$). There was no association with the remaining variables for any domain (all $p > 0.18$).

3.1.5 | Proportion of genetic counseling students demonstrating a lapse in professional behavior

The summary scales representing the *proportion of genetic counseling students demonstrating a lapse* across all facets within a domain were consistent with the results reported above. Specifically, the mean scale value for patient care was lowest (11.9, SD = 4.0), followed by teamwork (mean = 13.6, SD = 4.0), and integrity (mean = 13.8, SD = 3.6), and the highest value reported was for accountability and conscientiousness (mean = 16.8, SD = 4.4). Cronbach's alpha ranged from 0.84 to 0.87, demonstrating internal consistency of the scales. As seen in [Figure 2](#), ANOVA results revealed that individuals who oversaw more genetic counseling students from 2017–2019 observed significantly more lapses in professional behavior across all four domains: integrity ($p = 0.023$), accountability and conscientiousness ($p = 0.012$), teamwork ($p = 0.003$), and patient care ($p = 0.023$). Age of the respondent was also positively associated with increased lapses observed for integrity ($p < 0.0001$), teamwork ($p = 0.01$), and patient care ($p = 0.013$). In addition, females reported seeing more lapses in accountability and conscientiousness than males ($p = 0.047$). Individuals who received formal training in professional behavior as part of their education reported observing marginally but not significantly more lapses in patient care than those who did not ($p = 0.086$). All other associations were non-significant (all $p > 0.17$). Descriptive statistics and Cronbach's alpha for all four domain scales are provided in [Table 1](#) of the Supplementary Information.

3.1.6 | Qualitative results

When asked about the training program(s) where respondents oversee genetic counseling students, a little more than a quarter ($n = 38$, 27.3%) of participants in leadership roles reported they did not know if the curriculum included formal and/or didactic education about professional behavior, whereas almost three-quarters of individuals in supervisor roles ($n = 101$, 72.7%) did not know (Fisher's exact $p < 0.0001$). Participants also noted the ways they believed genetic counseling students received informal (less structured) education about professional behavior, with several mentioning role modeling ($n = 55$, 25.9%) and general discussions ($n = 51$, 24.1%). Respondents expressed that formal education about professional behavior is beneficial because it sets consistent standards and clarifies expectations ($n = 74$, 38.3%), it provides a low-stakes environment to hone skills ($n = 41$, 21.2%), it puts genetic counseling students on the same level, since there is the potential to have different experiences prior to training ($n = 43$, 22.3%), and professional behavior cannot be expected or assumed ($n = 19$, 9.8%). Additional results are provided in Supplementary Material, and all themes and representative quotes in Supplementary [Table 2](#).

4 | DISCUSSION

4.1 | Perceived strengths and lapses in professional behavior demonstrated by genetic counseling students

This study is one of the first to report on specific aspects of professional behavior among genetic counseling students as observed by training program leaders and clinical supervisors. Of the four behavioral domains, (patient care, integrity, accountability and conscientiousness,

TABLE 3 Summary of survey response data for questions regarding facets of professional behavior. Domains are capitalized and bolded. Shaded facets indicate perceived strengths among genetic counseling students

	Do you consider the following facets of professionalism to be essential for a genetic counselor to display?			How concerning are lapses in the following facets of professionalism in a genetic counseling student during their final semester?					What proportion of genetic counseling students that you have overseen have shown a lapse in the following facets of professionalism at any point during their genetic counseling training?			
	YES, % (#)	No, % (#)		NOT AT ALL, % (#)	SLIGHTLY, % (#)	SOMEWHAT, % (#)	Very, % (#)	NONE + FEW, % (#)	MANY + MOST + ALL, % (#)			
Integrity												
Trustworthiness	100 (263)	0 (0)		9.6 (25)	2.7 (7)	9.6 (25)	78.2 (204)	98.8 (256)	1.2 (3)			
Maturity	100 (263)	0 (0)		5.7 (15)	17.6 (46)	38.3 (100)	38.3 (100)	78.9 (206)	21.1 (55)			
Discretion	100 (263)	0 (0)		9.2 (24)	4.6 (12)	16.1 (42)	70.1 (183)	96.2 (250)	3.8 (10)			
Work commitment	95.8 (252)	4.2 (11)		5 (13)	16.1 (42)	36.4 (95)	42.5 (111)	85.1 (222)	14.9 (39)			
Motivation to learn	98.1 (257)	1.9 (5)		4.3 (11)	15.9 (41)	32.6 (84)	47.3 (122)	86.5 (225)	13.5 (35)			
Appropriate demands	93.5 (246)	6.5 (17)		8.2 (21)	23.7 (61)	45.1 (116)	23 (59)	86.4 (222)	13.6 (35)			
Ethics	100 (263)	0 (0)		10.8 (28)	0.8 (2)	6.5 (17)	81.9 (213)	98.8 (255)	1.2 (3)			
Dress code	91.2 (239)	8.8 (23)		13.5 (35)	28.8 (75)	38.1 (99)	19.6 (51)	89.2 (231)	10.8 (28)			
Accountability and conscientiousness												
Self-awareness	98.8 (247)	1.2 (3)		4.5 (11)	16.6 (41)	35.6 (88)	43.3 (107)	68.5 (170)	31.5 (78)			
Dependability	100 (250)	0 (0)		5.7 (14)	6.9 (17)	23.6 (58)	63.8 (157)	92.7 (229)	7.3 (18)			
Time management	94.4 (236)	5.6 (14)		2.4 (6)	27.8 (68)	41.6 (102)	28.2 (69)	64.8 (160)	35.2 (87)			
Thoroughness	98 (245)	2 (5)		2.4 (6)	12.2 (30)	42.3 (104)	43.1 (106)	68 (168)	32 (79)			
Knowing limitations	98.4 (246)	1.6 (4)		3.6 (9)	15.4 (38)	30 (74)	51 (126)	77.4 (192)	22.6 (56)			
Competence	100 (250)	0 (0)		6.5 (16)	7.3 (18)	20.6 (51)	65.6 (162)	81.8 (202)	18.2 (45)			
Timeliness	96.4 (241)	3.6 (9)		4.9 (12)	25 (61)	42.6 (104)	27.5 (67)	78.9 (194)	21.1 (52)			
Accepting feedback	97.6 (244)	2.4 (6)		6.6 (16)	10.7 (26)	36.5 (89)	46.3 (113)	81.7 (201)	18.3 (45)			
Teamwork												
Communication	99.6 (239)	0.4 (1)		6 (14)	7.3 (17)	25.8 (60)	60.9 (142)	79.1 (189)	20.9 (50)			
Respectful interaction	98.3 (237)	1.7 (4)		9.8 (23)	7.2 (17)	18.3 (43)	64.7 (152)	95 (226)	5 (12)			
Team building	82.9 (199)	17.1 (41)		16.3 (38)	34.3 (80)	30.5 (71)	18.9 (44)	90.8 (216)	9.2 (22)			
Availability	93.8 (226)	6.2 (15)		10.2 (24)	24.6 (58)	38.1 (90)	27.1 (64)	91.2 (218)	8.8 (21)			
Respect for peers	99.2 (239)	0.8 (2)		10.2 (24)	3.4 (8)	22.1 (52)	64.3 (151)	97.5 (233)	2.5 (6)			
Open mind	96.3 (232)	3.7 (9)		8.1 (19)	11 (26)	35.6 (84)	45.3 (107)	93.3 (223)	6.7 (16)			
Respect for superiors	95.4 (229)	4.6 (11)		8.9 (21)	11.1 (26)	24.3 (57)	55.7 (131)	92.5 (221)	7.5 (18)			
Resourcefulness	95 (228)	5 (12)		7.3 (17)	20.9 (49)	44 (103)	27.8 (65)	79.5 (190)	20.5 (49)			

TABLE 3 (Continued)

	Do you consider the following facets of professionalism to be essential for a genetic counselor to display?		How concerning are lapses in the following facets of professionalism in a genetic counseling student during their final semester?					What proportion of genetic counseling students that you have overseen have shown a lapse in the following facets of professionalism at any point during their genetic counseling training?		
	YES, % (#)	No, % (#)	NOT AT ALL, % (#)	SLIGHTLY, % (#)	SOMEWHAT, % (#)	Very, % (#)	NONE + FEW, % (#)	MANY + MOST + ALL, % (#)		
Patient care										
Compassion	99.2 (236)	0.8 (2)	9.3 (22)	6.4 (15)	13.6 (32)	70.8 (167)	98.3 (234)	1.7 (4)		
Respect for diversity	99.6 (238)	0.4 (1)	9.3 (22)	3.8 (9)	9.3 (22)	77.5 (183)	97.9 (233)	2.1 (5)		
Patient advocacy	99.6 (238)	0.4 (1)	6.8 (16)	12.3 (29)	27.2 (64)	53.6 (126)	91.6 (218)	8.4 (20)		
Availability	98.3 (234)	1.7 (4)	9.7 (23)	12.7 (30)	36 (85)	41.5 (98)	92.4 (220)	7.6 (18)		
Empathy and altruism	99.6 (238)	0.4 (1)	8.5 (20)	7.2 (17)	20.3 (48)	64 (151)	95.4 (227)	4.6 (11)		
Scope of practice	99.2 (237)	0.8 (2)	7.2 (17)	5.5 (13)	28.8 (68)	58.5 (138)	88.2 (210)	11.8 (28)		
Code of conduct	100 (239)	0 (0)	10.2 (24)	3 (7)	12.3 (29)	74.6 (176)	97.1 (231)	2.9 (7)		
Kindness	96.6 (229)	3.4 (8)	11.9 (28)	7.2 (17)	27.5 (65)	53.4 (126)	99.6 (237)	0.4 (1)		

teamwork), patient care was identified as the most important domain across all three areas of assessment, with the highest *concern about lapses*, the most *essential* facets, and the most *strengths displayed* by genetic counseling students. These findings mirror a conclusion drawn from a 2018 study of healthcare providers that reported respect for patients as one of the most important aspects of professionalism for an emergency medicine physician to portray, along with being trustworthy and dependable (Hoonpongmanont et al., 2018).

The facets of professional behavior for which participants reported a high degree of lapses among genetic counseling students included self-awareness, time management, and thoroughness, all in the behavioral domain of accountability and conscientiousness. Self-awareness is considered to be an important category of professional behavior in medical education (Williams et al., 2021), although a lack of self-awareness was the least common (9.8%) lapse identified in a sample of medical students from the United States and Canada (Ziring et al., 2015). However, aspects of time management such as tardiness and missed deadlines were the most common professional lapses reported in the same sample of medical students (Ziring et al., 2015). Feldman and Ludmerer (2017) suggest that medical residents' work lacks thoroughness due, in part, to demands on time. Given that genetic counseling students balance clinical responsibilities with didactic coursework and/or research requirements, time constraints may also contribute to the observed lapses in genetic counseling students' thoroughness.

Dress code was one of the lowest endorsed facets of professional behavior considered to be essential. While we cannot assume that participants recognized that this aspect of behavior needs clarification in general, we hope that this reflects the open-mindedness of program leaders to accept dress customs common to non-White cultures or religions. It is imperative to allow students the freedom to dress according to their culture or religion, to help them feel respected and to avoid feelings of embarrassment, anxiety, or being bullied (Malik et al., 2019). Similarly, all aspects of teamwork received low endorsements as being essential. We theorize that this might reflect a possible prioritization of students' individual development over collaborative development or the possibility that students may be more commonly supervised in individual rather than team-based settings. Both possibilities place higher importance on individualized skills and behaviors. However, it is important to note that measures of teamwork within health care workplaces were positively associated with perceptions of cultural competence, that is, the ability to collaborate effectively across cultural differences (Kumra et al., 2020). Thus, it is possible that the homogenous nature of the participants may reflect a lack of cultural competence, which in turn might contribute to decreased importance of teamwork.

4.2 | Genetic counseling curriculum

Slightly more than half of the participants did not know the answer to the question: "Is formal/didactic education (e.g., lectures,

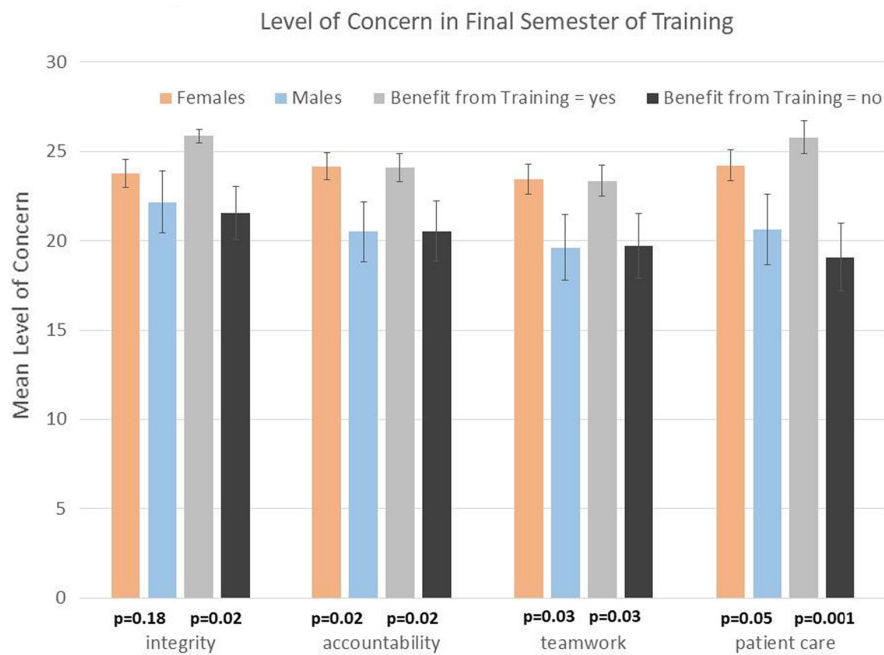


FIGURE 1 Level of concern about lapses in the final semester of training. The *level of concern* scale is based on the sum of the 8 questions asking “How concerning are lapses in the following facets of (integrity, accountability, teamwork, patient care) in a genetic counseling student during their final semester?” Likert scale responses ranged from 1 = not at all concerning to 4 = very concerning. The scale is based on the sum of the Likert responses and could range from 8 to 32. *p*-values adjusted for all variables in the model are provided for gender and training within each domain.

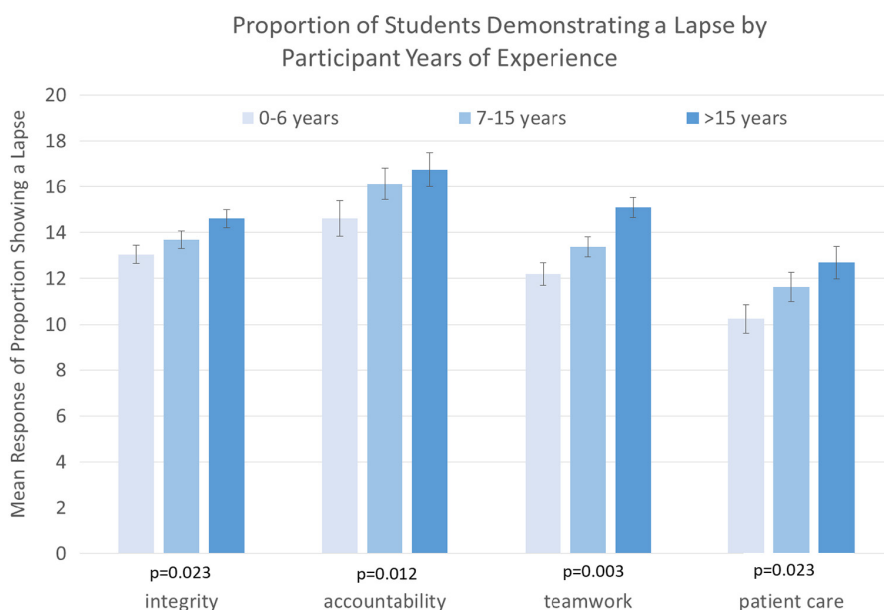


FIGURE 2 Proportion of students demonstrating a lapse in professional behavior. The *proportion of genetic counseling students demonstrating a lapse* scale is based on the sum of the 8 questions asking “what proportion of genetic counseling students that you have overseen have shown a lapse in the following facets of (integrity, accountability, teamwork, patient care) at any point during their genetic counseling training?” Likert scale responses ranged from 1 = none to 5 = all. The scale is based on the sum of the Likert responses and could range from 8 to 40. *p*-values adjusted for all variables in the model are provided under each domain.

workshops, webinars) about professionalism part of the curriculum at your program(s)?” This result is difficult to interpret, as the question did not specify between having access to the curriculum versus having access but not being aware of the inclusion of education for professional behavior. About one-third of participants reported that their training programs include a course on professional issues and/or professional development (34.0%). Input of students, faculty, clinicians, and staff from diverse cultural backgrounds could inform how to improve these types of courses. A recent study demonstrated that the involvement of stakeholders at a medical education diversity conference led to the identification of a need for enhanced training in cultural education (LeBlanc et al., 2020). There appear to be no stakeholder-derived international standards of professional

behavior upon which to base culturally respectful curriculum in genetic counseling. However, examples of continuing professional development programs focused on cultural humility and cultural safety have been promoted in pharmacy and midwifery in Australia to address professionalism when working with indigenous Australian populations (Cox & Simpson, 2020; Fleming et al., 2019, 2020). These and other resources might provide some basis for identifying successful strategies for education of professional behavior and guidance to enhance the professional behavior of genetic counselors in training. For example, agreement upon a definition of “professionalism” and determining means for medical students to develop these skills were necessary to deem professionalism as an aspect of their education that needs regular evaluation (Crues & Crues, 2008).

4.3 | Recognition of bias and normative whiteness in defining and evaluating “professionalism”

We did not ask participants to describe the demographics of those students in whom they perceived lapses in various facets of professional behavior; therefore, it is not known if lapses were more likely to be identified in students of minority races, sexual orientations, gender identities, and religions among other factors. The importance of recognizing and eliminating cultural bias in any discussion of professional behavior was best raised by two respondents who stated,

I think how we define professionalism should NOT be through a white privileged lens. There needs to be celebration and acceptance for diversity in our profession. Diversity of dress, communication styles, etc., as long as they adhere to the basic tenets of what constitutes professionalism.

I think as a field, it is important that we expand and explore our definition of professionalism and move away from a White-influenced definition. I think it inherently puts non-White and non-Western people at a disadvantage and favors White students and genetic counselors.

These respondents' quotes serve as a reminder of the importance of framing expectations about professional behaviors in a way that does not demand adherence to White social norms. Despite explicitly stating the contrary, healthcare providers are unaware that they hold cultural biases (Shepherd et al., 2019), which can put patients at risk (Ben et al., 2017; Capers et al., 2020). In a 2005 article, Smith describes the difficulty of transforming from a “lay person” to a medical professional due to differing views of medical “professionalism” (Smith, 2005). He states that physicians “need to stop defining perfection as being ‘just like ourselves’ and realize that encouraging professional excellence in ways that are culturally and generationally diverse is the only hope for the future of the medical profession” (Smith, 2005). Failure to accept diversity, for example, religious dress of Muslim women in medical training, can lead to feelings of anxiety and humiliation, and even the loss of these educated individuals from the health care profession (Malik et al., 2019). It is imperative to begin this education as early as possible since a recent study found that 44% of 2020 genetic counseling graduates demonstrated an implicit bias favoring White individuals (Pollock et al., 2022).

Further, it would seem prudent for genetic counseling and other health care training programs to provide a recourse for students to report and process situations in which they believe they are unfairly evaluated on professional behaviors without fear of retaliation on their grade or future professional recommendations. There is very little research on recourse available to students who receive a perceived unfair clinical evaluation, particularly in “professionalism”. However, Katsara (2015) provides many examples of the use of a university ombudsman as an impartial mediator between international

students and university superiors in other types of academic-related disputes, which could also be beneficial in “professionalism”-based genetic counseling student disputes.

4.4 | Importance of diversity in education

All but one respondent indicated that respect for diversity is an essential facet of professional behavior, and nearly everyone responded that there were no lapses in respect for diversity among their genetic counseling students. However, only three-quarters indicated that they would be “very” concerned if a student did not have respect for diversity during their final semester, and 9% indicated they would not be concerned at all. This mimics numbers reported in a recent study, which found that when genetic counselors were asked about behaviors experienced or seen during their genetic counseling graduate program, 11% responded they saw or experienced a racially or ethnically offensive remark or name, and 11% saw or experienced offensive or sexist remarks (Aamodt et al., 2021). Similar experiences were reported by medical students during their training, with up to 27% reporting having experienced or witnessed cultural or religious insensitivity and more than 15% experiencing offensive sexist remarks (Hendelman & Byszewski, 2014), with increased episodes in medical students who are Asian or who are lesbian, gay, or bisexual (Hill et al., 2020).

4.5 | Study limitations

This study had both strengths and limitations. One strength is the fact that 90% of participants completed the entire survey. However, we were unable to estimate a response rate since the number of leadership positions and clinical supervisor positions in each training program is quite variable. Although the distribution of participants did not completely reflect NSGC regions, we believe that the overrepresentation of Region 4 and underrepresentation of Region 6 is reflective of the concentration of genetic counseling programs within region 4 and similar relative paucity of training programs within region 6.

Another strength included the utilization of Likert scales that allowed for the construction of novel quantitative measures to represent *concern* and *proportion of genetic counseling students demonstrating a lapse* in each domain. We were then able to explore several factors associated with these quantitative measures, although due to the exploratory nature of this study, we did not correct for multiple testing. Perceptions and expectations of “professionalism” are subjective and open to individual interpretation, which is also a limitation, as was the inability to investigate racial and cultural influences on these expectations. In an attempt to operationalize these perceptions more objectively, definitions and expectations of professional behaviors presented in this study were taken from studies in other fields of healthcare and adapted for their relevance to genetic counseling.

Despite these measures to provide uniform definitions, there remained subjective interpretation of the skills and behaviors. For

example, it is possible that assessments were not applied uniformly across all participants, that participants did not consistently assess students within their programs, that no consideration was given when cultural factors could have impacted a student's ability to meet a particular facet, or that participants had different thresholds for how much of a lapse constitutes concern. In addition, participants were asked about lapses observed at any point during the genetic counseling training, which does not account for the maturation of students during the course of their education. It was assumed that the domains and facets were aspects of professional behavior; however, some participants may have considered at least some of the facets to be qualities pertaining to other skill sets such as clinical or personal skills. Additionally, there was a level of specificity that we could not incorporate into the questions. For example, a student who is not thorough for one class at one time point does technically exhibit a lapse. But if the same student demonstrated a high degree of thoroughness throughout the training period, then a participant may have felt there was no cause for concern.

While the survey inquired about the number of genetic counseling students overseen from 2017 to 2019, knowing the total number of years of experience overseeing genetic counseling students could have provided additional information to distinguish experience with supervising students from the volume of students supervised. Although participants were asked whether didactic professionalism education was part of their program's curriculum, they were not asked if they had access to the curriculum. As a result, some participants' responses may not have accurately reflected the didactic content of their affiliated training program. Participants were given the opportunity to provide additional thoughts about the survey. Some individuals may have felt that their anonymity would be compromised if they answered all survey questions and this led them to choose not to answer some demographical questions. Finally, this was a retrospective study in which participants were asked to recall information from the years 2017–2019. While this time period is fairly recent, the data collected may not be as accurate as data collected after each calendar year. In addition, the importance of a particular skill or behavior may influence what a respondent recall in that less important skills may be remembered less often than those considered to be more critical in the education experience.

Other limitations include a small number of male respondents, which could have generated false gender differences in results. Although we did not ask about race in the demographic questions so as to preserve anonymity, the demographics of genetic counselors in the NSGC are overwhelmingly White. Thus, caution must be exercised when generalizing these results, as we cannot exclude the possibility that these results reflect evaluations seen through a White cultural lens.

4.6 | Practice implications

Based on the facets in which lapses were observed by the most respondents, it appears that genetic counseling education surrounding the domain of direct patient care is relatively strong. However,

given that nearly one-third of participants identified lapses by genetic counseling students in demonstrating self-awareness, time management, and thoroughness, these are particular areas that should be highlighted in genetic counseling education. For students that have not previously held professional career-based positions, explicit discussion of the expectations for demonstration of these facets in a professional setting combined with self-reflection and self-assessment may serve to improve their demonstration of these skills.

With specificity lacking from ACGC on the expectations of “professionalism” education, there is a perceived need for more standardized strategies in order for genetic counseling students to achieve the Practice-Based Competency of “Professional Development and Practice.” We advocate that stakeholders representing multiple dimensions of diversity in the genetic counseling community collaborate to reach a consensus on expectations for professional behaviors to be demonstrated by genetic counselors and genetic counseling students outside of a White-normative lens. Those consensus behaviors and skills along with examples of how they can be demonstrated could be incorporated into the Practice-Based Competencies document.

Individuals involved in the education and training of genetic counseling students may benefit from taking implicit bias tests, watching videos and/or undergoing training to increase awareness of racial disparities and unrecognized biases (Gonzalez et al., 2021; White-Davis et al., 2018). This would be the first step in uncovering the hidden curricula described by the American College of Physicians (Lehmann et al., 2018), and bring to light the fact that what we as educators say does not always align with what we do, even if unintentional.

4.7 | Future directions

The questions and responses collected in this study lay the foundation for future research into education about professional behaviors for both genetic counseling students and practicing genetic counselors. With evidence that lapses in professional behavior exist among genetic counseling students, exploring the barriers that impact students' behavior may benefit this discussion and guide best practices for education on this topic. Surveying supervisors of practicing genetic counselors could help identify areas of strengths and weaknesses in professional behaviors to help improve collaborative efforts, as well as patient relations. When doing so, it is imperative to define professional competencies and skills in a relevant, non-biased manner that does not discriminate against marginalized non-majority individuals or non-Western cultures.

Perhaps the most instructive studies would be implementations of training or intervention strategies to elucidate and contain unconscious bias, taking care to do this in the most thoughtful and careful way (Shepherd, 2019). The field of medical education has recognized the need for diversity training, and several suggestions are available in the literature (Capers et al., 2020; Krishnan et al., 2019;

Lehmann et al., 2018; Marcelin et al., 2019; Osman & Gottlieb, 2018; Smith, 2005; White-Davis et al., 2018). Studies could incorporate these suggestions as intervention methods. Comparing pre-intervention measures to post-intervention measures, in both students and educators, could be invaluable in helping the field of genetic counseling to embrace diversity among students and their colleagues to help dispel the increasing trend to define professional behavior through a White lens. As eloquently stated, "We owe it to ourselves, our students, our patients, and colleagues to name our learned biases and behaviors, own them, and interrupt them" (Bao et al., 2020).

AUTHOR CONTRIBUTIONS

Paula Delk: Conceptualization; data curation; formal analysis; methodology; supervision; writing – review and editing. **Isabella Bowling:** Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration; resources; validation; visualization; writing – original draft; writing – review and editing. **Courtney Schroeder:** Conceptualization; supervision; writing – review and editing. **Theodore E. Wilson:** Conceptualization; writing – review and editing. **Melissa Wesson:** Conceptualization; data curation; formal analysis; methodology; supervision; validation; visualization; writing – review and editing. **Leah Wetherill:** Conceptualization; data curation; formal analysis; methodology; software; supervision; validation; visualization; writing – original draft; writing – review and editing. All of the authors gave final approval for this version to be published and agree to be accountable for all aspects of the work and in ensuring that questions relating to the accuracy and integrity of any part of the work are appropriately investigated and resolved.

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CONFLICT OF INTEREST

Authors Isabella Bowling, Paula Delk, Melissa Wesson, Courtney Schroeder, Theodore Wilson, and Leah Wetherill declare that they have no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support this study's findings are not publicly available. Please contact the study's corresponding author, Paula Delk, to request access.

HUMAN STUDIES AND INFORMED CONSENT

This study was reviewed and granted an exemption by the Indiana University Institutional Review Board. All procedures followed were in accordance with the ethical standards of the responsible

committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Implied informed consent was obtained for individuals who voluntarily completed the online survey and submitted their responses.

ANIMAL STUDIES

No non-human animal studies were carried out by the authors for this article.

ORCID

Paula Delk  <https://orcid.org/0000-0002-9531-3936>

Isabella Bowling  <https://orcid.org/0000-0002-9016-7618>

Leah Wetherill  <https://orcid.org/0000-0003-2888-9051>

REFERENCES

- Aamodt, P., Wetherill, L., Delk, P., Torres-Martinez, W., Vance, G. H., & Wesson, M. (2021). Positive and negative professionalism experiences of genetic counseling students in the United States and Canada. *Journal of Genetic Counseling*, 30(2), 478–492. <https://doi.org/10.1002/jgc4.1334>
- ABIM Foundation; ACP-ASIM Foundation; European Federation of Internal Medicine. (2002). Medical professionalism in the new millennium: A physician charter. *Annals of Internal Medicine*, 136(3), 243–246. <https://doi.org/10.7326/0003-4819-136-3-200202050-00012>
- Alexis, D. A., Kearney, M. D., Williams, J. C., Xu, C., Higginbotham, E. J., & Aysola, J. (2020). Assessment of perceptions of professionalism among faculty, trainees, staff, and students in a large university-based health system. *JAMA Network Open*, 3(11), e2021452. <https://doi.org/10.1001/jamanetworkopen.2020.21452>
- Bao, A. K., Bergner, A. L., Chan-Smutko, G., & Villiers, J. (2020). Reflections on diversity, equity, and inclusion in genetic counseling education. *Journal of Genetic Counseling*, 29(2), 315–323. <https://doi.org/10.1002/jgc4.1242>
- Baty, B. J. (2018). Genetic counseling: Growth of the profession and the professional. *American Journal of Medical Genetics. Part C, Seminars in Medical Genetics*, 178(1), 54–62. <https://doi.org/10.1002/ajmg.c.31601>
- Bell, B. (2021). White dominance in nursing education: A target for anti-racist efforts. *Nursing Inquiry*, 28(1), e12379. <https://doi.org/10.1111/nin.12379>
- Ben, J., Cormack, D., Harris, R., & Paradies, Y. (2017). Racism and health service utilisation: A systematic review and meta-analysis. *PLoS ONE*, 12(12), e0189900. <https://doi.org/10.1371/journal.pone.0189900>
- Biesecker, B. (2020). Genetic counseling and the central tenets of practice. *Cold Spring Harbor Perspectives in Medicine*, 10(3). <https://doi.org/10.1101/cshperspect.a038968>
- Capers, Q. t., Bond, D. A., & Nori, U. S. (2020). Bias and racism teaching rounds at an Academic Medical Center. *Chest*, 158(6), 2688–2694. <https://doi.org/10.1016/j.chest.2020.08.2073>
- Cory, J. M. (2021). White privilege in neuropsychology: An 'invisible knapsack' in need of unpacking? *The Clinical Neuropsychologist*, 35(2), 206–218. <https://doi.org/10.1080/13854046.2020.1801845>
- Cox, J. L., & Simpson, M. D. (2020). Cultural humility: A proposed model for a continuing professional development program. *Pharmacy (Basel)*, 8(4). <https://doi.org/10.3390/pharmacy8040214>
- Cruess, R. L., & Cruess, S. R. (2008). Expectations and obligations: Professionalism and medicine's social contract with society. *Perspectives in Biology and Medicine*, 51(4), 579–598. <https://doi.org/10.1353/pbm.0.0045>

- Cullen, M. J., Konia, M. R., Borman-Shoap, E. C., Braman, J. P., Tiryaki, E., Marcus-Blank, B., & Andrews, J. S. (2017). Not all unprofessional behaviors are equal: The creation of a checklist of bad behaviors. *Medical Teacher*, 39(1), 85–91. <https://doi.org/10.1080/O142159x.2016.1231917>
- Feldman, A. M., & Ludmerer, K. M. (2017). Solving one of graduate medical education's problems: A loss of thoroughness. *Journal of Graduate Medical Education*, 9(3), 287–289. <https://doi.org/10.4300/jgme-d-16-00521.1>
- Fleming, T., Creedy, D. K., & West, R. (2019). Cultural safety continuing professional development for midwifery academics: An integrative literature review. *Women and Birth*, 32(4), 318–326. <https://doi.org/10.1016/j.wombi.2018.10.001>
- Fleming, T., Creedy, D. K., & West, R. (2020). The influence of yarning circles: A cultural safety professional development program for midwives. *Women and Birth*, 33(2), 175–185. <https://doi.org/10.1016/j.wombi.2019.03.016>
- Fox, L., Onders, R., Hermansen-Kobulnicky, C. J., Nguyen, T. N., Myran, L., Linn, B., & Hornecker, J. (2018). Teaching interprofessional teamwork skills to health professional students: A scoping review. *Journal of Interprofessional Care*, 32(2), 127–135. <https://doi.org/10.1080/13561820.2017.1399868>
- Frye, V., Camacho-Rivera, M., Salas-Ramirez, K., Albritton, T., Deen, D., Sohler, N., Barrick, S., & Nunes, J. (2020). Professionalism: The wrong tool to solve the right problem? *Academic Medicine*, 95(6), 860–863. <https://doi.org/10.1097/acm.0000000000003266>
- Gonzalez, C. M., Lypson, M. L., & Sukhera, J. (2021). Twelve tips for teaching implicit bias recognition and management. *Medical Teacher*, 43(12), 1368–1373. <https://doi.org/10.1080/O142159x.2021.1879378>
- Gray, P., Senabe, S., Naicker, N., Kgalamono, S., Yassi, A., & Spiegel, J. M. (2019). Workplace-based organizational interventions promoting mental health and happiness among healthcare workers: A realist review. *International Journal of Environmental Research and Public Health*, 16(22). <https://doi.org/10.3390/ijerph16224396>
- Harding, A. (2021). A nurse educator's perspective about institutional racism and White supremacy in nursing education. *Creative Nursing*, 27(1), 36–39. <https://doi.org/10.1891/crn-r-d-20-00071>
- Harris, P. A., Taylor, R., Minor, B. L., Elliott, V., Fernandez, M., O'Neal, L., McLeod, L., Delacqua, G., Delacqua, F., Kirby, J., Duda, S. N., & REDCap Consortium. (2019). The REDCap consortium: Building an international community of software platform partners. *Journal of Biomedical Informatics*, 95, 103208. <https://doi.org/10.1016/j.jbi.2019.103208>
- Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, 42(2), 377–381. <https://doi.org/10.1016/j.jbi.2008.08.010>
- Hayes, K. W., Huber, G., Rogers, J., & Sanders, B. (1999). Behaviors that cause clinical instructors to question the clinical competence of physical therapist students. *Physical Therapy*, 79(7), 653–667; discussion 668–671. <https://doi.org/10.1093/ptj/79.7.653>
- Hendelman, W., & Byszewski, A. (2014). Formation of medical student professional identity: Categorizing lapses of professionalism, and the learning environment. *BMC Medical Education*, 14, 139. <https://doi.org/10.1186/1472-6920-14-139>
- Hill, K. A., Samuels, E. A., Gross, C. P., Desai, M. M., Sitkin Zelin, N., Latimore, D., Huot, S. J., Cramer, L. D., Wong, A. H., & Boatright, D. (2020). Assessment of the prevalence of medical student mistreatment by sex, race/ethnicity, and sexual orientation. *JAMA Internal Medicine*, 180(5), 653–665. <https://doi.org/10.1001/jamainternmed.2020.0030>
- Hoonpongsimanont, W., Sahota, P. K., Chen, Y., Patel, M., Tarapan, T., Bengiamin, D., Sutham, K., Imsuwan, I., Dadeh, A.-A., Nakornchai, T., & Narajeenron, K. (2018). Physician professionalism: Definition from a generation perspective. *International Journal of Medical Education*, 9, 246–252. <https://doi.org/10.5116/ijme.5ba0.a584>
- Katsara, O. (2015). The use of the Ombudsman's services for alleviating international students' difficulties. *Journal of International Students*, 5(3), 260–270. <https://doi.org/10.32674/jis.v5i3.420>
- Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE guide no. 131. *Medical Teacher*, 42(8), 846–854. <https://doi.org/10.1080/O142159x.2020.1755030>
- Kirk, L. M. (2007). Professionalism in medicine: Definitions and considerations for teaching. *Proceedings (Baylor University, Medical Center)*, 20(1), 13–16. <https://doi.org/10.1080/O8998280.2007.11928225>
- Krishnan, A., Rabinowitz, M., Ziminsky, A., Scott, S. M., & Chretien, K. C. (2019). Addressing race, culture, and structural inequality in medical education: A guide for revising teaching cases. *Academic Medicine*, 94(4), 550–555. <https://doi.org/10.1097/acm.0000000000002589>
- Kumra, T., Hsu, Y. J., Cheng, T. L., Marsteller, J. A., McGuire, M., & Cooper, L. A. (2020). The association between organizational cultural competence and teamwork climate in a network of primary care practices. *Health Care Management Review*, 45(2), 106–116. <https://doi.org/10.1097/hmr.0000000000000205>
- LeBlanc, C., Sonnenberg, L. K., King, S., & Busari, J. (2020). Medical education leadership: From diversity to inclusivity. *GMS Journal for Medical Education*, 37(2), Doc18. <https://doi.org/10.3205/zma001311>
- Lehmann, L. S., Sulmasy, L. S., & Desai, S. (2018). Hidden curricula, ethics, and professionalism: Optimizing clinical learning environments in becoming and being a physician: A position paper of the American College of Physicians. *Annals of Internal Medicine*, 168(7), 506–508. <https://doi.org/10.7326/m17-2058>
- Malik, A., Qureshi, H., Abdul-Razak, H., Yaqoob, Z., Javadi, F. Z., Esmail, F., Wiley, E., & Latif, A. (2019). 'I decided not to go into surgery due to dress code': A cross-sectional study within the UK investigating experiences of female Muslim medical health professionals on bare below the elbows (BBE) policy and wearing headscarves (hijabs) in theatre. *BMJ Open*, 9(3), e019954. <https://doi.org/10.1136/bmjopen-2017-019954>
- Marcelin, J. R., Siraj, D. S., Victor, R., Kotadia, S., & Maldonado, Y. A. (2019). The impact of unconscious bias in healthcare: How to recognize and mitigate it. *The Journal of Infectious Diseases*, 220(Suppl 2), S62–S73. <https://doi.org/10.1093/infdis/jiz214>
- Martinez, W., Pichert, J. W., Hickson, G. B., Braddy, C. H., Brown, A. J., Catron, T. F., Moore, I. N., Stampfle, M. R., Webb, L. E., & Cooper, W. O. (2018). Qualitative content analysis of coworkers' safety reports of unprofessional behavior by physicians and advanced practice professionals. *Journal of Patient Safety*, 17, e883–e889. <https://doi.org/10.1097/pts.0000000000000481>
- McCluney, C. L., Durkee, M. I., Smith, R. E., Robotham, K. J., & Lee, S. S.-L. (2021). To be, or not to be...black: The effects of racial codeswitching on perceived professionalism in the workplace. *Journal of Experimental Social Psychology*, 97, 104199. <https://doi.org/10.1016/j.jesp.2021.104199>
- McIntosh, N., Dircks, A., Fitzpatrick, J., & Shuman, C. (2006). Games in clinical genetic counseling supervision. *Journal of Genetic Counseling*, 15(4), 225–243. <https://doi.org/10.1007/s10897-006-9029-4>
- Nguemeni Tiako, M. J., South, E. C., & Ray, V. (2021). Medical schools as racialized organizations: A primer. *Annals of Internal Medicine*, 174(8), 1143–1144. <https://doi.org/10.7326/m21-0369>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1609406917733847. <https://doi.org/10.1177/1609406917733847>
- Osman, N. Y., & Gottlieb, B. (2018). Mentoring across differences. *MedEdPORTAL*, 14, 10743. https://doi.org/10.15766/mep_2374-8265.10743
- Paltiel, O., Lowenstein, L., Demma, J., & Manor, O. (2017). International workshop on "professionalism in the practice of medicine—where

- are we now?". *Israel Journal Health Policy Research*, 6(1), 19. <https://doi.org/10.1186/s13584-017-0144-5>
- Phelan, S., Obenshain, S. S., & Gale, W. R. (1993). Evaluation of the noncognitive professional traits of medical students. *Academic Medicine*, 68(10), 799–803. <https://doi.org/10.1097/00001888-199310000-00020>
- Pollock, B., Wetherill, L., Delk, P., Wesson, M., Rucker, S., Goodman, Z., Remeika, W., & Ivanovich, J. (2022). Diversity training experiences and factors associated with implicit racial bias among recent genetic counselor graduates of accredited programs in the United States and Canada. *Journal of Genetic Counseling*, 31, 792–802. <https://doi.org/10.1002/jgc4.1547>
- Shepherd, S. M. (2019). Cultural awareness workshops: Limitations and practical consequences. *BMC Medical Education*, 19(1), 14. <https://doi.org/10.1186/s12909-018-1450-5>
- Shepherd, S. M., Willis-Esqueda, C., Newton, D., Sivasubramaniam, D., & Paradies, Y. (2019). The challenge of cultural competence in the workplace: Perspectives of healthcare providers. *BMC Health Services Research*, 19(1), 135. <https://doi.org/10.1186/s12913-019-3959-7>
- Smith, L. G. (2005). Medical professionalism and the generation gap. *The American Journal of Medicine*, 118(4), 439–442. <https://doi.org/10.1016/j.amjmed.2005.01.021>
- White-Davis, T., Edgoose, J., Brown Speights, J. S., Fraser, K., Ring, J. M., Guh, J., & Saba, G. W. (2018). Addressing racism in medical education an interactive training module. *Family Medicine*, 50(5), 364–368. <https://doi.org/10.22454/FamMed.2018.875510>
- Williams, B. W., Welindt, D., Hafferty, F. W., Stumps, A., Flanders, P., & Williams, M. V. (2021). Adverse childhood experiences in trainees and physicians with professionalism lapses: Implications for medical education and remediation. *Academic Medicine*, 96(5), 736–743. <https://doi.org/10.1097/acm.0000000000003532>
- Ziring, D., Danoff, D., Grosseman, S., Langer, D., Esposito, A., Jan, M. K., Rosenzweig, S., & Novack, D. (2015). How do medical schools identify and remediate professionalism lapses in medical students? A study of U.S. and Canadian medical schools. *Academic Medicine*, 90(7), 913–920. <https://doi.org/10.1097/acm.0000000000000737>

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