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Clinical experiences during preclinical training: the function of modeled behavior and the evidence of professionalism principles

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Abstract

Objectives: Following the fundamental tenets of Bandura's social learning theory, this study examines the functions of modeled behavior during clinical experiences in the first two years of medical training from the students' perspective, and explores the potential presence of professionalism principles in students' narratives.

Methods: Data were gathered through in-depth interviews with ten first year and ten second year medical students. Data were analyzed utilizing a subset of deductive codes extracted from previous literature, as well as inductive codes and particular categories and themes that followed from subsequent analysis procedures.

Results: Although not explicitly prompted during interviews, students offered basic principles of professionalism through their descriptions of behaviors and attributes exhibited by shadowed physicians and preceptors as characteristics that they found appealing and desirable to emulate. Also, students not only actively distinguish between role models and anti-models, but the data suggests that anti-models may even serve as effective mechanisms of social learning processes during these early clinical experiences. Furthermore, the data point to the probable influence of anticipatory socialization processes prior to medical training in that students present, as early as their first week of training, conceptions of how a doctor should act towards patients and other health care professionals.

Conclusions: Students actively engage in the social learning process, and early clinical exposure provides opportunities for students to refine their understandings and perceptions of their future role through analysis of the attitudes and behaviors displayed by physicians they deem as positive and negative models of the physician role.

Keywords: Modeled behavior, clinical experience, professionalism, preclinical medical education

Introduction

Bandura's social learning theory contends that individuals learn behavior from one another through such mechanisms as observation and imitation.[1] According to Bandura, learning from modeled behavior not only promotes understanding of how a particular behavior is performed, but also provides templates for the observer to guide future similar actions.[2] In this sense, social learning theory provides an excellent framework to examine medical students' perceptions of behavior modeled by physicians during the students' experiences in the clinical setting. Within medical education and training, behavior and attitudes modeled by professional practitioners are particular mechanisms by which medical students implicitly "learn" (as compared to explicit, formal instruction) various aspects of their future professional position.[3-9] The physicians that students encounter during their clinical experiences serve as socializing agents, exhibiting and reinforcing institutionalized norms and engaging in and displaying values and emotions that are associated with the professional role.[10-13] Through identifying, internalizing, and imitating behaviors and attitudes displayed by socializing agents (i.e., practicing physicians), preclinical students are not only informally "taught" what is revered, but in turn, may also reinforce and perpetuate these norms and values.[14]

Furthermore, numerous studies have indicated that role modeling, preceptorships, and shadowing can "teach" the ethical standards, behaviors, patient-centeredness, and altruistic attributes of "professionalism".[15-17] Although there

is not one single definition of professionalism[18] there are specific tenets that are consistently offered by the literature as to what constitutes professionalism in the medical realm. These characteristics, attitudes, and behaviors include (but are not limited to): honesty, integrity, patient advocacy, high ethical conduct, altruism, patient-centeredness, compassion, empathy, high-quality interpersonal skills, team-work in delivery of care, community involvement, as well as excellence in clinical knowledge.[18-21] Whereas studies have shown that students observe these positive characteristics and attributes from their professional counterparts, and strive to emulate these traits,[22-24] there has been an equal amount of research suggesting that particular behavior modeled by physicians during students' clinical experiences can not only be considered highly unprofessional, but can be a detriment to medical students' professional and ethical constitution.[25-27] In this sense, research has yet to fully untangle what and how medical students are actually "learning" from physicians during these clinical settings and situations.

Although students are exposed extensively more to the clinical setting (and therefore experience an increased number of interactions with practicing physicians) during their 3rd and 4th years (as compared to their 1st and 2nd) it is imperative to investigate the initial preclinical stages of training as well, not only because these primary stages have been frequently neglected within the literature, but because they serve as key arenas for socialization and professionalization.[17,28] As more and more medical schools offer students clinical experience in their 1st and 2nd years it is essential to understand what preclinical students are taking away from these on-site opportunities and interactions with those in the professional domain.

In order to properly explore students' perceptions of modeled behavior, utilizing a social learning theory lens, this particular study spotlights three venues in which preclinical medical students come into frequent contact with practicing physicians (i.e. exposed to modeled behavior). Through a series of in-depth interviews, 1st year (M1) and 2nd year (M2) students discussed their clinical experiences, specifically in terms of the attributes, behaviors, and characteristics modeled by the physicians they observed and interacted with.

This study has two distinct, yet related directives. Firstly, the study examines the presence and perceptions of modeled behavior within the clinical setting in general by exploring the following questions: a) what is/are the function(s) of modeled behavior in the clinical setting during preclinical training?, b) what are preclinical students' perceptions of the attitudes, values, and behaviors exhibited by physicians they encounter during their clinical experiences?, c) what are the attributes and characteristics modeled by physicians that these preclinical students wish to emulate in their future professional role, and what do these students "do" with attitudes and traits they deem as negative?

Although modeled behavior has been touted as an instrument for teaching medical students the principles of professionalism, lingering ambiguity persists regarding if students are actually "picking up" on aspects of this broad concept through their interactions with professional physicians, and if so, if these are traits the student wish to emulate. Therefore, the second approach of this specific study investigates the following research questions: a) do preclinical students report witnessing what could be considered professionalism in action during their clinical experiences?, b) if so, do they talk about these attributes in a positive manner?

Study setting

The participants featured in this study were M1 and M2 students at County School of Medicine (SOM) in the southeastern United States. "County SOM" and the names of all County SOM students referenced in this paper are pseudonyms. County SOM has over 450 students, roughly 1000 residents and fellows, about 50 MD/PhD students, and over 300 students in five allied health programs. Faculty clinicians in the eight affiliated hospitals, that served as the preceptors and shadowed physicians that are referenced in this study, are responsible for 2,700 patient beds and more than 2 million patient visits annually. The use of human participants was obtained through IRB approval of this study.

Particular venues for modeled behavior within County SOM

As this project explores the presence and impact of modeled behavior featured through aspects of the preclinical curriculum, it is necessary to provide a basic outline of the venues that M1 and M2 students most often communicated with, interacted with, and witnessed models of the physician role in a professional setting. The following descriptions of particular programs (taken from the 2006 and 2008 County SOM Course Bulletins, and the County SOM website) designed specifically for preclinical students to engage with practicing physicians in the clinical setting are meant to provide context for the data presented in this study. It must be noted, however, that preclinical students did interact with practicing physicians beyond and outside-of the programs described below (i.e. classes, patient presentations, personal illness experiences, etc.).

Introduction to clinical methods

The M2s featured in this study were primarily exposed to the clinical setting through their course, Introduction to Clinical Methods which instructed students in the fundamentals of history taking, conducting physical exams, basic comprehension and interpretation of lab tests, and patient communication. As required by the clinical methods course,

the M2s visited local clinics and hospitals for approximately four hours each week throughout the academic year, and students had various opportunities to observe, shadow, and interact with practicing physicians in the clinical setting.

Week on the Wards and OPEx

M1 students at County SOM were exposed to the clinical setting immediately upon their arrival through Week on the Wards which served as an introduction to the role of the physician. During this initial week students shadowed physicians as they performed their duties, and underwent clinical instruction in history taking, communication with patients, and physical examination skills. These clinical experiences continued, however, throughout the first year through OPEx (Out-Patient Experience), a twelve-month experience where students spent four to five hours every other week shadowing a practicing physician(s) in Family Medicine, Internal Medicine, or Pediatrics. These specialties were chosen specifically by County SOM administrators because of their high level of patient contact, communication with their patients, and degree of involvement in patients' lives.

Methods

Interviews with students

The qualitative method of in-depth, semi-structured interviews is useful in spotlighting the students' perspectives on their experiences in the clinical setting and their interactions with practicing physicians. As Kvale and Brickman[29] state, "[The semi-structured interview] is defined as an interview with the purpose of obtaining descriptions of the life world of the interviewee in order to interpret the meaning of the described phenomena". Within this project interviews were used to gain an understanding of what medical students felt were significant encounters with practicing physicians, as well as their perceptions of how the role of the physician was translated/exhibited. Although the interviews did provide students the opportunity to express specific qualities and traits that they found effective and influential in terms of patient care, a particular aim of this study was also to feature distinct experiences that students themselves consciously acknowledged modeled behaviors and attributes "in action" that had a significant impact on them.

Interview participants were never asked to report specifically "positive" or "negative" traits regarding the practicing physicians they interacted with. Rather, questions probing students' thoughts of their preceptors and other observed physicians were consistently posed as neutral so as to not bias the participants' responses. Similarly, students were not explicitly asked if they thought that a physician exhibited "professionalism". As described in detail below, however, attributes and characteristics related to professionalism (as presented earlier) were used as initial codes and categories to assist in data analysis. This was done to better explore the possibility of students exposure to professionalism principles in the clinical setting.

In-depth interviews with M1s and M2s were conducted towards the end of the academic year (April-May, 2008) and away from the SOM grounds at a location of the participants' choosing in attempts to minimize issues affecting the participants' confidentiality. All interviews were conducted by the author, who was not affiliated with County SOM in any professional manner (i.e. did not have any faculty appointment or general position within County SOM), thereby limiting status differentials between the interviewer and the participant.[30] A general outline of specific questions was utilized during each interview to initially guide discussion. This interview guide was constructed based upon the general research questions of the study. However, based upon students' answers to particular questions the author would ask questions that were not on the original guide - hence the semi-structured nature of the interview process. This practice was employed to not only allow the participant to speak freely and elaborate on certain issues, but also to promote a clearer understanding of the student's experiences and perceptions. All interviews were recorded using a digital voice recorder and permission to use the recorder was requested from each participant prior to recording.

Recruitment of interview participants

The sampling strategy for the recruitment of interview participants consisted of convenience, purposive, and random techniques. During each grade cohort's orientation, when students were introduced to the project, it was stated that interviews were an integral part of the study and students interested in being interviewed should contact the principle investigator (the author). Therefore, initially, volunteers approached the author expressing their interest in being interviewed (convenience sampling). Although volunteers from both grade cohorts personally contacted the author, it was hoped to have at least 10 participants from both grade cohorts respectively (20 students total), and it was important to recruit participants that varied in sex and race. Therefore, male students and minority (African-American, Indian, Asian, Latino/a) students were contacted directly (purposive sampling). As students had self-identified their sex and race on surveys they had taken much earlier in the academic year (this specific study represents a mere portion of a much larger exploratory project) the author was able to ascertain the names of male and minority students from each specific grade cohort. Potential participants were then chosen at random from the entire list until the racial and sex make-up of the sample mirrored (as closely as possible) that of the grade cohort, and 10 participants from each grade cohort had been successfully recruited. Of the interview participants featured

in this study 11 were female and 9 were male. In terms of race and ethnicity, 11 participants were white, 3 were Asian, 2 were Black, 2 were Indian, and 2 were Latino/a.

Analyses and interpretation of interview data

Interview data were transcribed and uploaded into MAXQDA, a professional qualitative data analysis software package. Interview data were analyzed using a multi-step coding process. Interviews were initially coded on the following deductive codes extracted from concepts related to modeled behavior (as pertaining to social learning theory), as well as from the tenets of professionalism (as defined by previous research): observed behavior/attitudes from physicians (positive and negative respectively), personal interaction with physicians, experiences with patients, clinical knowledge, ethics, compassion, altruism, concern for patient, interpersonal skills, team-work. Inductive codes, however, such as preconceptions of physicians, making distinctions, desire to emulate, and desire to distance, among others, were identified through multiple readings of interview transcripts and the initial deducting analysis procedures. This coding process yielded specific themes such as: evidence of "professionalism", "variations in the model of the physician role", and "clinical experience" as an arena of concept confirmation. These themes were then employed as codes and all interview data were analyzed extensively to continually extract processes and categories behind these themes. Key categories, specifically, the presence of professionalism, the differences between role models and anti-models, and anticipatory socialization, are discussed in the section that follows.

Results and Discussion

Evidence of professionalism principles

One goal of this work was to explore not only if students reported witnessing aspects of professionalism (as defined by the previous literature) during their clinical experiences, but also if preclinical students viewed these behaviors and characteristics as generally positive, and as traits they desired to emulate in their future practice.

When discussing their experiences in the clinical setting (Week on the Wards, OPEx) and their interactions with practicing physicians, first year students not only referenced specific tenets of professionalism when explaining behaviors and traits they witnessed, but also expressed a strong desire to emulate these particular attributes. Furthermore, they reported having a more favorable experience with, and admiration for, the doctors who exhibited these characteristics are:

> *"I remember one doctor in particular telling me about the value in listening and laying his hands on the patient and how this was the most important aspect of taking a patient's history. He talked about how this, um, provides a physical connection, and although it may not provide much information about the patient's condition, it establishes an immediate relationship with the patient. It's weird, that seems so simple. I hope I remember these "little things" [student makes air quotations] when I start practicing."*- M1 (Male)

> *"One of the doctors I was with had to give this terrible prognosis to this patient, like "you're gonna die" type stuff. And she had to tell the patient's family too. She was totally honest (pause) yet comforting too. She was totally professional and caring but gave it to them straight."*- M1 (Female)

> *"He's always up to date on research, so that's a good lesson because it can tell you what the current standards are and what could be the best approach to your patient. And he seems to really make time for people, and not just his patients. A lot of time I feel that doctors don't talk very much with patients, you know within two minutes the doctor will turn to the patient and be like 'uh what?' I just don't think a lot of doctors take the time to listen. But he will take time with each patient."*- M1 (Female)

> *"He's very (pause), he wants to make sure he does pay attention to people's need to feel better. He's always telling me to 'Yea, go and check all the things you need to check but don't forget to check what the patient wants you to check even if its way out there, even if you know it doesn't have anything to do with it, or anything to be worried about'. He always like sits down, and he knows all his patients really well and that's made a big impression on me in a positive way."*- M1 (Male)

> *"I was really surprised that this one doctor knew not only her patients' names, but the names of her patients' children and grandchildren. It was great. The level of connection she was able to get with her patients really struck me as fantastic, because they really opened up to her. I want that. I want to be that kind of doctor."*- M1 (Female)

Through the interviews with the students, it appears that even within the first year of their training, at this preliminary stage of their informal socialization and instruction, M1s were already identifying particular behaviors and attributes related to clinical knowledge, communication skills, patient-centeredness, and empathic connectivity – key aspects of "professionalism" – and they deemed these attributes positive and beneficial for the role of the physician. Similar statements were offered by M2s as well, in their discussions of their interactions with practicing physicians during clinical methods.

> *"But (the Preceptor) was awesome, very down to earth. When he talks to me he doesn't talk down to me or make me feel down and he's really good with patients."*- M2 (Female)

> *"He was really gentle, that's the best way to describe him. He was really gentle and kind, and pretty respectful too. Even outside the room, talking about the patient, he was cautious that only certain people were around and that everyone was being respectful."*- M2 (Female)

Without any explicit prompting of the concept, the students appear to provide evidence of witnessing professionalism principles during their clinical experiences. This suggests that preclinical students, even those in their very first year, may carry a toolbox of concepts related to the professional role of physicians, even without extensive formal instruction on what this concept "is". From these data (especially from the accounts offered by the first year students), it would appear that preclinical students may maintain an understanding of aspects of "professionalism" even before they step foot in a medical school classroom. Furthermore, students perceive the behaviors and characteristics that are nested within the concept to be important to being a doctor and how a doctor should act. In other words, students may present with some understanding of the role of the physician before they have entered medical training. In this sense, modeled behavior witnessed during their clinical experiences may simply reaffirm these understandings, and these venues for clinical exposure during the preclinical years may simply reinforce, or perhaps clarify, already established conceptions of what these roles mean.

What also comes to light through the interviews is that these students clearly distinguish between "positive" and "negative" modeled behavior. Although students expressed desire to internalize and emulate the behaviors and values they observed from empathic, compassionate, knowledgeable physicians, they simultaneously rejected the behaviors and values they witnessed that did not comply with what they viewed as positive doctoring techniques. This active partitioning suggests that there may be variations in the conceptualizations of modeled behavior.

Modeled behavior and the difference between "role models" and "anti-models"

In their discussions of their clinical experiences preclinical students spoke not only of events and happenings that were exciting, inspiring, and beneficial, but also reflected on instances where the behaviors they observed from physicians and other medical staff were, in the students' opinions, callous, disrespectful towards the patient, and at times even inappropriate.

> *"I was with a surgical team and I remember they wouldn't take this patient because they didn't want him to die on their [student added emphasis] table. They said something about it being bad for their outcome measures. Seriously? Is this what I have to look forward to, outcome measures? I mean, I guess, I get the overall logic but is this gonna be the culture? I don't know. I don't know. I don't think it has to be like that. That's just too cold. When doctors think more about statistics than patients then I think they should stop being doctors, or at least someone should say something [student added emphasis]. Go be a banker. Seriously."*- M1(Female)

> *"You know, one guy said: 'We don't cure diseases, we just treat them.' I mean, I get what he's saying I guess but he said it so negatively. He took the patient completely out of the equation. I just hope that I don't lose any desire or ability to take the patient's perspective during this, or when I start practicing. I know it's going to happen, but I just don't know how bad it will get."* - M1 (Male)

> *"I've seen a lot of behaviors I don't want to repeat. Like, [doctors will] interrupt a patient in the middle of what they're saying."* - M1 (Male)

Similarly, M2s, like the M1s, offered accounts which showed that they explicitly distinguished between the behaviors and values modeled by preceptors they felt were representative of positive doctor-patient relations from those behaviors they feel represent poor, un-empathic doctoring techniques. During one particular interview, an M2 shared a significant interaction he had with a patient. According to the student, he had taken a history and physical and had decided that he was "just going to let the patient talk", and without prompting, the patient began divulging personal information to the student about how he was a banker and at the age of 35, after landing a lucrative account, he began smoking crack. The following is taken from the interview with the student:

> *"And then he starts telling me that when he was 35 he made this great deal and someone offered him some crack so he takes it and he's been doing crack for the last 25 years. He says he's not addicted, he just does it once a day and he goes on for a half an hour about how he smokes crack. And so, I'm like, you know, 'Did you tell your doctor this?' And he's like, 'No, I've never told anyone this', 'I've never felt this comfortable before', 'I've never felt so comfortable telling anyone about this before'. So I was like, 'Wow, I feel really cool that I was able to achieve this comfort level with this patient', but then it's Clinical Methods, what do I do? Do I tell the doctor? What do I say? So I told my preceptor and immediately he was like, 'Oh, I bet he has AIDS' and jumping to all these conclusions and making all these judgments on the guy because of what I said. He was kind of treating the patient like he was an idiot really, based on the fact that he smoked crack. I mean, I had gotten the whole patient's story and I was like, 'Am I too naïve?' I mean, maybe this patient does have AIDS and all sorts of other things, but at the same time, you know, I feel like some doctors you see are sort of callous. They've seen so much of the same shit every day that they just don't care about what the patients have to say. You know, they hear one thing and they draw all sorts of conclusions."* - M2 (Male)

This story begins as a reflection of the student's enjoyment and pleasure in taking the time to talk with a patient and being able to earn that patient's trust – traits he feels are important for a physician to have. The student then describes his frustrations with what he perceives as a quick-to-judge attitude reflected by his preceptor. Interestingly, the student also questions his own abilities as though he may have "missed" something. The student concludes, however, not by furthering his self-doubt but by noting that this negative perception of particular patients is actually exhibited by a number of doctors he has interacted with.

That is, the student's account seems to be suggesting that he has deduced that he actually did things as a doctor should by listening and gaining the patient's trust. He negotiates that it was not his potential naivety, but rather the physician he interacted with (among others) was overly judgmental and "callous", and exhibited how a doctor should not act. In doing so, the student not only highlights the noxious attributes of certain doctors, and distances himself from them, but also uses these negative traits to reaffirm the positive, patient-centered doctoring techniques he feels are valuable to the doctor role.

From the students' accounts it appears that students not only clearly distinguish between "positive" and "negative" behavior and attitudes exhibited by doctors, but that modeled behavior, regardless of whether it is deemed positive or negative, can "teach" students about the role of the physician. Studies often employ the term "role model" to describe the physician who models the doctor role through their characteristics, behaviors, and attitudes. Therefore, scholars have frequently utilized the term to encompass both the positive and the negative sense suggesting that "role models" can display traits and behaviors to students that can be perceived as positive or negative (i.e. "role models" can exhibit consistently negative attitudes and attributes).[7,16,23,24,31-33] However, this broad utilization may lend to conceptual ambiguity, a vagueness that perhaps has clouded research in this field.

Lockwood[34] defines role models as ". . . individuals who provide an example of the kind of success that one may achieve, and often also provide a template of the behaviors that are needed to achieve such success". Marshall[35] suggests that role models provide ideals for specific social roles, not all of the roles in an individual's life. In their work, "The untapped potential of role modeling as an educational strategy", Kenny, Mann, and MacLeod[9] highlight the multidimensionality of the role model concept, and suggest that it would be quite difficult for a single doctor to serve as a role model for learners for each particular role a physician plays in society.

Data presented in this specific study suggests that not all practicing physicians that preclinical students interact with actually do serve as "role models". These definitions and conceptualizations, specifically those provided by Lockwood and Marshall, propose that the behaviors and values exhibited by role models are perceived by learners as beneficial and valuable for success in that particular role. Therefore, the frequently employed term "positive role model" is actually redundant. If the attitudes, behaviors, or values modeled by a physician are deemed negative, hurtful, or off-putting in any way by the learner then that particular physician will more than likely not serve as a role model, but rather simply as a model of a physician role, or even as an anti-model. Schuval and Adler[36] argue that medical students are quite selective in choosing their role models, that they often consider alternative models, and that they even view some medical instructors as "anti-models" (those whose style of performance is unfavorable, from the student's perspective). It is apparent, through the interviews with the students, that there was evidence of both role models and anti-models throughout their clinical experiences. Yet, what do preclinical students "do" with the behavior modeled by anti-models, how do anti-models impact social learning processes?

As noted earlier, previous literature suggests that it is through the modeling of behaviors, values, and attitudes, that medical students may internalize negative attributes and imitate poor communication skills. This, in turn, is argued to lead to a decrease in students' levels of humanitarian attributes and a hindrance in the growth of professionalism.[26-28] Yet, from the students' statements it would appear that preclinical students actively and purposively attempt to stave off attitudes and/or values that they deem detrimental to doctor-patient communication. Students openly disagree with these noxious behaviors and traits.

> *"But something I've noticed that she does that I don't really like is that she won't necessarily listen to everything the patient says. She'll kind of have her own agenda and she'll kind of run through it. I don't know, she cuts the patients off a lot, um, and like I said, she is a little rough with them sometimes. And I hope I don't pick that up."*- M1 (Female)

> *"And, you know, I've seen a lot variation. Maybe it depends on who or what you're seeing, but I have been surprised by the lack of consistent behavior with patients among the doctors. Obviously I want to emulate the positive interaction skills. I sometimes wonder how certain doctors lost their desire to hear the patient."*- M2 (Female)

> *"Sometimes the Attending would just go in and do their little exam on the patient and then go talk to the family, you know, not even acknowledge that the family was in the room. I am sure there were superiority issues with the patient population at [the hospital] and the doctors may think they are better than the patients."*- M1 (Female)

> *"Do you feel that you have been influenced in any way by your OPEx preceptor?"*- Researcher

> *"Yea, but it was just reaffirming ways I knew I wanted to be or didn't want to be."*- M1 (Female)

Although not explicitly using the terminology, it appears that preclinical students actively distinguish between role models and anti-models, and use the behavior modeled by each to further sculpt their understandings of their future role. In other words, students actively engage in the social learning process, deciding what actions and behaviors exemplify the role the physician they wish to emulate and those that are not conducive to their future professional practice. If medical students are consciously attempting to stave off internalizing what they deem as negative attitudes and traits witnessed from physicians, as this study shows,

then researchers should perhaps re-examine the nature and extent of impact that anti-model behavior has on students' humanitarian attributes. The modeled behavior deemed antipathetic by students appears to serve more to reinforce the value of the positive attributes that are observed, rather have deleterious effects on the students' themselves.[37-38]

Furthermore, according to social learning theory, learning can occur without a change in behavior.[2] Therefore, unprofessional behaviors and attitudes witnessed by preclinical students will not necessarily negatively impact their future practicing techniques and patient interactions. It appears that during these clinical experiences physicians are "teaching" students through both positive and negative mechanisms, and that social learning occurs through both positive and negative modeled behavior.

Perhaps, however, it is the balance or imbalance of role models and anti-models within the clinical setting that cultivates students' attitudes towards and perceptions of the professionals they encounter. That is to say, perhaps it is necessary for students to witness and interact with an equal or greater number of role models (as compared to anti-models) in order for the anti-models' behavior and attitudes to serve as effective teaching tools that reaffirm positive doctoring characteristics.

Kenny, Mann, and MacLeod[9] state, "Despite its rhetorical importance, role modeling remains a conceptual 'black box' for both teachers and learners." It could be argued that this black box pertains to researchers as well. This specific study highlights the necessity for researchers to strive to be as distinct and selective as the students they study (if not more so) when discussing what constitutes a "role model" within medical training.

Consistent components of clinical experiences can be extracted from the accounts offered by the M2 and M1 students: a) clinical exposure during preclinical training functions to not only informally "teach" students values and norms associated with professional doctoring, but also provides an excellent arena for students to further shape their understandings of how a doctor should act, b) students actively distinguish between positive and negative behaviors and attributes modeled by practicing physicians, and are consciously making these distinctions as early as their first year of training (perhaps even before medical school), c) students have clear conceptualizations of positive doctoring that mirror the tenets of "professionalism" and, d) students express not only a strong desire to internalize and cultivate the compassionate, humanitarian, and patient-centered traits they observed from specific physicians but also a strong desire to not succumb to poor patient communication, negative attitudes towards patients, or the hardening of their willingness to care that they observed from other physicians.

The principles of professionalism and the possibility of anticipatory socialization

Although shadowed physicians, preceptors, faculty members, and other professional medical staff should be aware that their behaviors and attitudes are recognized by medical students,[23,24,39] this specific study contends that medical students are not unaware of the norms and values of the medical profession prior to entering medical training. Students selectively distinguish between positive and negative attributes and consciously object to the modeled behavior that they feel does not reflect the traits and behaviors that signify how a doctor should behave. This study shows that this occurs as early as the first few months of the first year of medical training suggesting that students have experienced some form of anticipatory socialization and have already formed beliefs and perceptions regarding appropriate doctor behavior and values.

Shields[40] refers to anticipatory socialization as "…prior knowledge of cultural aspects of colleges and universities and the student role", and suggests that not only parental and sibling experiences, but also the student's own life experiences before starting college could have an impact on preparing them for university life. Although Shields was examining the influence of anticipatory socialization among university students, it is not difficult to see how anticipatory socialization could affect medical students upon entering medical training, especially in terms of what they view as suitable physician behavior. Monrouxe et al.[18] argue that medical students' understandings of the concept of professionalism may depend greatly on what students "..arrive at medical school with". It can be assumed that the students featured in this study had encountered physicians prior to entering medical training, either as patients themselves or even as caregivers of some sort. These experiences could have formed the basis for their understanding of how a physician should act towards patients. Furthermore, as Shield noted, relevant experiences of parents, siblings, and friends can also serve as mechanisms of anticipatory socialization. In this sense, family members who attended medical school, even those who work in any of the health professions can assist in preparing students by sharing their own stories of working with professional physicians. Similarly, friends of students who entered medical training before them could shed light on particular positive or negative attributes they had witnessed.

The issue of anticipatory socialization may also shed some light on why some medical students report feeling frustration, hostility, and disdain for formal education in "professionalism" (i.e. lectures, classes, seminars, etc.).[18,31,41] Medical students have expressed dismay with these particular supplements to their curriculum in part because they feel they not seeing the values, behaviors and attributes being exercised by those supposedly championing them.[25,41]

It could be argued, however, that if medical students feel that they have a sufficient grasp on the principles of professionalism (achieved through mechanisms of anticipatory socialization) during the early stages of their training then these additional curricular requirements could be lending to their negative affect and frustration towards such programs. Future research should therefore explore if aspects of anticipatory socialization influence students' opinions of these formal "teachings" of professionalism.

It is important to note that although there is clearly much benefit to exposing medical students to the clinical setting early in their training there may be some additive feature to the formal courses, lectures, or seminars in professionalism that may enhance or further cultivate the students' understandings of the role of the professional practitioner. Similarly, formal teaching tools such as OSCEs, standardized patients, and small group related work (frequently offered in the preclinical years) are effective in exposing students to potential role models and the professional realm. Programs such as these that utilize practicing physicians to lead, guide, and mentor students in these arenas, and feature reflective learning components associated with the students' shadowing and other clinical experiences, have been shown to be advantageous to positive professional growth.[32,42,43] Unfortunately, this specific study did not explore those possible connections. Again, future research should examine the potentially complementary nature of clinical experiences, opportunities for discussion and reflecting on those experiences, and formal training in professionalism principles.

Limitations of the study

This study spotlights primary and secondary features and functions of modeled behavior within the clinical setting. There are, however, particular limitations. It could be argued that because interview participant selection was based in part on participants' willingness to participate there is a strong potential for selection bias and an overall lack of representation within the sample of students. Similarly, because this study was conducted at only one medical school the total sample and the experiences within the featured arenas (clinical methods, OPEx, and week on the wards) may not be representative of all medical school students and their experiences. Only 10 students were interviewed from each grade cohort and therefore findings presented, and conclusions drawn from those findings, stem from the views of 20 students. The researcher was not granted permission to observe students within the clinical setting. Therefore, only interviews were utilized to explore students' clinical experiences. Finally, this study features only one coder. Recent single-author (and single-coder) medically oriented studies however, have not listed this as a distinct limitation.[44-46] Rather, these articles promote the full disclosure of the data collection, analysis, and interpretation procedures. Despite these limitations this study does provide a fresh perspective on social learning theory and the functions of modeled behavior, models of behavior, and how understandings of principles of professionalism are developed through (and perhaps prior to) preclinical training.

Conclusions

Bandura's social learning theory serves as a useful model to explore preclinical students' perceptions of behavior modeled by physicians during the students' clinical experiences. Experiences in the clinical setting provide first and second year students with the opportunities to hone and reaffirm their perceptions of what characteristics and attitudes are appropriate for a professional physician. This is done through their interactions with and observations of role models, as well as anti-models. Many of the traits and behaviors offered by the preclinical students as examples of positive doctoring techniques mirror principles of professionalism. Further research is needed to explore the actual impact anti-models' behavior has on students' humanitarian attributes, as well as the potentially beneficial qualities of tandem informal–formal "teachings" of professionalism principles.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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