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ORIGINAL RESEARCH

Ethics and Professionalism Education in a Health Science Center: Assessment Findings from a Mixed Methods Student Survey

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Abstract
Background: Prior to initiating interprofessional ethics education, assessment of current student learning of ethics content within their professional schools is essential. Few studies have included direct measures of student learning on ethics and professionalism. This article reports findings from a mixed methods student survey conducted at a comprehensive health science center. **Purpose**: The purpose of the survey was to explore student self-perception with regard to their knowledge of health professional ethics as well as their ability to analyze self-reported encounters with ethical dilemmas. **Methodology**: The survey spanned six health professional schools: a dental school, a graduate school, a medical school, a nursing school, a school of biomedical informatics, and a school of public health. Quantitative data were analyzed using descriptive statistics and ANOVA with Tukey HSD post hoc. Qualitative data were analyzed with a rubric and then qualitative content analysis was conducted to determine common themes. **Results and Conclusions**: The findings indicate a need for the continued teaching of ethics and professionalism curricula to health professional students in all schools of this health science center, and qualitative results indicate future topics to be pursued in interprofessional teaching and learning.

Introduction
For the last 50 years, health professionals have struggled with the dehumanization, moral uncertainty, and ethical conflict created by the unprecedented success of modern medicine as well as the commercialization of the health care system.[1-3] Since the 1960s, the new fields of bioethics and medical humanities have grappled with problematic issues such as the protection of research subjects, the goals of health care, the definition of death, the rights of patients, the cessation of treatment, the meaning of illness, the health of populations, and the distribution of health care resources.[4,5] More recently, movements for the renewal of professionalism, spirituality, relationship-centered care, cultural competence, and narrative medicine have arisen to address the erosion of public trust and the quality of relationships between patients and health professionals.[6-11] There also is a growing concern regarding student cheating and research misconduct in the context of health professional education.[12,13] All of these issues involve public trust in one way or another, and ethics and professionalism education, in whatever form it takes, is meant to increase such trust.

While ethics education has become standard practice in the education of health professionals, many issues and dilemmas have only increased with the use of technology, as new technologies that prolong life and use large amounts of resources often exacerbate end-of-life issues.[14-17] Electronic technology has opened multiple avenues for breach of patient confidentiality that may disclose patient information to thousands of people with the touch of one send button.[18] Unethical behavior in the classroom has become easier (e.g., the cut and paste function makes it easy to plagiarize papers and cell phone cameras make it easy to take pictures of exams and to text answers to each other during an exam).[19] All of these issues increase the need for a sound ethics education for health professionals.

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In recent years, there have been a number of articles addressing interprofessional education as well as the possibility of interprofessional ethics education.[14,20-27] Despite calls for interprofessional education and practice, ethics education has taken place almost entirely within specific disciplines of the health professions.[27] Indeed, physicians, nurses, biomedical and health information scientists, dentists, public health professionals, and other health professionals pursue their own oaths, codes, professional standards, and ethical quandaries.[28] Yet many of the problems overlap or concern interprofessional relationships and communication. In addition to separate codes and professional standards, individual schools and professions structure ethics education in different ways. Some schools or programs teach ethics as a separate course, while others thread content throughout the curriculum.[15] At our own institution, for example, the School of Nursing threads ethics education throughout the curriculum, while the Medical School has a separate course. However, little is known about the effectiveness of ethics education in the health professions, and even less is known about the effects of interprofessional ethics education.[29] In order to plan effective interprofessional ethics education, there must be an understanding of common ethics educational needs across the professions.

The Specific Aims of This Study

In order to evaluate the impact of the ethics education that all graduating or advanced level students had received, the following research questions were identified:

1. What are the students' perception of their knowledge and skills with regard to health professional ethics?
2. What are students' skills in identifying and analyzing ethical dilemmas?

Methodology

In order to evaluate the knowledge of graduating/advanced students with regard to health professional ethics, a mixed methods survey was given to students in all schools in an academic health science center. The survey included items such as time spent on ethical issues in courses and clinical activities as well as their comfort level with relevant and typical ethical issues. This part of the survey was an indirect quantitative means of assessment. We also asked students to provide an example of an ethical or professional dilemma that they have encountered ("encounter" could entail a broad range of situations, including, but not limited to, clinical settings) during their education, and we asked them several questions about how they dealt with the situation. Their responses were then assessed according to the Health Professional Ethics Rubric.[30]

Sample. We recruited students in advanced level courses—where possible, during the last year of their program. Each of the six schools in the health science center determined the most appropriate course or meeting for recruitment of students and no students were enrolled in courses across schools. The desired sample size was at least 250 completed surveys in order to have adequate representation from each school. With an anticipated response rate of about 50%, we asked approximately 500-700 students to participate. We noted that the desired profile of the responses should reflect the enrollment of each school, with the School of Public Health having the highest enrollment (1,003), followed by the Medical School (963) and the School of Nursing (759). The School of Dentistry had 471 students, the Graduate School of Biomedical Sciences had 570 students, and the School of Biomedical Informatics had 99 students.

Instruments. Demographic data collected included the student's school, age, gender and race. The two primary sections of the survey addressed the two study aims.

Aim 1: What are graduating/advanced health professions students' perception of their knowledge and skills regarding health professional ethics? The first set of questions asked the student if adequate time had been spent in their courses and clinical education on the following:

1. Identifying ethical and professional issues;
2. Outlining various options of addressing ethical and professional issues;
3. Constructing ethical arguments based on the values of your profession as identified by your profession's code(s) or by historical precedents, principles, position statements, and cases;
4. Constructing ethical arguments based on the values of a related profession;
5. Evaluating the merits of an ethical argument;
6. Learning about making decisions as to how to act concerning an ethical issue; and
7. Presenting your decision in a professional manner.
8. Students rated each area as "no time," "too little time," "the right amount of time," "too much time," or "don't know."

The second set of questions asked the students how comfortable they were with the same 7 set of items. The students rated each area as “don’t know,” “very uncomfortable,” uncomfortable,” “comfortable,” and “very comfortable.” Finally, students were asked "for their estimation of the need for teaching on ethics and professionalism.” The possible responses were “this type of education is not needed,” “this type of education is somewhat needed,” “this type of education is needed,” and “this type of education is absolutely needed.”

Aim 2: What are graduating/advanced health professions students’ skills in identifying and analyzing ethical dilemmas? Students were asked to identify an ethical or professional dilemma that they had encountered during their education, to describe the possible options in dealing with the situation and their evaluation of each option, to describe what they did and why, and to describe any professional codes, historical precedents, position statements, or cases they believed were relevant to the dilemma. These were open ended essay questions and were scored using the Health Professional Ethics Rubric with a score of 1 indicating an insufficient response, a score of 2 indicating an acceptable response, and a score of 3 indicating a proficient response.[30] Six reviewers were trained to use to the rubric, and, as noted, an inter-rater reliability greater than .90 was established prior to scoring.

Protection of human subjects. Prior to data collection, the Institutional Review Board approved this study. All potential participants were provided with a description of the study, any benefits or risks, and contact information for the team. In order to maintain anonymity, completion of the survey and return to the investigators was considered consent of the subjects.

Procedure. At each site, the same investigator distributed the survey. He described the study and the informed consent process. Emphasis was placed on anonymity of responses of the survey during recruitment. The students completed the survey and placed completed and uncompleted surveys in an envelope. Then the investigator collected the envelopes and stored them in a locked file. For the School of Public Health, the survey was distributed using Zoomerang because this school has various sites throughout the state. All data submitted via Zoomerang were anonymous and stored on a password protected computer along with data files of the other surveys.

Data analysis. Demographic data and the quantitative survey data were analyzed using descriptive statistics. ANOVA with Tukey HSD post hoc was used to determine differences in scores by school. Statistical level of significance was set at $p < .05$. As noted, qualitative data were analyzed using a rubric that was developed based on the learning outcomes. All investigators coded the first 10 surveys and inter-rater reliability was calculated. Reliability was determined to be greater than .90. Additionally, a qualitative content analysis was conducted to determine common themes in the ethical issues identified by the students.[31]

Results

Demographic results. A total of 437 health professional students returned the survey. For the returned surveys, a total of 65% of the students were female and 35% were male. The sample was diverse with 57% white students, 21% Asian students, 6% African American, and 13% Hispanic. The majority of the students were under the age of 35 years with 40.4% between the ages of 18 to 25 years. A total of 9% were between 36 and 45 years of age. In the sample, 26% (115) of respondents were students in the School of Nursing, 21% (93) in the School of Dentistry, 8% (35) in the Graduate School of Biomedical Sciences, 19% (82) from the School of Public Health, 3% (15) in the School of Biomedical Informatics, and 22% (97) from the Medical School.

Quantitative results.

Aim 1: What are graduating/advanced health professional students’ perception of their knowledge and skills regarding ethics? The majority of the students felt very positive and confident about their knowledge of ethics and reported that the right amount of time had been spent on ethics education. However, Table 1 indicates that fewer students reported that enough time had been spent on ethics education in the areas of constructing and evaluating ethical arguments. The majority also felt comfortable in responding to ethical issues. Table 2 describes their comfort level in dealing with ethical dilemmas.

There were statistical differences in the student responses to the amount of time spent on ethics education during course instruction. ANOVA results indicated statistical significance for all items on time spent in ethics education in courses ($p< .05$). There were no differences on items on time spent in clinical training. There were statistically significant differences on 5 of the 7 items on comfort with ethics ($p < .05$). Students in the School of Public Health reported higher comfort scores on

identifying ethical and professional issues than students in the School of Dentistry. Students in the School of Public Health and School of Biomedical Informatics reported higher comfort scores for outlining options for addressing ethical issues. Students in both the Medical School and School of Public Health reported higher comfort scores in constructing ethical arguments based on the values of the profession than students in the School of Dentistry. Students in the School of Public Health felt more comfortable than students in the Graduate School of Biomedical Sciences with learning about making decisions on actions. In addition, students in the School of Biomedical Informatics reported higher comfort scores for learning about making decisions on actions than students in the School of Nursing, School of Dentistry, and Graduate School of Biomedical Sciences. Finally, students in the School of Public Health and School of Biomedical Informatics reported more comfort in presenting their ethical decisions than students in the Graduate School of Biomedical Sciences.

Aim 2: What are graduating/advanced health professional students' skills in identifying and solving ethical dilemmas? A total of 75% of the respondents answered the open ended questions on their experience with an ethical dilemma. The Health Professional Ethics Rubric was used to assess the quality of those responses. This rubric, as noted, includes scores of 1 = insufficient, scores of 2 = acceptable, and scores of 3 = proficient. The majority of the responses were evaluated as insufficient. Table 3 provides the mean scores from all students on the rubric. Table 4 provides a breakdown of mean scores by school. The scores of the students in the Medical School were significantly higher than those of students in the School of Nursing and School of Public Health on identifying an ethical issue ($p < .05$). For identifying options in dealing with ethical situations, the students in the Medical School scored significantly higher than students in the School of Nursing, School of Public Health, School of Dentistry, and School of Biomedical Informatics ($p < .05$). The Medical School students scored higher in providing rationale for actions than students in the School of Dentistry ($p < .05$). Finally, the students in the Medical School had significantly higher scores if identifying ethical codes, principles, cases and precedents than students in the School of Nursing and School of Dentistry ($p < .05$).

Qualitative results.

Ethical/professional dilemmas. Students were asked to identify an ethical or professional dilemma that they had encountered during their education. An ethical or professional dilemma was defined as a situation in which the person must choose between two or more incompatible unfavorable actions.[2] Twenty-five percent of the students left this section blank while others described situations that were not dilemmas. For example, one student who had delays in procuring IRB approval wrote: "Professional dilemma—[school 1] and [school 2] IRBs did not agree concerning [the] need for [an] informed consent form for my study. Required additional communication to resolve issue . . . . This delayed my ability to complete work needed for pilot course and ultimately delayed graduation." To us, this response seemed more like a frustration than an ethical dilemma. Another student responded: "Staff speaking language other than English at work." This response, too, seemed like a frustration. It is not clear in what sense the students felt that they are ethical or professional dilemmas.

The most common type of response that did not explicitly identify an ethical or professional dilemma involved faculty/student relationships. Several students' responses addressed grading: "Having an instructor tell a student they will be sure to grade their subjective paper and then that student getting a grade that put them just below a needed grade"; "Grade determination seems to be too variable on professors' likes, dislikes"; and "Some professors made changes to examinations that we students did not feel was warranted or ethical." Other students described their perceptions of treatment by faculty, such as: "Teachers threatening students: 'Stop emailing me or I will not grade your papers'"; "Being talked down to in Clinic in front of a patient"; and "Educators that belittle and intimidate students through nonverbal cues." While these responses may describe legitimate student concerns, they are not, as the students presented them, ethical or professional *dilemmas* (though, to be sure, the ethical principles of fairness and justice are relevant here).

The responses of students that did describe ethical or professional dilemmas were classified into two major categories: Research/clinical dilemmas and professional dilemmas. In the examples that follow, in most cases these dilemmas are dilemmas because the students encountered a situation where they witnessed some kind of misdeed (e.g., seeing a colleague cheat on a test, seeing a superior deliver substandard care) and they were forced with the choice of, on the one hand, reporting a colleague or superior (and thus risking alienation or retaliation), and, on the other hand, doing nothing (and thus risking complicity). In other cases, however, there is genuine confusion, as how to, for example, have

honest conversations with families about end-of-life care. And in yet other cases students identified an ethical dilemma in terms of temptation—for example, being tempted to over-treat patients for the sake of a graduation requirement set by, say, the Commission on Dental Accreditation (CODA). This is sometimes a dilemma because what, precisely, qualifies as over-treatment is a matter of subjective interpretation.

Research/clinical dilemmas included concerns about falsification of records, patient communication, clinical issues, health care system issues, and patient confidentiality. Falsification of both clinical and research records was described by the students. In the area of research, for example, students described dilemmas surrounding control groups and placebos as well as unblinding group membership during the study.

Students also described multiple dilemmas involving communication with patients including informed consent, lying to patients, and patient confidentiality, especially with minor children. Here are two examples of informed consent dilemmas: "A surgical consent for a Spanish-speaking patient was not performed with a translator overnight when the pt was in the ER"; "Had a patient in clinic who was HIV+ but family did not want the provider to tell her she was HIV+." Maintaining patient confidentiality was identified by several students, especially issues with minor children: "I once had a patient who needed treatment for an STD but she was a minor who did not want her mom to know." Students also identified many clinical issues that involved ethical dilemmas such as genetic testing, abortion, and reporting child and elder abuse. End-of-life care was a common clinical situation described by the students, as they noted dilemmas with regard to the withdrawal of life support measures: "Yes, when a patient's family refused to withdraw care for a week more so that they could apply for disability and get funeral paid for." Poor quality of care was another frequent situation creating ethical dilemmas: "A physician giving what I considered sub-standard care to a patient and not doing a thorough evaluation to rule out life threatening disease." However, another student described a dilemma related to their status as a student: "Do I treat the patient comprehensively or focus on finishing the school requirements?" Students also described ethical dilemmas related to the health care system. Situations included insurance denial of care and issues surrounding for profit health care.

Professional dilemmas included a description of an impaired student as well as several descriptions of situations about authorship: "I was [a]sked to contribute a large amount to a manuscript that I would not be the first author by a faculty member of another school." Another student said, "too many students/post docs added to publication that weren't deserving, did little or no research involving manuscript." The most common professional dilemma identified involved academic dishonesty. Examples include: "Some people in our class have found ways to take the test at a later time than the majority of us"; "Some people don't do their own lab work"; "Students cheating on quizzes. The teachers were notified (*I told them*) and nothing was done about the issue." In majors that required experience with specific procedures, students described a choice of "over diagnosing to meet clinical requirements."

Responses to dilemmas. Students were asked to describe the possible options they considered in dealing with the ethical or professional dilemma. Again, most students did not answer the question, and those who did answer usually described a simplistic single option such as reporting to their supervisor: "The only option I considered was reporting her, which I did." Others described a sense of futility in choosing any option, "The issues stated above have been brought up to authority, but nothing has happened." A few students were able to describe multiple options, such as this student who described a situation involving academic dishonesty: "(1) reporting the students = nothing gets done when we do it seems; (2) talking to them about it = this is difficult to do with someone you are not close too; and (3) just do the right thing and encourage others to do so as well."

Personal action. Few students described what action they took or what action they should have taken. Some described personal actions such as "Informed teacher. She needed to know academic dishonesty was happening in her course." Another student said, "I wish I could talk to the person but likely I will continue with option 3. It's the least intimidating. Option 1 never seems to help because it seems like admin[istration] turns a blind eye to the actions of some students." In their role as students, they described a lack of empowerment and lack of responsibility in taking action when faced with ethical/professional dilemmas.

Ethical/professional guidelines. Ethical principles and professional codes were rarely identified by students as guides for determining responses to ethical or professional dilemmas. One exception was

a student who responded with, "The APHA's code of ethics was relevant to the decision in that principles 2-4 and 12 regarding the rights of individuals, input from the community, building of public trust, and empowering the disenfranchised all played a role in choosing to provide the intervention to all the involved community clinics at the wishes of the community review board." Some students responded with generalizations such as "Don't lie. Don't cut corners in patient care. These are fundamentals." However, most students who described potential responses to dilemmas did not identify ethical or professional guidelines for choosing responses.

Discussion

A key point from the findings involves relating the quantitative and the qualitative aspects of this study. The majority of the students in six health professional schools reported that they felt comfortable in identifying ethical and professional issues and analyzing potential options for action on those issues. However, while they reported comfort in evaluating ethical issues, a significant number did not believe that they had enough education on frameworks to examine ethical issues. Their responses to open ended questions supported this need for further education. While most felt comfortable with their knowledge, few could demonstrate the ability to identify and to analyze ethical and professional issues. The quantitative and the qualitative aspects of this survey, taken together, provide evidence that using student surveys of their perceptions of their learning about ethics may not be the best assessment of actual student skills, and that research on student learning outcomes regarding ethics needs to include an assessment of actual skills rather than just student perception of satisfaction with their learning experiences.

The results also indicate the common types of ethical issues found in various health professions, thus providing an opportunity for interprofessional education in ethics and professionalism.

Despite different models for ethics education, students from all six health professional schools demonstrated a need for stronger ethics education. The largest deficit in all students was in the more sophisticated skills of evaluating ethical options and providing arguments for each option. These commonalities provide a synergy for collaboration among the diverse professions on ethics education and can lead to the development of common curriculum materials.

The large number of no responses on the open ended questions could be a response bias to essay questions or an inability to answer the question. However, a qualitative analysis of the responses they did provide gives insight into their lack of skills. Many of those who attempted to identify an ethical or professional issue were unable to identify an actual dilemma, as many of these attempts described issues that concerned the student's perception of ethics as that which is most advantageous or desirable to them personally—e.g., the belief that it is unethical for professors to give a failing grade on a paper.

Another striking finding involved the large number of reports of issues around academic dishonesty among fellow students, staff, and faculty. Issues included cheating, falsification of data, and authorship issues. Reports were from students in all schools and indicate continued need for education on professionalism and professional codes. These results, too, provide common ground for the development of interprofessional curriculum materials and for a university wide emphasis on integrity within the academy.

Research/Clinical Dilemmas	Professional Dilemmas
(1) Falsification of Records (2) Patient Communication (3) Clinical Issues (4) Health Care System Issues (5) Patient Confidentiality	(1) How to Handle a Colleague's Impairment (2) Authorship Conflicts (3) Academic Dishonest/Cheating

***Table 5**: Major Ethical and Professional Issues Identified by Health Professional Students*

Conclusion

Overall, students demonstrated a lack of sophistication in analyzing ethical and professional dilemmas. The descriptions of the dilemma were simplistic, and very few were able to provide an argument for options for responses to the dilemmas. This study indicated that curriculum materials and pedagogical strategies need to be developed and implemented so as to provide students with the opportunity to practice these more complex skills. Perhaps it is the case that strategies that engage students both cognitively and emotionally would enhance their development of these more sophisticated skills.[32] In any case, this study demonstrated, at one health science center, that:

1. health professional students do encounter a wide range of ethical and professional dilemmas;
2. student comfort with their knowledge of ethics and professionalism does not match their ability to analyze ethical and professional dilemmas;
3. there is a strong need for continued teaching and learning of ethics and professionalism in this health science center; and
4. common themes with regard to ethics and professionalism across various health professions exists, thus providing an opportunity for interprofessional education.

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Keywords

Ethics, Professionalism, Health Professional Ethics, Interprofessional Ethics Education

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Conflicts of Interest

The authors have no conflicts of interest to disclose. The study was supported internally by the University.

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Appendix

	Item	"Right Amount of Time"
During Course Instruction	Identifying ethical and professional issues	76%
	Outlining various options of addressing ethical and professional issues	69%
	Constructing ethical arguments based on the values of your profession as identified by your profession's code(s) or by historical precedents, principles, position statements, and cases	64%
	Constructing ethical arguments based on the values of a related profession	55%
	Evaluating the merits of an ethical argument	54%
	Learning about making decisions as to how to act concerning an ethical issue	64%
	Presenting your decision in a professional manner	63%
During Practical Training	Identifying ethical and professional issues	73%
	Outlining various options of addressing ethical and professional issues	64%
	Constructing ethical arguments based on the values of your profession as identified by your profession's code(s) or by historical precedents, principles, position statements, and cases	61%
	Constructing ethical arguments based on the values of a related profession	58%
	Evaluating the merits of an ethical argument	57%
	Learning about making decisions as to how to act concerning an ethical issue	64%
	Presenting your decision in a professional manner	61%

***Table 1**: Time Spent on Ethics Education*

Item	"Very Comfortable" or "Comfortable"
Identifying ethical and professional issues	92%
Outlining various options of addressing ethical and professional issues	84%
Constructing ethical arguments based on the values of your profession as identified by your profession's code(s) or by historical precedents, principles, position statements, and cases	76%
Constructing ethical arguments based on the values of a related profession	70%
Evaluating the merits of an ethical argument	83%
Learning about making decisions as to how to act concerning an ethical issue	82%
Presenting your decision in a professional manner	79%

Table 2*: Comfort with Ethics*

Question	Mean Score
Please provide an example of an ethical or professional dilemma that you have encountered during your education. Do not provide names or other identifying information.	1.38*
Describe the possible options you considered in dealing with the situation and your evaluation of each option.	1.39*
What did/would you do? Why did you choose that option?	1.28*
Please list, if any, professional codes or historical precedents, principles, position statements, and cases that were relevant to your decision. How were they relevant?	1.13*

**p< .05*

Table 3*: Mean Scores of Qualitative Responses*

Question	School of Nursing *(N = 115) 86(75%) answering*	School of Dentistry *(N = 93) 60(65%) answering*	Graduate School *(N = 35) 21(60%) answering*	School of Public Health *(N = 82) 61(74%) answering*	School of Biomedical Informatics *(N = 15) 13(87%) answering*	Medical School *(N = 97) 86(89%) answering*	F	p
Identification of an issue	1.34	1.38	1.24	1.15	1.38	1.62	4.99	.000
Identification of options	1.26	1.27	1.38	1.30	1.00	1.73	8.10	.000
Personal action and rationale	1.23	1.13	1.24	1.26	1.00	1.48	3.6	.003
Professional codes or historical precedents, principles, position statements, and cases that were relevant.	1.08	1.02	1.10	1.16	1.00	1.27	3.3	.006

***Table 4**: Mean Scores of Qualitative Responses by School*