



The creative doctor: exploring the role of comics-enhanced education in medical professionalism

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Abstract

Medical education increasingly recognizes the need to prepare future physicians not only with biomedical expertise but also with the professional identities, skills, and reflexive capacities required to navigate uncertainty, complexity, and emotionally demanding clinical encounters. Drawing on scholarship on professional socialization and the emerging field of Graphic Medicine, this qualitative study explores how comics-enhanced education contributes to medical training. The paper reports findings from semi-structured, in-depth interviews with 14 North American medical and health professions educators who incorporate comics and graphic narratives into their teaching practices. Using a constructivist approach and template analysis, we examine educators' perspectives on the pedagogical value, limitations, and institutional challenges associated with comics-based teaching. Analysis revealed three interrelated themes describing the contribution of comics to medical education: Professional Identity formation, Professional Skills development, and Professional Implementation in clinical practice. Educators described how reading and creating comics supports students' reflection on their emerging professional identities, including emotional processing, ethical awareness, and coping with failure and uncertainty. Comics-based activities were also reported to enhance key professional skills such as empathy, communication (verbal and nonverbal), self-reflection, and awareness of bias and stigma. Finally, educators highlighted the potential of comics to improve professional practice by supporting patient-centered communication, health literacy, informed consent, and the destigmatization of illness. Despite challenges related to student resistance, institutional bias, and limited empirical evidence on outcomes, participants viewed comics as a valuable complement to traditional biomedical teaching. Overall, the study suggests that comics-enhanced education offers a creative and meaningful approach to fostering reflective, empathetic, and socially attuned medical professionals.

Keywords Graphic medicine · Medical education · Comics · Professional identity · Comics-based activities

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Introduction

Scholarship on the sociology of the medical profession has highlighted the evolving nature of professional identity, which is continuously constructed and maintained through processes of professional and organizational socialization. These processes of socialization are influenced by group and power relationships within the profession (see, for example, Armstrong, 2002; Bryce et al., 2018; Price et al., 2021; Waring, & Currie, 2009). Since Robert Merton's (1957) classic study on medical students, the sociology of the medical profession has shown that rather than merely *acting* like a physician, medical students are also expected to *think* and *feel* like a physician. Beyond acquiring biomedical skills and expertise, this process requires students to develop the ability to manage the complexity, instability, and uncertainty of clinical practice. However, succeeding in these tasks cannot be achieved solely through detached concern (Fox, 1957) and the suppression of emotions (Fox 1988), as has been promoted in the past (Vinson, & Underman, 2025). As medical culture and context have evolved during the last four decades, medical students increasingly need help responding to and making meaning from ill-defined or unusual problems and heterogeneous patient requests. Doing so calls for—even demands—creativity (Baruch, 2017). Medical education has increasingly embraced the arts and humanities as one way to meet this challenge, from observing fine art to teach observation skills to using literature to promote perspective-taking (Moniz et al., 2021). In this context, the use of comics in medical education offers a novel way to foster medical students' creativity while helping them develop relational, emotional, communication, observational, and deductive skills (Green & Myers, 2010; Green, 2015). However, little is still known about the pedagogical value and limitations of comics in medical education and on how comics-based teaching is currently used in different universities from an institutional as well as organizational point of view.

This paper addresses this literature gap by focusing on the contribution of comics on the construction of professional identity formation, development and implementation by reporting findings from in-depth interviews with medical educators who have incorporated comics into their teaching activities.

Theoretical background

The present study is nested at the intersection of two distinct bodies of scholarship: professional socialization/professional identity formation and graphic medicine. To contextualize our findings, we describe each in order.

Becoming a doctor: professional socialization and the construction of medical professional identity

Scholarship in the sociology of professions has traditionally described the medical profession not as a single, homogeneous group, but rather as a layered set of groups with heterogeneous norms, values, traits, and identities. Accordingly, Freidson (2001) stated that developing doctors' professional identity requires not only the dissemination of codified knowledge, but also tacit knowledge and the preservation of shared ethical norms. Waring and Bishop (2011) have similarly maintained that professional identity formation requires

doctors to acquire not only “hard skills” and knowledge but also values and motives, which allow them to identify with a community through a process of socialization, whereby new social norms are internalized. However, as noted in a recent scoping review by Sancho-Canus and colleagues (2023) traditional medical education often constrains the formal teaching of so-called “soft skills” such as ethics, professionalism, or communication (Bhaga et al., 2019) as well as strategies and protocols for acting in stressful situations.

Doctors’ professional socialization has been a major topic in medical sociology for decades (see, for instance, Becker et al. 2007; Merton et al. 1957; Jenkins, 2018; Underman, 2020; Vinson, 2019). In recent years, several authors have criticized the traditional concept of professionalism—characterized in part by a detached concern towards patients—and the accompanying process of professional socialization. These critiques have emerged in part as a response to shifts in the structure of health care, particularly in the United States, and the changing balance of power between doctors and patients (Clarke et al., 2003). Scholars responded to these criticisms in various ways (Noordegraaf, 2011), including by reimagining professionals as reflective practitioners whose engagement with the outside world is an integral part of their professionalism.

Professional socialization, and particularly the construction of professional identity, is often stimulated in medical schools through tools such as the case presentation (Lingard et al., 2003; Lesińska-Sawicka, 2023), morning report, and other formal medical conferences conducted in teaching hospitals (Apker & Eggly, 2004; Masel et al., 2020). Case presentations and morning reports are useful for addressing the issue of uncertainty, which is a critical element of medical students’ socialization into the profession. However, these teaching methods tend to have a narrow and biomedical focus that emphasizes technical and scientific aspects of medical diagnosis and treatment (Apker, & Eggly, 2004), while providing less opportunity to explore patients’ life experiences and their emotional response to illness (Apker, & Eggly, 2004). If doctors are to develop varied and holistic competencies that extend beyond the biological (Larson & Yao, 2005; Vinson & Underman, 2025), then educators need varied educational tools to help teach non-technical skills that are ingredient to effective doctoring. Moreover, a recent review (Yi et al., 2025) shows that creative methods are becoming more prevalent in medical education. Many medical teachers now ask students to create projects such as handicraft models, drawings and concept maps of anatomy, histopathology and fundamental sciences. Medical students work in teams and benefit from effective mentorship. Creativity enables students to interpret and retain concepts through interdisciplinary learning (Green et al. 2016; Baruch, 2017). Peer group learning and faculty mentorship facilitate metacognitive processes and manage cognitive load. However, creative activities can be demanding and emotionally charged. Another qualitative systematic review (MacAskill et al., 2023) reports that creative approaches to medical training foster a sense of belonging among students and support the development of interpersonal skills.

Viewed through this broader reading of professionalism, comics as creative training methods can play an important role in the socialization of medical students. As a medium whose strength lies in visual storytelling, comics can supplement traditional learning by providing students with opportunities to engage through stories and artistic practices to ultimately help them develop trusting relationships and empathetic bonds with colleagues, caregivers, and patients (Scavarda & Moretti, 2025). In the context of creative approaches to medical education, comics can foster visual and verbal literacy, engage students and help them express challenging emotions.

The role of comics in medical education

The past two decades have seen an explosion in the creation of comics that address issues related to health and illness. Work that occurs at the intersection of the medium of comics and the discourse of healthcare has been described as the domain of “Graphic Medicine” (Williams, 2012). The groundbreaking *Graphic Medicine Manifesto* explains that Graphic Medicine “combines the principles of narrative medicine with an exploration of the visual systems of comic art, interrogating the representation of the physical and emotional signs and symptoms within the medium” (Czerwiec et al., 2015). A primary reason that visual stories (aka graphic narratives) are so relevant to medicine is that they can adeptly present information on difficult, ambiguous, or misunderstood topics (Green & Myers, 2010). It is unsurprising, then, that as the sociocultural environment is viewed as an important aspect of medical education, there is a greater willingness for medical educators to integrate comics into their medical teaching. Some educators have taken a piecemeal approach by peppering comics into their lectures and classroom activities, while others have developed fully formed courses devoted to comics in medicine, with the ambitious goal of advancing important professional skills (Green, 2015; Sutherland et al., 2021). Regardless, the use of comics in the classroom is premised on the belief that this visual medium enhances learning in some important way.

With several exceptions (see, e.g., Green, 2015), there has been scant research to date exploring the potential of comics for shaping medical students’ professional identities. Some studies have supported the use of comics for the development of medical students’ tacit knowledge, which includes skills and experiences that are difficult to transfer to another person in writing or verbally (Adamidis et al., 2022; Czerwiec & Huang, 2017; Ronan & Czerwiec, 2020). Other studies have shown that comics-based stories are powerful tools to help healthcare professionals become more aware of patients’ and caregivers’ needs and concerns (Haan et al., 2022). The full extent of how comics can enhance medical education, however, remains insufficiently explored, a conclusion affirmed by a recent scoping review (Consorti et al., 2023). The present study aims to fill some of the gaps in this literature by drawing on in-depth interviews with medical educators who use comics in their teaching to examine how they use graphic narratives to engage medical students in the classroom setting and to explore ways that comics-enhanced education can contribute to medical education.

Materials and methods

The data analyzed in this study were collected via semi-structured interviews with 14 North American educators in medical and other health profession schools who use comics in their teaching activities with students. We limited our sample to health profession schools in North America because the use of comics and graphic narratives in medical education is more prevalent in this region than elsewhere (Hosler & Boomer 2011; Maatman 2022). Potential participants were identified in several ways. First, we contacted individuals who attended a workshop focused on teaching Graphic Medicine that was held at the annual Graphic Medicine conference in 2021. Second, we reached out to people who have published in the peer reviewed medical literature about teaching health professional students with comics. Third, we relied on personal contacts, as the Graphic Medicine community

is small and most of the North American teachers are known to the investigators. Fourth, we used snowball sampling, whereby research participants were asked to assist researchers in identifying other potential subjects who were also teaching this material to medical students. All the interviewees consented to take part in the research study by signing an informed consent. Table 1 presents the characteristics of the interviewed teachers.

The participants integrated comics into their teaching in a variety of ways, with some focusing on reading/discussing comics and others incorporating comics-creation. Some of the students worked individually while others did so in groups. In all instances, the teaching took place in elective courses during different phases of medical education.

Interviews were conducted via online videoconferencing by two of the authors (AS and VM) between May and November 2021. Participants were provided with sufficient information to make informed decisions about participation, and completion of the interview was considered consent to participate. We followed a privacy-by-design approach so no sensitive information left the device (or side) of the interviewer; all other data that were transferred required user consent and were fully anonymized. Because interviews were carried out online, we recorded only participant voices.

Using open-ended questions, the interviews were designed to elicit information about the following content areas (Table 2):

- What did participants perceive as the strengths and pitfalls of using comics in medical school teaching?
- What was the impact of comics-based activities, and which skills seemed to be enhanced?
- What role can comics play in the medical curriculum more generally?

In this paper, we focus on the second and third questions. Analysis was aided by Nvivo12 software, where we developed the main coding categories. Codes were created iteratively

Table 1 Interviewees' profiles and characteristics

Interviewees Code	Gender	Has been teaching this course since...	Profile (physician/artist/etc)	Type of School
1	M	2009	MD	Medical School
2	F	2016	MD	Medical School
3	F	2018	MD	Medical School
4	M	2011	MD	Medical School
5	F	2012	MD	Medical School
6	F	2018	MD	Medical School
7	M	2010	MD and MA in medical humanities	Non Affiliated
8	F	2009	Ph.D. in English literature	Medical School
9	F	2010	MA in Medical Humanities and Bioethics	Medical School
10	M	2012	MD	Medical School
11	M	2010	MD	Medical School
12	M	2017	MS in library science.	Medical School
13	M	2016	JD, MA	Medical School
14	F	2018	PhD in healthcare	College of Pharmacy and Health Science

Table 2 Interview

	Interview themes
Interviews were transcribed verbatim and analyzed in line with a constructivist approach and drawing on Template Analysis (King, 1998); namely, we developed codes to analyze the texts by both drawing on the literature/research questions and on the empirical materials. The analysis was guided by the following research questions:	The participant's personal experience with teaching Graphic Medicine
	Course details, including goals and objectives; advantages and disadvantages of using graphic narratives and comics in teaching activities
	Type of skills learned through the comics-based activities (e.g. inductive, visual, narrative, relational, empathetic, self-reflective, related to critical thinking, etc.)
	Institutional support or organizational barriers encountered when using comics in their teaching
	Learning goals achieved (e.g. better understanding of different points of view)

during analysis to either modify the initial template or to add new codes based on the interview data. During the first stage of the coding process, 70 codes were developed, most of which were repetitive labels and needed to be collapsed and aggregated. We next sorted the codes into a few macro-categories (top-level codes, namely: art and health; covid and comics; challenges in the use of comics; improving physicians' skills; promises of comics; comics within medical schools; patients-oriented approaches; social utility of Graphic Medicine; course structure). The second stage entailed aggregating the different codes in the 9 areas previously identified. Once all the codes were collapsed, we re-read them to ensure that they were assigned to the appropriate category. During the third stage of the analysis, the themes were associated with more abstract concepts: professional identity (comics within medical schools; art and health); professional skills (patients-oriented approaches; improving physicians' skills); professional use (challenges in the use of comics; promises of comics); social beliefs and perception of illness (covid and comics; social utility of Graphic Medicine).

Next, we reviewed all quotations from the three initial macro-categories. We retained the first two codes, but merged "professional use" and "social beliefs and perception of illness" into a single new category: professional implementation. We made this change because comics can improve medical practice holistically—not only by fostering doctor-patient communication, but also by challenging disease-related stereotypes and stigma. We chose the term professional implementation because it reflects the practical application of both the soft skills and the critical thinking skills stimulated by reading comics.

To increase the validity of study findings and to develop a comprehensive understanding of the phenomena (Patton, 1999), we performed an "investigator triangulation," which entails the participation of two or more researchers to provide multiple observations and conclusions (Denzin, 1978; Patton, 1999). To improve the systematicity, communicability, and transparency of the coding process (Bauer et al., 2000; O'Brien et al., 2014), we tested the intercoder reliability of a coding frame by asking researchers to code the same portion of a transcript and then to compare the results. When coders disagreed about the coding procedure, we worked to find a compromise by discussing the meanings of the codes and their application to the texts. Sometimes one of the two coders changed her mind, or the codes were changed or split up. Discussion continued until consensus was reached.

Results

Overall, interviewees identified three themes that reflect how graphic medicine generally, and comics specifically, can contribute to the medical curriculum: Professional Identity (PI), Professional Skills (PS), and Professional Implementation (PI_m) (Fig. 1). The themes are related to one another, but also distinct: we consider PI as the process of forming one's professional identity, through a transition from the lay to the professional role. This is a preliminary stage where students are shaping their attitudes, beliefs and expectations about their place in the medical profession. PS refer to the use of graphic medicine to help develop habits that build specific professional skills needed for the practice of medicine. PI_m refers to the implementation of these skills on a practical level, including interactions with patients, caregivers, and colleagues. In this section, we elaborate on these themes by drawing on interview excerpts, extracts of comics discussed in class, and drawings produced by students. *Please put Fig. 1 below.*

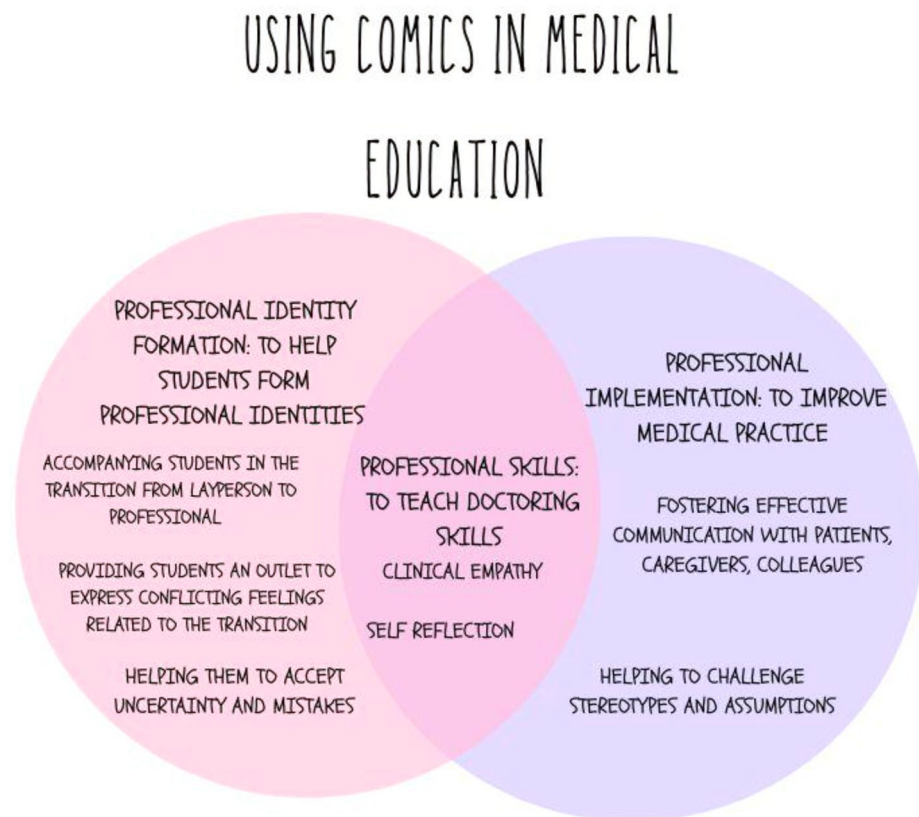


Fig. 1 The contribution of comics to Professional Identity, Professional Skills and Professional Implementation

Theme 1: Professional Identity (PI)

Interviewees reported that both reading and creating comics can provoke deeper inquiry into students' emerging professional identities. Through comics, students process their emotions, navigate challenges and mistakes, and grapple with sensitive, ethically charged issues, such as end of life care. This reflection is crucial because medical students must learn not only how to think and act like doctors, but also how to feel and personally embody their professional roles. As one interviewee noted, "My goals and objectives in all my classes are to have the student figure out what kind of person he or she wants to be as a physician" (Interviewee number 5). Toward this end, interviewees described how creating comics helps students to reflect on (and document) the complex transformation from lay person to professional, noting how students' self-perceptions changed over time:

I think that it forces you to actually think about your professional identity, especially if you do it over time. I think a lot of ways it can have the same effect as someone who is journaling, right? So, if you're doing it over time, you can watch your progression in terms of topics of interest as well as growing in your knowledge base, etc., etc. (Interviewee number 9)

Participants also reported that using comics as a teaching tool provides students with an outlet for becoming aware of, and expressing, their varied (and often conflicted) feelings as they become doctors. According to participants, viewing and making art helps students process emotions:

In general, it provides an outlet for physicians and medical students to talk about what's happening to them, and I think being able to represent it visually is healing in a way and helps provide people with the relief of producing art, but also in sharing struggles and all the things that are happening in medicine. (Interviewee number 04)

Further, interviewees expressed that *reading* comics can help expose and immerse students in other people's illness and caregiving experiences in a way that they may not have done before, thus allowing them to become aware of, and to confront, their own emotions. As one interviewee put it:

I think comics can. help them [students] see a different experience of medical care than they have been exposed to before. Like I said, either the nursing side, the patient side, the family side, you know, we talk about it, but seeing a narrative and getting involved in a story is different. My goals with that are to really help them start to have empathy and identify with how ethical issues in the hospital are affecting other people who aren't physicians. And to make them think about how those other people are having experiences and to make them curious about learning more and what their role is in improving that experience for patients, families, other health care personnel (Interviewee number 13)

One aspect of developing a professional identity is to begin to feel comfortable and capable in the role of doctor. However, the practice of medicine is complex, and no one can ever

fully master all the eventual challenges faced by doctors. Many interviewees noted that comics can serve as a pedagogical tool to help prepare students to meet these myriad challenges and frustrations, including confronting the uneasy feeling of not being good at certain activities inherent to their professional role:

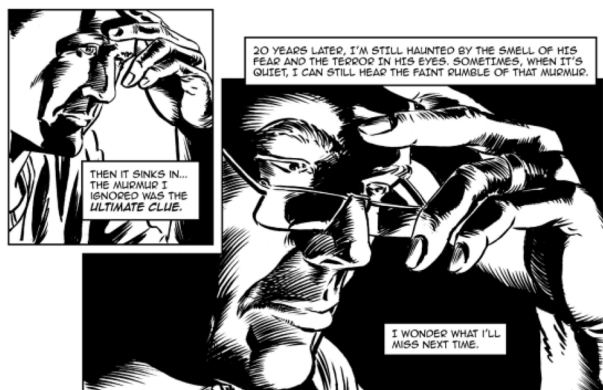
Many of the students are really deeply uncomfortable because they're like, 'I don't know how to draw'. 'I'm uneasy with it.' I think that's important for them. One of the reasons I do that is because I think it's important for them to learn how to not be good at something (Interviewee number 1)

Relatedly, several interviewees emphasized that comics can play a central role in promoting critical reflection about crucial moments in a doctor's professional training, including experiences with failure. For example, three interviewees reported using a comic called *Missed It*, produced by Michael Green and Ray Reick (2013), that tells the story of a medical error that took place during a young doctor's internship (see Fig. 2). These interviewees explained how they use *Missed It* to help students reflect on the emotional and professional impact of medical errors. They highlighted how the juxtaposition of past and present within the comic allows learners to explore the lasting effects of mistakes, fostering an empathy toward, along with critical thinking about, the nature and reality of failure in medical practice. *Please put Fig. 2 below.*

Another challenge inherent to developing a professional identity is to become better equipped to recognize and address the ethical issues students will face as doctors. Numerous interviewees remarked how comics can help students identify ethical issues in clinical practice, such as dilemmas regarding the termination of a pregnancy or end-of-life treatment. Interviewees used comics to model not only how to approach complex ethical issues, but also how to process the difficult emotions associated with them. In this way, comics facilitate vicarious learning, allowing students to safely navigate sensitive topics and challenging clinical scenarios.

I usually have students in their last three months before becoming a doctor. And so I want to help them identify ethical issues because that's just part of the problem. They don't know what ethics is. The ethics they have in their first year of medical school is not a lot. So it doesn't make as much sense to them. And then also [...] I want them

Fig. 2 A panel drawn from Michael Green and Ray Reick's (2013) "Missed It"



to be able to identify, to know how to approach an issue, to find out how to get help. [...] I think comics can help them see a different experience of medical care than they have been exposed to before. Either the nursing side, the patient side, the family side, [...] but seeing a narrative and getting involved in a story [is helpful]. My goals with that are to really help them [...] identify with how ethical issues in the hospital are affecting other people who aren't physicians. And to make them think about how those other people are having experiences and to make them curious about learning more and what their role is in improving that experience for patients, families, other health care personnel (Interviewee number 13).

These examples show ways that educators use comics as tools for advancing students' professional identities. Whether through self-reflection, immersion in patient stories, or thinking about ethical dilemmas, comics are useful for easing students' transition from lay persons to professionals.

Theme 2: Professional Skills (PS)

Participants reported that using comics in the classroom helped students develop essential doctoring skills, particularly communication, self-reflection, and empathy. Interviewees shared a conviction that these skills are foundational to becoming a good physician, as they build trust and foster effective relationships with patients, caregivers, and colleagues.

By engaging with comics, students are encouraged to examine their own interpretive frameworks, which directly influences how they interact with others in clinical settings. Specifically, reading health-related comics allows students to analyze their own communication styles and the critical relationship between verbal and nonverbal cues. Because comics capture the facial expressions and body language that accompany dialogue, they effectively highlight the “embodied” dimension of communication—a crucial aspect of the clinical interaction that is often overlooked. They also powerfully demonstrate how verbal and non-verbal messages can sometimes contradict one another.

For instance, one interviewee described using Brian Fies' graphic narrative, *Mom's Cancer*, in the classroom. Students found it unnerving to read a series of panels in which a well-meaning oncologist discusses cancer while grinning broadly (Fig. 3). Seeing how the doctor's continuous smile alienated both the patient and her family prompted students to reflect on their own nonverbal cues, challenging them to consider how an inappropriate smile might be received during their own difficult clinical encounters. *Please put Fig. 3 below.*

And [Fies]... says thanks for the information, but please wipe that Jack O'Lantern smile off your face. And so, the students read that, and I've had a couple of students say ... “My gosh, I do it that when I get nervous or when I'm talking about something sad. I often smile like that. And it never occurred to me that smiling could really be off-putting to somebody or that it could annoy them. And I never thought of that before”. So, I remember one student in particular saying, “I'm going to really pay attention to that and not smile so much during those situations because I don't want to annoy my patients or their families!!! (Interviewee number 1)

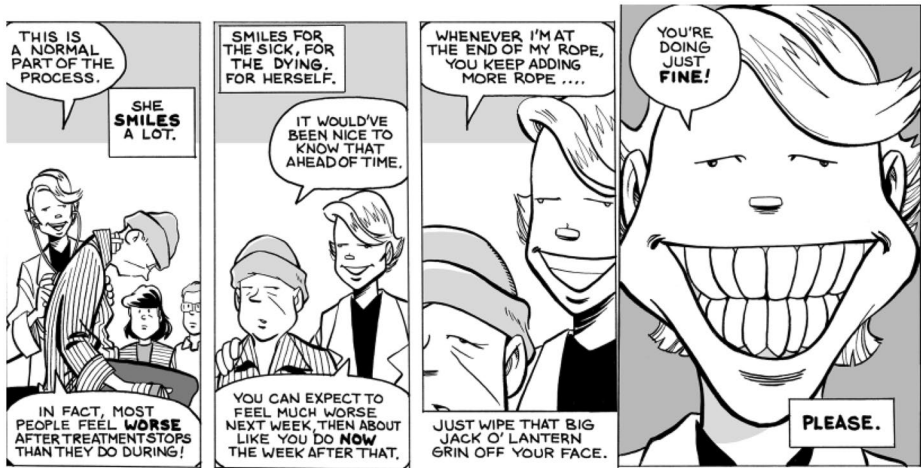


Fig. 3 Panels taken from Brian Fie's (2010) graphic novel: "Mom's cancer"

Similarly, interviewees noted that when students create their own comics about interactions with patients, they often better appreciate the nuances of nonverbal communication and they increasingly become more aware of how to use nonverbal cues more effectively.

The students become much more powerful nonverbal communicators in terms of their drawings, like how they communicate, their understanding of the work, and then their integration of ... non-verbal subtext becomes more sophisticated from week to week to week. And that's very gratifying to see. (Interviewee number 3).

In this way, interviewees emphasized that comics could serve as a sort of meta-cognitive exercise by inspiring students to reflect on their own attitudes, behaviors and bodily expressions.

Another skill mentioned by interviewees was related to developing self-awareness about unconscious bias and stereotyping. According to interviewees, this capacity for self-reflection is very useful for avoiding tensions with patients that can lead to misunderstandings or conflicts. Alternatively, such tensions can perpetuate forms of oppression against socially marginalized groups. Making comics challenges students to examine their preconceived notions about people and recognize how these assumptions can result in harmful stereotyping. For instance, in one interviewee's class, when students were asked to draw themselves with a disability, they depicted themselves with a wide range of impairments, ranging from physical to emotional and from overt to hidden. When they subsequently discussed the drawings with classmates, the interviewee reported that students realized that disability is not always visible, and that the meaning of disability was itself context dependent.

Similarly, several educators used graphic stories to help students address the problem of stigmatization associated with many communicable diseases. Fear of infection can lead to isolation, avoidance of sick people, and discrimination, a phenomenon that is harmful to patients and which was amplified during the COVID-19 pandemic.

And then I was also teaching students who would refuse to touch people who they knew were HIV positive and that refusal went into the 2000s. So there's a lot of prejudice, like pandemics bring up a lot of prejudice and a lot of things (Interviewee number 06)

Relatedly, interviewees described how comics helps foster empathy for patients' experiences. Using Marisa Acocella Marchetto's *Cancer Vixen* as an example, they noted how the comic format makes the information about cancer more accessible to those who have not had cancer themselves.

So, for example, I had a medical student pick up a copy of *Cancer Vixen*, and he said, 'I read the whole thing in one night. I had no time, but I read the whole thing cover to cover. I felt like I learned a tremendous amount. If you had given me a solid text novel about a woman's experience with cancer, I probably wouldn't have done the same. I wouldn't have felt like I had the time or that I could engage with it. But because of the medium, I could. (Interviewee number 9)

Interviewees noted that the visual format of comics helped students empathize more deeply with the emotional experiences of both the artists and protagonists. Because images are inherently symbolic and evocative, they forge a strong, immediate connection with the reader. Moreover, the sequential nature of comics requires readers to actively use their imagination to fill in the narrative gaps between panels. By engaging in this active reading process and analyzing visual elements like drawing style and color, students were prompted to reflect more profoundly on the complex emotional realities patients face during illness.

Especially with *Cancer Vixen*, you can tell, like, she has a very specific style. Some of it is very colorful when she's feeling very happy, and some of it is very black and white when she is going through a hard time, or there's a lot of use of color. (Interviewee number 7)

Theme 3: Professional Implementation (PIIm)

The third way that comics can contribute to medical education, as reported by interviewees, is as an intervention to improve aspects of professional practice. Indeed, besides healthcare professional training and education, some of the most common applications of existing works of graphic medicine in practice include therapeutic interventions, public health interventions, and health literacy outreach and promotion. Most health-related comics are either personal memoirs about illness or educational materials. According to interviewees, both types can serve as tools to facilitate better interactions between patients and healthcare providers.

For example, several interviewees noted that comics can be used to help facilitate the process of informed consent, not only from an ethical point of view but also from a pragmatic point of view, by stimulating students to communicate in different ways using visual aids. This could help students to overcome language barriers by providing accessible information to patients whose ethnic backgrounds or cognitive abilities diverge from those of the students:

It is important to help students understand that they will be dealing with people who will not necessarily speak the language well. Pictures can be a great support in these cases. (Interviewee number 09)

That's my first interest in comics... helping patients [with] informed consent. (Interviewee number 12)

Well, I came to comics because I have already been doing my own research about comics, which is about informing, improving informed consent. And actually my first comic was about the privacy practices and helping patients see what their rights are and to learn how to do things about being a good patient— like what questions to ask, the fact that they can ask questions. So absolutely. I think comics have a huge potential to help patients both understand the medical profession better, to be more informed patients, and to feel more empowered. (Interviewee number 13)

Relatedly, educators also noted that comics may foster patients' health literacy by helping them to be more informed about medical language and therapies. Indeed, they help to disseminate medical information in a more friendly way, with a language more familiar to them and closer to everyday, colloquial language.

I think comics have a huge potential to help patients both understand the medical profession better— to be more informed patients and to feel more empowered. (Interviewee number 13)

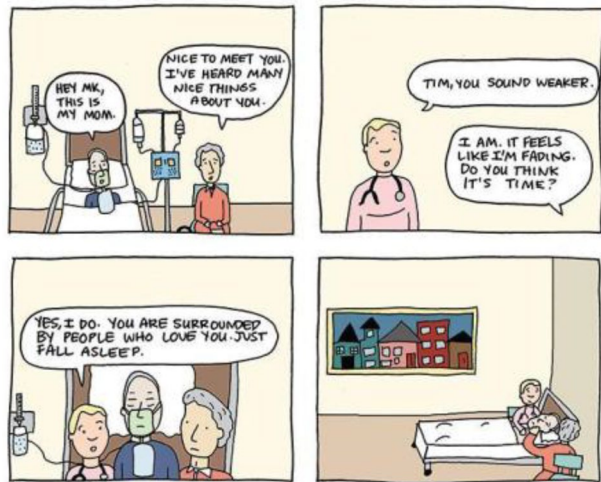
Another interviewee highlighted that comics can be used to help patients better understand their illness trajectory, thereby encouraging them to take an active role in their own care. This increased engagement can, in turn, strengthen the doctor-patient relationship and improve adherence to medical recommendations:

If, for example, you want to help a patient or their family better understand the trajectory of illness, then comics can be helpful with their simple and immediate language (Interviewee number 05)

Interviewees also emphasized the crucial role that comics can play in destigmatizing some communicable diseases, noting that physicians have the responsibility to offer patients not only interventions, but also understanding. Stigma can negatively affect people with chronic conditions by making them feel guilty, undesirable, and wrong and it may also prevent them from seeking treatment due to the shame they feel about their disease. Interviewees reported using comics to illuminate and combat such stigma, particularly regarding HIV/AIDS.

[I use comics] to normalize the HIV experience— to not blame the patient, to kind of recognize that things can get serious and indeed it's going to be a lifestyle change, but at the same time, it's part of life. (Interviewee number 04)

Fig. 4 Selected panels from MK Czerwiec's (2017) graphic novel "Taking turns"



Specifically, one interviewee described using MK Czerwiec's (2017) graphic memoir "Taking Turns," for teaching about the crisis of AIDS during the height of the epidemic in the United States (Fig. 4). *Please put Fig. 4 below.*

That book about AIDS in the nineties before there was a lot of protease inhibitors and similar [treatments were available]. A lot of my medical students are young and were not aware or maybe even born at that time. So having them really experience or see the experience of what it was like to be a nurse at that time can help them identify in a way they didn't previously. And then also just to experience ... being a nurse. Someone told me that his girlfriend was a nurse and he had never understood why she was annoyed about having to float in other departments until he read *Taking Turns*. And that made him understand it in a way that even his girlfriend had not been able to (Interviewee number 13).

Challenges to the use of comics in the medical school classroom

All the interviewees stressed that there are limitations to the prescriptive use of comics in medical settings. One of the main reported challenges was that reading a particular story about one person's illness risks overlooking the uniqueness of each illness experience. In other words, asking a patient or caregiver to read one story can create expectations about the experience of others.

And I say that with just a bit of caution, because we always need to be sure that when you hear one person's cancer story, you've heard one person's cancer story. It's not... There are a lot of similar experiences people can have, but everybody's experience is so unique to them. (Interviewee number 05)

I think there's clearly comics out there that can help patients and families understand what the experience of an illness is. There's many, many examples of that. I've been a little more hesitant about, you know, sort of thinking about prescribing a comic, like saying somebody, "OK, you've got diabetes. I'm a doctor. Here's a book. Here's a

comic about diabetes. Read this comic”. I’m much more hesitant to do that because, these stories may or may not be for everyone. (Interviewee number 11)

Despite acknowledging the various ways that comics can help improve aspects of professional practice, some interviewees expressed caution or even hesitation about the prescriptive use of comics, not least because there is currently a dearth of research on the impact of using comics in this way.

I think educational comics are something that really need to be studied and there isn’t really much research on the effectiveness of educational comics. I think the few kinds of the little research there is usually done by the people who’ve made the comics. (Interviewee number 04)

So people often get big funding for comics projects, educational material, but there’s very little information about whether it works or not. (Interviewee number 09)

Moreover, because comics integrate words, images, colors and perspective, they are a complex medium that is not necessarily suitable for all readers. Due to this multi-layered format, not all learners appreciate comics as an educational tool. For instance, individuals with visual impairments or those who are simply not accustomed to reading comics may struggle to engage with them effectively.

At the same time, there can be difficulties in engaging medical students and faculty in this learning method. I’m seeing more and more that there is no one modality that works for everyone. And so that’s part of a limitation. Some people prefer to read a text. They don’t enjoy the experience of reading a comic (Interviewee number 7).

Additionally, interviewees reported that some administrators and other faculty members maintain biases about comics, in part because they believe comics are too childish or unsophisticated to communicate complex medical topics:

[Comics] has its own stigma sometimes. That’s real, if that stigma is held by a member of the administration or by the students, that can get in the way (Interviewee number 14).

People have a bias against graphic medicine, comics. I’m working on it. If I just say: “Oh, I’m working on comics and consent”, they say like: “What?” Because they might be thinking about Superman or Batman. It’s sort of a superhero comics that you read for just recreation. And they think that it’s juvenile. [...] That doesn’t look sophisticated. That’s not what we know and do, we’re educators. We should be reading big novels. So there’s a bit of a bias that it’s just not a serious tool, it’s just not for adults. And then there are some things that are hard to convey in illustrations (Interviewee number 13)

Likewise, some students also carry certain prejudices against comics when they don't see the relevance for their exams or clinical work, and many are reluctant to draw because doing so exposes them to their classmates:

I think the biggest barrier is that to some, if not the majority of students, it feels extraneous to what they believe they need to know for their tests, so they feel like they have other things they want to use their time for. The people who take the class tend to really appreciate it, but only a minority of students select to take the class. I think because of that, we've had some students who felt like it wasn't the best use of their time because they would rather be learning about something else. And so I think the biggest barrier is just that. It's not necessarily obvious to people what the value of it would be (Interviewee number 2)

I think the main barrier ... [is] just getting students to be involved and willing to share. Usually that can be broken down by getting a couple of brave souls to step forward and be willing to put themselves on the block and then everybody else kind of follows suit. But I think it is hard for students who have never drawn to openly share their work because we're so used to having to be good at things. (Interviewee number 3)

Despite these challenges, interviewees remained optimistic about the use of comics in the classroom and identified specific strategies for overcoming students' biases and fears. One such strategy is to devote sufficient time to the comics-related activities, so that students develop confidence and comfort learning through this medium:

The best sessions I've had are ones where we've had ... three-hour sessions where there's been a lot of time to really invest in getting to know the students a little bit before and in kind of doing the workshop side by side (Interviewee number 3).

Other strategies included the use of small groups and role modeling. Interviewees noted that when one student makes themselves vulnerable, others often follow suit, and then the discomfort is overcome. Administrator prejudices present a more serious obstacle because they possess the institutional power to block graphic medicine courses entirely. That said, interviewees conveyed that as comics become more commonplace in the medical classroom, their popularity is helping to convince administrators of their value.

Discussion and conclusions: the creative doctor

This study provides new insights into educators' views on how comics can be integrated into the medical curriculum. Our goal was to address the lack of research on the advantages and limitations of using comics as educational tools in medical education. While many studies had highlighted some of the advantages of incorporating comics into health sciences degree programs (see, for instance, Scavarda & Moretti, 2025; Anand et al. 2018; Consorti et al., 2023; Green, & Myers, 2010; Green, 2015), an in-depth examination of their contribution to the development of medical professionalism was lacking (Consorti et al., 2023). This study

aimed to demonstrate how comics can contribute to the professional development of future physicians, improve clinical encounters and strengthen the physician-patient relationship.

However, our study also highlights several limitations of using comics, including the bias that they are only suitable for children and the tendency to focus on individual narratives that may not accurately reflect real-world conditions.

Teachers who use comics in the medical school classroom said that doing so helps (future) doctors reflect on their own prejudices and assumptions, challenge stigmas attached to specific medical conditions and improve medical practice. The educators described three main roles for this medium: (1) as a tool for helping medical students shape their professional identity, (2) as a means of teaching key doctoring skills, and (3) as a resource for improving medical practice. In doing so, they underscored that comics can accomplish goals that may be difficult to achieve through a purely biomedical approach to medical education.

First, comics can play a key role in helping students to acquire the tacit knowledge, values and motives that are integral to a doctor's professional identity formation (see, e.g., Freidson, 2001; Waring, & Bishop, 2011). Interviewees' use of Green and Reick's comic, *Missed It*, is a case in point; while traditional medical education may explain the biomedical or systemic causes of medical errors, this comic allows students to confront and reflect on the lasting emotional and professional impact of such errors. By allowing students to reflect not only on the kind of doctors they want to be but also on the complex challenges and ethical issues they may face as physicians, comics can play a key role in a student's transition from merely acting like a physician to thinking and feeling like one (Merton et al., 1957). The results of our interviews show that when used in the medical classroom, comics can give students a space to reflect and come to terms with what it means to shed their identities as laypeople and assume those of physicians.

Second, our results suggest that comics can help foster professional skills central to patient-centered medical practice and interactions. Indeed, while medical educators do teach students how to interact with patients, they often accomplish this via case presentations, morning reports, and daily medical conferences (Lingard et al., 2003; Apker & Eggly, 2004; Masel et al., 2020; Lesińska-Sawicka, 2023), forums which tend to deemphasize social and psychological aspects of illness. If the goal of medical education is to promote patient-centered interactions, students must learn to navigate the full complexity of clinical encounters (Clarke et al., 2003). As a creative pedagogical method, comics are uniquely positioned to help students achieve this by fostering three key doctoring skills: clinical empathy, effective communication, and self-reflection (Green, 2015; Larson & Yao, 2005; Sayiad, 2018; Vinson, Underman, 2020). When utilized alongside other creative approaches to medical education (MacAskill et al., 2023; Yi et al., 2025) comics can be integrated into peer group work and mentoring to further develop these interpersonal skills. Ultimately, this collaborative engagement with comics helps socialize future doctors, cultivating self-critical professionals who are deeply aware of their social and professional roles. To foster empathy, interviewees described how reading comics can help future doctors understand a patient's illness experience (McAllister, 1992; Larson, Yao 2005) and how an illness or disease may change a patient's sense of self and everyday life (Bury, 1982). Moreover, *making* comics about illness compels students to put themselves in the shoes of patients and become aware of prejudices and assumptions about disease and disability that can lead to stigmatizing practices, especially in the context of disability (Scavarda & Moretti, 2025; Moretti et al., 2025) and communicable diseases (Rakower, & Hallyburton, 2022).

Interviewees noted that using graphic narratives in the classroom can help students develop their communication skills, both verbal and nonverbal, in part by making them more aware of the consequences of their communication style with patients. Relatedly, because comics use a multi-modal approach to communicating complex ideas, they are accessible to a wide range of readers, regardless of literacy level or cultural background. This feature provides medical students with an inclusive medium for sharing medical information that can resonate with diverse patient populations.

To foster self-reflection and awareness, interviewees highlighted that reading and making comics can compel students to consider not only the cognitive aspects of difficult matters (Green & Myers, 2010; Green, 2015) but also the emotional ones, and doing so can help students acknowledge and process their own feelings. Moreover, by providing an outlet for expressing challenging emotions, comics can begin to mitigate some of the difficulties in medical education that can lead to burnout, and this may be crucial for helping students cope with the stress of medical education.

Finally, reading and making comics can help students improve medical practice. This occurs in part because comic-based activities encourage students to think critically and become aware of the assumptions underlying medical practice. Interviewees reported the effectiveness of comics in helping medical students to understand the fears associated with infectious diseases, like AIDS and COVID-19, as well as the difficulties involved in caring for patients with these conditions. Such fears are common not only among lay people, but also among medical professionals themselves.

Limitations

Like all studies, this research has limitations. This study was not designed to assess the longitudinal impact of using comics in the medical classroom; thus, we do not know whether there is a long-lasting impact from this teaching method. Second, although the sample was national in scope, participants were recruited by snowball sampling and personal connections, meaning that it may not be representative of all who teach graphic medicine. Likewise, the sample size is not large, so results might not be representative of all the teaching experiences with comics in medical education. Due to the geographical and cultural limitations of our study, which only involved medical schools in the United States and Canada, we hope that future studies will examine educational experiences in other cultural contexts, including both Western and non-Western countries. Furthermore, repeated interviews or studies using longitudinal data could assess the impact of comics-based education over time and across different cohorts of students. The research took place during the COVID-19 pandemic, and teaching and research during this period may have differed from non-pandemic times. Finally, there were language differences among interviewees and some researchers, which may have affected the smooth flow of the dialogue. These limitations, particularly in relation to sample size and the longitudinal impacts of using comics in medical education, create fertile ground for future researchers who wish to contribute to this emerging and important topic.

Conclusion

The use of comics in medical education is a promising way to impart meaningful content in a stressful environment. Educators who teach with comics do so in part because they believe that the comics medium is able to effectively convey certain aspects of professional culture, such as convictions about what it means to be a responsible and caring physician, the code of ethics to adhere to, and ways to think critically and creatively (Hafferty 2008). Researchers have found that integrating comics into a medical school humanities program allows students to reflect on both the formation of their professional identities and how they express and overcome the challenges related to this role-changing process (see, e.g., Green, 2015). Comics-based courses can also reinforce professional skills such as communication and empathy, which are important aspects of becoming “well-rounded doctors” who are able to adapt to the needs of patients from different backgrounds (Adamidis et al., 2022). Since such tasks are complex and difficult to teach and learn, targeted interventions via comics may be a helpful way to cultivate these doctoring skills. In short, in line with Baruch (2017), the results of this study reinforce the idea that comics can be effective materials for stimulating thinking and reflection.

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Data availability Data are available under request.

Declarations

Ethical approval The research proposal was submitted to the Human Subjects Protection Office at Penn State University, who determined that it met the criteria for exempt research according to university policies and federal regulations. Participants were fully informed on the goals of the research study and they consent to participate. The interviewers did not know their identity and the interviews were conducted with the camera off to protect their privacy. The study is compliant with the 1964 Declaration of Helsinki.

Competing interests The authors declare no competing interests.

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