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Uncovering cynicism in medical training: A qualitative analysis of medical online discussion forums

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ABSTRACT

OBJECTIVES: The development of cynicism in medical trainees is a significant concern for medical educators. Our goal was to utilize online medical student discussion groups to provide insight into how cynicism in medicine is perceived, the consequences of cynicism on medical trainee development, and potential links between the hidden curriculum and cynicism.

DESIGN: Qualitative analysis.

SETTING: Analysis of postings in 2 medical student discussion groups: Premed101 (Canadian) and Student Doctor Network (American).

METHODS: 511 posts from 7 discussion topics were analyzed using NVivo 11. Inductive content analysis was used to develop a data-driven coding scheme that evolved throughout analysis. Measures were taken to ensure the trustworthiness of findings, including duplicate independent coding of a subsample of posts and the maintenance of an audit trail.

RESULTS: Medical students, residents, and staff participating in the discussion forums engaged in discourse about cynicism and highlighted themes of the hidden curriculum resulting in cynicism. These included the progression of cynicism over the course of medical training as a coping mechanism; the development of challenging work environments due to factors such as limited support, hierarchal demands, and long work hours; and the challenge of initiating change due to the tolerance of unprofessionalism and the highly stressful nature of medicine.

CONCLUSION: Our study of North American medical discussion posts demonstrates that cynicism develops progressively and is compounded by conflicts between the hidden and

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formal curriculum. Online discussion groups have the potential to provide unique insight into the culture of medical training and the hidden curriculum among academic institutions.

ARTICLE SUMMARY

Strengths and limitations of this study:

- Strength: online discussion forums allow for inclusion and analysis of anonymous feedback provided by medical trainees
- Strength: online forums allow for dynamic interactions and participation among individuals from several training sites rather than a single academic institution
- Limitation: results may represent a subset of individuals who post on online discussion forums

INTRODUCTION:

Cynicism, defined as a decline in empathy and emotional neutralization during medical training, is a continued concern for medical educators. .[1,2] One hypothesis to the development of cynicism among trainees is perceived conflict between the formal and hidden curriculum, with the hidden curriculum defined as "a set of influences that function at the level of organizational structure and culture" that impact the perception of medicine and decision making by medical trainees.[2,3] Conflicts between the formal and hidden curriculum likely occur when trainees enter the clinical setting and realize the values of patient-centered care are often challenged by the demanding, time-pressured realities of medicine.[4,5]

There remains some debate in the literature on whether empathy wanes and cynicism escalates as one progresses in training.[6,7,8,9,10] Studies examining the underlying factors that contribute towards increasing cynicism and declining empathy are mostly

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qualitative in nature and primarily sample students and residents from a single academic institution.[2,11,12,13,14,15,16]

Online discussion forums are widely popular and have been leveraged to provided insight into a variety of topics in medical education.[17,18,19] For medical trainees, online discussion forums such as Premed101 and Student Doctor Network are used to contribute questions, advice, and opinions regarding issues in medicine, the training process, and education. This allows for dynamic sharing of information at various levels of medical training in a safe digital space that can be widely disseminated across institutions and archived for further participation at multiple time points. Contributors to these online forums can remain anonymous, which promotes honest, open discussions. These digital forums can serve as unique resources to better understand trainee cynicism and the hidden curriculum.

Our goal was to perform a qualitative content analysis of online medical discussion forums (Student Doctor Network and Premed101) to explore: trainees' perceptions of cynicism, when cynicism occurs, whether cynicism is progressive through medical training, and the factors that enable and constrain the development of cynicism. We also sought to examine the impact of the hidden curriculum on the development of cynicism.

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METHODS

Online discussion boards are categorized by topics known as threads, which feature questions, observations or conversations points. Online forums have provided users with more 'democratic' landscapes where they can share spontaneous narratives. These narratives represent a rich collection of emotional discourse, which are ideally suited for

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qualitative analysis, because this is where the tension between the lived experiences of medicine, healthcare, hidden curriculum, learning, expectations, behaviours and their interpretations exist. Commenters may reply to the original thread and to each other in text format on these discussion boards, which result in records that can be downloaded. We examined original postings and response posts from Premed 101 (http://forums.premed101.com/), a Canadian website, and Student Doctor Network(SDN) (http://www.studentdoctor.net/), an American website, specifically looking for threads pertinent to the development of cynicism. These two forums are the most widely used discussion forums among medical professionals in their respective countries, which was why they were chosen for analysis in this study. In order to identify threads for analysis, we used a purposeful sampling strategy, and a study member (JZP) completed a preliminary scan of discussion forum content and posts from 2010 to 2016 for relevance to the study topic. Based on the initial scan and most common terms noted in relevant threads, a keyword search was then conducted to locate additional threads and posts using the following search terms: 'cynicism', 'empathy', 'mental health', and 'medical school stress.' Once the preliminary review was complete, the research team met to discuss forum content and select threads for inclusion based on relevance to the topic. The research team was comprised of a male physician with a Master's in Education with experience conducting qualitative research (AD), a female medical student with qualitative training (JZP), and a female registered nurse with doctoral-level education and training in qualitative methodology (CC). Following this initial selection, threads were examined in a stepwise fashion with the understanding that the final sample size would be determined by the analytical requirement of data saturation and that additional threads would be reviewed as

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required.[20] We progressed gradually through analysis until no new ideas could be derived from the review of successive data and the collection of new data did not offer further insight on the topic.[21] At this point, theoretical sufficiency was reached and data collection was complete.[22] Data was imported into NVivo11 (QSR International) to facilitate data management.

We used a qualitative approach to perform inductive content analysis to identify the key themes in the discussion threads. During analysis, data was examined repeatedly in order to discern patterns and themes.[23] The process of coding the data and recognizing the overarching themes and subthemes involved three main stages: open coding, axial coding, and selective coding.[24,25] First, two researchers trained in qualitative methods (JZP and CC) reviewed the data independently, line-by-line, to identify patterns and generate a set of preliminary codes.[26] The researcher team then met to discuss initial impressions of the data and the preliminary codes. Second, during the axial coding phase the code set was revised, refined, and regrouped into themes, highlighting areas of similarity and differences. Finally, during selective coding, a general description of the research topic was formulated and the central phenomenon was constructed from the data. Codes were re-organized around unified themes. At this final stage, the team met to discuss themes, review the selected quotes, and establish concurrence. JZP and CC also searched threads for positive deviants that challenged existing themes. The trustworthiness of our findings was enhanced through the use of multiple independent coders, and team consensus building discussions at all three phases of coding. We conceptualized the varied perspectives of the research team members as an essential component of the interpretive process. The research team also maintained a detailed audit-trail of all coding and data-related decision making.

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Ethical Considerations

The Children's Hospital of Eastern Ontario Research Ethics Board approved this research protocol prior to study commencement. While individual-level informed consent was not required for the analysis of aggregate data, we elicited permission from individual commenters prior to including direct quotations of comments or posting in the discussion threads. These select commenters were contacted privately via direct message to seek permission to include their anonymized quote in study publications and materials, and all commenters were given the opportunity to review their quote prior to its inclusion.

Patient Involvement

Patients were not involved in this research. Results will be disseminated to participants by posting a link to the published articles in both Premed101 and Student Doctor Network.

RESULTS

A total of 511 posts from 7 discussion threads in Premed 101 and SDN were included in analysis (See Table 1). A total of 205 posters participated in these discussion forums. Commenters self-identified as medical students, residents, and faculty staff, although not all commenters stated their level of training. Two posters were from other career backgrounds such as pharmacy and dentistry. We constructed three overarching themes and six sub-themes in our analysis. (See Table 2)

1. The challenges inherent to the hierarchal and demanding nature of medicine

A common discussion topic in the online forums was the challenging nature of medicine and medical training. The following sub-themes were recognized: *the progression of cynicism over time in medical training*; *reinforcement of hierarchy in medicine that creates a challenging work environment*; and *the pressure to work long hours and high*

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demands in medicine. Interestingly, there was widespread consensus that empathy declined and cynicism increased during the medical training process and no positive deviants were noted.

1A. The progression of cynicism over time in medical training

There was consensus that the loss of idealism in medicine and feelings of cynicism occurred during the course of training from student to physician. Discussion posts emphasized that this occurs when patients are seen as a diagnosis rather than as people and as trainees become clinicians who prioritize efficient practice.

Although trainees are exposed to the physical and mental struggles faced by patients on a daily basis, the discussion groups revealed that this aspect of the clinical environment seemed to contribute less in creating cynicism. Rather than long work hours and a heavy workload, trainees expressed that perception of their low rank, worthlessness, and disrespect from mentors led to emotional neutralization. Consequently, they highlighted that time points in which cynicism predominates are transitions from pre-clerkship to clerkship and beyond. Cynicism was portrayed as a "staircase" that the trainee climbs during their career path rather than sporadic changes in attitude from individual clinical encounters. As students become more exposed to "real doctoring" in the clinical setting, cynicism may be a coping mechanism designed to protect oneself from hardships that one observes and experiences during medical training.

1B. Reinforcement of hierarchy in medicine that creates a challenging work environment

Medical students and clerks were in agreement that some of the greatest challenges they faced stemmed from the learning environment in the clinical context rather than the formal requirements of content and curriculum. Professional training was described as

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being cut throat and competitive, hindered by administrative policies, long hours, and the need to constantly maintain high level performance. Posters addressed the work culture challenges of residency that contributed to an overarching sense of not being respected or valued, including having limited control over scheduling, exposure to challenging colleagues and situations, and a general lack of recognition and support. It was believed that long work hours were a symptom of larger cultural problems in medical education rather than the root cause of the negative experiences.

> "That said, work hours are a symptom of the main problem: the attitude in medicine that treats residents (and to a lesser extent staff physicians and medical students) like they somehow don't have the same human needs as everyone else. Long work hours, lack of schedule control, lack of appreciation, and all the other forms of disrespect you list." (Thread 7)

1C. Pressure to work long hours and high demands for efficiency

Sleep deprivation was repeatedly noted among students and residents as a major reason for feeling unhappy during training. Trainees shared a sample of their schedule, where working in the hospital often meant staying for long hours and subsequently arriving at early times for the following day.

> "Vampirish and inhumane hours, 12-15 hour days or staying up all night and then (if you're lucky) sleeping a few restless hours during the day only to then go do it the next day/night, 6 or 7 days a week, for 3-7 years." (Thread 1)

The reported consequence of devoting the majority of one's clinical hours to meeting the demands of medical training included the breakdown of interpersonal relationships outside of the hospital. Trainees felt isolated, as they felt it challenging to have social interactions when work hour demands are rigorous. Students, residents and staff described this barrier as a cause of personal grief and feelings of isolation, which may contribute towards cynicism in all stages of medical training.

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> "Above all, the breakdown of old relationships and the inability to form new ones… I don't think age takes the sting off of any of these." (Thread 1)

Another conflict shared by trainees pertained to wanting to meet staff demands while simultaneously balancing the amount of time spent directly with patients. For example, in order to get work done in time for rounds, some patient needs were bypassed. Several trainees expressed that the desire for efficiency and pleasing staff resulted in the objectification of patients and eventual loss of compassion.

Posts have attributed this desire for efficiency as a healthcare system issue that aims to quickly move patients in and out of hospitals. Commenters emphasized that doctors start out as genuine, but become jaded after trying to keep up with the highly demanding system for long periods of time.

> "…we all want to be "good doctors", do the right thing. The sad thing is that after a year or two of 1/4 call, where your worth as a person is determined by how quickly and efficiently you can keep the system moving, all of that goes out the window. It is a broken system that makes broken doctors." (Thread 7)

2. The challenge of safeguarding well-being

The desire to maintain a sense of balance and well-being, professionally and personally, was a topic of discussion in the online boards. The following sub-themes were recognized: *the lack of support as a major stressor*, and *the consequences of cynicism on physician well-being and patient care.*

2A. Lack of support as a major stressor

Overall, residents described feeling undervalued for their work in hospitals. In some instances, residents pointed out that their pay did not correspond to the high stress environment that they were constantly working in, as well as the long, unpredictable hours. These sentiments were expressed in both the Canadian and American contexts on the online

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discussion forums. The sense of inadequate support also seemed to stem from a sense of impaired autonomy over work and personal life schedules, constantly having to relocate and adapt to working in unfamiliar and new environments, and general isolation due to work commitment. Posts repeatedly highlighted how aspects of residency training neglected "basic human needs" and failed to consider trainees' personal wellbeing due to prioritizing work needs.

> "After all, surgical have the same requirements for a healthy lifestyle as other residents, despite the occasional assertion to the contrary. Surgeons still need to sleep, eat, exercise, socialize and spend time with their families, just like everyone else." (Thread 7)

Several medical students discussed lacking support in terms of the discordance between meeting their attending's demands and their syllabus expectations. Students repeatedly emphasized their "low status on the totem pole" in the clinical environment, and felt that this lowly status instilled a hesitance to advocate for change due to fear of poor evaluations or seeming unprofessional if reported to the clerkship director. Students also emphasized that advocating for improvement seemed futile as they cannot resign from the job of a medical student if they are truly unhappy during a placement, and would rather tolerate mistreatment than risk poor judgment from preceptors.

2B. Consequences of cynicism on physician well-being and patient care

A common theme across discussion boards was the consequences of progressive cynicism throughout medical training, which likely had a negative impact on physician career satisfaction, the quality of patient care, and the quality of mentorship for future generations. Many also highlighted the intergenerational transmission of norms and how unhappy doctors tend to produce more unhappy doctors.

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Medical trainee mental health was raised in a number of discussion threads related to career satisfaction. Commenters noted the high rate of poor mental health documented among medical students and residents compared to other professions. However, several students and residents were hesitant to seek help because they feared that this would be perceived as a sign of “weakness” in a field where professionalism and perseverance are highly valued. Overall, commenters felt that contributing factors to poor mental health should be addressed rather than criticizing individuals who suffer in order to promote changes in attitude in the medical profession.

Acknowledging cynicism in medical school also prompted individuals in the discussion groups to recognize the implications of mentorship. They advocated for the need for more focus on the consequences of cynicism in medicine. Posts praised the existence of forums that discussed the nature of cynicism in medicine, acknowledging that open dialogue and information sharing can support change, such as creating more informed pre-med students, promoting mental health programs in medical schools and residency, and working towards improving work environments rather than perpetuating shame in medicine.

> “Even at your (our) early stage of training, your actions and attitudes help to shape the culture in medicine. Please, help move it in the right direction, away from blaming the victim and towards fixing the problems that caused the harm in the first place.” (Thread 6)

3. The culture of tolerance of unprofessional behaviours throughout training and across generations

Commenters felt that unprofessional work environments in medicine were slow to change due to the stigma among students and residents that feeling overwhelmed is an

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indication of being inadequate. Unprofessional behavior in this context typically referred to a lack of respect that trainees received from supervisors and trying to meet high demands in medicine that may compromise good patient care. Consequently, trainees are afraid to seek help or admit to being overworked in an environment where individuals are typically very high-achievers and set high expectations for themselves and their colleagues. The perpetuation of stressful work environments may be due to transmission of norms, namely preceptors normalizing the challenges they experienced in their formative years and then maintaining similar conditions for their trainees.

> “I've seen so many residents embrace the attitude in this weird form of quasi-Stockholm Syndrome, where they downplay, excuse, or even support the negative aspects of being a resident all while their quality of life suffers. I understand it as a coping mechanism, but it keeps that attitude alive for the next generation of residents.” (Thread 7)

> “A culture in medicine that reflexively defends the sucky parts of medicine as necessary or desirable isn't a culture that's likely to promote change.” (Thread 7)

Students and trainees acknowledged that the harsh work environment and lack of respect posed a greater challenge than solely long work hours. However, the culture to prevail and achieve in medicine was again brought up as the reason for continued silence.

> “It is the med-school culture. There is little support. Students just don't admit how hard it is. There is an unsaid stigma that feeling stressed/overwhelmed/exhausted/or hurt makes one "weak" in medical school.” (Thread 5)

Ultimately, the consequence of defending a culture that pushes for high efficiency and achievements at the expense of the individual’s wellbeing was viewed as a barrier to progress in medical education.

> “It is still so difficult for people in medicine to open up about their struggles. When these disclosures are met with criticism, it encourages everyone else who may be unhappy with their situation to continue to suffer in silence.” (Thread 6)

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DISCUSSION

Our analysis of discussion posts exploring cynicism by Canadian and American medical students, residents, and faculty members emphasized three key findings: 1) the challenges inherent to the hierarchal and demanding nature of medicine; 2) the need to safeguard well-being; and 3) the culture of tolerance of unprofessional behaviors.

Results from previous studies have not made a definitive conclusion on whether empathy declines as medical students enter their clinical year of training. While some studies note that the first drastic decline in empathy and loss of idealization occurs in third year of medical school, others have suggested that changes in empathy levels do not differ significantly as medical students and residents progress in their training.[16,27,28,29,30,31] Our analysis of online discussion forums supports the notion that the loss of empathy and development of cynicism are progressive in nature and evolve largely during the transition from pre-clerkship to clerkship. This may occur because clerkship students are faced with similar clinical challenges and ethical dilemmas as the rest of the medical team, but have a minimal authoritative role. Being in this position makes students more vulnerable to influences by their mentors, and students may feel conflicted when their personal values of "good doctoring" do not align with preceptors' practices of "real doctoring." Our results align with other studies demonstrating that the hierarchal nature of medicine and poor role modeling can create unprofessional work environments and increased stress on trainees. This unprofessionalism may be more distressing than frequent exposure to traumatic clinical cases.[8,32,33]

Testerman et al. have proposed two models for the development of cynicism: 1) the intergenerational model, where a student's cynicism occurs progressively as a coping

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mechanism to mistreatment by cynical residents and staff, and 2) the professional identity model that suggests cynicism among trainees declines as individuals attain a higher authoritative position and become more confident in dealing with the contradicting values of the formal and hidden curriculum.[12] Testerman et al. supported the professional identity model because they noted a decline in cynicism among staff who achieved a "professional identity," as compared to residents and students. Results from our study, however, seem to favor the intergenerational model, as residents describe being more cynical during residency when compared to medical school, and attribute this progression to a "staircase" that one climbs throughout training. This conceptualization of the development and progression of cynicism was also noted in a study by Griffith et al, as within the first 5 months of postgraduate training, residents perceived their patients with less idealistic values.[34]

Research has linked elements of the hidden curriculum to the development of cynicism. In a study of internal medicine residents, Billings ME et al. demonstrated that the hidden curriculum, and specifically unprofessional behavior from colleagues, nurses, and patients, correlated with residents' level of depersonalization, emotional exhaustion, and level of cynicism.[35] Similar to our findings, residents from this study also attributed belittlement from staff, lack of control over scheduling, loss of autonomy in the clinical setting, and poor work relationships as factors that led to burnout. Increasing cynicism among residents parallels the pattern of increasing cynicism among medical students; both medical students and residents start medical school and internship with higher empathy and lower emotional distress, but experience a decline in empathy overtime.[7,27] Our findings suggest that there may be a "double hit" scenario, where trainees are most vulnerable to

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increased cynicism when transitioning to clerkship, and then again when transitioning to residency. It has been posited that this may be a protective mechanism at times of transition.[14,15]

Emotional neutralization, a consequence of cynicism, carries a negative connotation during the early medical training process. That said, practicing physicians view emotional neutralization as a coping mechanism to sustain the various clinical, hierarchal, and system challenges that one faces in medicine.[36] Our findings support that cynicism occurs when trainees cope to safeguard their personal wellbeing in a highly demanding work environment. The impact of cynicism among physicians is substantial; consequences include a decline in professionalism, burnout, and a loss of empathy that can ultimately jeopardize patient care.[1,35,37] In order to mitigate these consequences, an understanding of how and why cynicism develops is key. Online forums provide a holistic view into this topic by presenting diverse perspectives from geographically dispersed individuals, and across the spectrum of training and practice.

As emphasized in previous studies, our findings also support the importance of role modeling and mentorship in addressing cynicism and the hidden curriculum.[38,39,40,41,42] Students and residents seek inspiration from mentors and experience more idealism when they identify positive role models.[7,43] On the other hand, the lack of positive role models, such as being taught by cynical residents and staff, facilitated the development of cynicism and a decline in empathy among medical students.[1,35,44] Results from our study support the notion that mentorship and positive role modeling should be made available throughout medical training, such that professional attitudes and support can be passed on from staff to trainees. Mentorship structures should be reinforced during the transition period from pre-

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clerkship to clerkship, and from medical school to residency, as these seem to be key moments when there is a potential increase in cynicism and decline in empathy.

A major strength of this study design is that online discussion forums allow for a greater understanding of the hidden curriculum at an international level due to the ease of access to forums by users from Canada and the USA. That said, given the we were unable to isolate the geographical location of posters, this study does not allow for a detailed commentary on potential areas of congruence or divergence between nations. Given that our findings reflect many viewpoints from varying locations, levels of training, and specialties, our results may have greater external validity compared to previous studies that explored the perspectives of trainees from a single academic institution.[2,11,14,15] The capacity for user anonymity on forums promotes honest, dynamic interactions between individuals with lower risk of consequence. These forums create a democratic space for sharing emotionally powerful experiences that highlight the tension between the realities of medicine as influenced by the hidden curriculum and personal expectations of good doctoring. Online discussion forums can also minimize social desirability response bias, which may be present in other qualitative methods that involve face-to-face interaction with peers and collegues, such as focus groups involving staff, residents, and medical students. In a discussion forum, the hierarchal nature of medicine is minimized such that the pressure to respond in a manner perceived as acceptable or one that aligns with the dominant discourse are lessened.

Our study has some notable limitations. Contributors to discussion forums may be biased towards individuals who use forums to discuss their concerns and provide support for others on the site. Discussion posters in this study may comprise of individuals that feel

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more vulnerable and are reaching out anonymously for this reason, and they may in fact be more cynical that the general medical community. Although commenters on the discussion boards did not identify their country of origin, we assume that most commenters are residents of either the United States or Canada, reflecting North American medical practice. Additionally, our purposeful sampling and selection strategy of threads for inclusion in analysis could have introduced bias. For example, by selecting threads that explicitly examined cynicism, we may have inadvertently excluded threads containing divergent or opposing views.

CONCLUSION

Online discussion groups have the potential to provide unique insight into the culture of medical training. Our findings highlight that exposure to the differing values of the formal and hidden curriculum seems to impact cynicism in trainees at all stages of learning, and particularly at transition points. Interventions that can help reduce cynicism could focus on decreasing the gap between the formal and hidden curriculum that is passed on through stages of medical training. Examples of such interventions include mentorship and positive role modeling, especially at transition periods from pre-clerkship to clerkship and from medical school to residency. Future studies could explore perceptions and attitudes among trainees at key transition points to further examine how cynicism evolves between various stages of training.

Contributors: JP contributed to the acquisition, data analysis, interpretation and drafting of the project. CC contributed to the design, data analysis and interpretation of the work, and revised the manuscript for important intellectual content. AD contributed to the design, data

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analysis and interpretation of the work, and revised the manuscript for important intellectual content. All authors approved the final manuscript for publication.

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Conflicts of Interest: None

Ethical Approval: This study was approved by the Children's Hospital of Eastern Ontario Research Institute Research Ethics Board (ref 16/31X).

Data sharing: Raw data has been uploaded as a supplementary file

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Table 1: Summary of discussion threads analyzed, discussion forums and country of origin for each thread and the number of posts examined.

Thread Name	Discussion forum and Country of Origin	Number of posts	Number of posters
1. Excessive and unnecessary stress on med students	Student Doctor Network – United States	269	
2. How does med school change a person	Student Doctor Network – United States	22	
3. My theory on why med students show decline in empathy	Student Doctor Network – United States	46	
4. Why the cynicism	Student Doctor Network – United States	54	
5. Mental health in medical school	Student Doctor Network – United States	29	
6. What they don't tell you before getting into medicine	Premed101 – Canada	42	
7. Is it possible to finish med school without becoming too salty or cynical?	Premed101 – Canada	49	

Table 2 Themes and subthemes from discussion group analysis

Themes of the Hidden Curriculum	Pertinent subthemes
Challenges inherent to the hierarchal and demanding nature of medicine	*The progression of cynicism over time* *The reinforcement of hierarchy that creates an unpleasant work environment* *The pressure to work long hours and high demands for efficiency*
Challenges of safeguarding well-being	*Lack of support as a major stressor* *Consequences of cynicism on physician well-being and patient care*

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Culture of tolerance of unprofessional behaviors throughout training and across generations	

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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Uncovering cynicism in medical training: A qualitative analysis of medical online discussion forums

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Primary Subject Heading:	Medical education and training
Secondary Subject Heading:	Qualitative research
Keywords:	MEDICAL EDUCATION & TRAINING, QUALITATIVE RESEARCH, World Wide Web technology < BIOTECHNOLOGY & BIOINFORMATICS

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Uncovering cynicism in medical training: A qualitative analysis of medical online discussion forums

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ABSTRACT

BACKGROUND: The development of cynicism in medicine, defined as a decline in empathy and emotional neutralization during medical training, is a significant concern for medical educators. Online student discussion groups may allow insight into how cynicism in medicine is perceived, the consequences of cynicism on medical trainee development, and potential links between the hidden curriculum and cynicism.

METHODS: 511 posts from 7 discussion topics in Premed101 (Canadian) and Student Doctor Network (American) forums were analyzed using NVivo 11. Inductive content analysis was used to develop a data-driven coding scheme that evolved throughout analysis. Measures were taken to ensure the trustworthiness of findings, including duplicate independent coding of a subsample of posts and the maintenance of an audit trail.

RESULTS: Medical students, residents, and staff participating in the discussion forums engaged in discourse about cynicism and highlighted themes of the hidden curriculum resulting in cynicism. These included the progression of cynicism over the course of medical training as a coping mechanism; the development of challenging work environments due to factors such as limited support, hierarchal demands, and long work hours; and the challenge of initiating change due to the tolerance of unprofessionalism and the highly stressful nature of medicine.

CONCLUSION: Our study of North American medical discussion posts demonstrates that cynicism develops progressively and is compounded by conflicts between the hidden and formal curriculum. Online discussion groups have the potential to provide unique insight into the culture of medical training and the hidden curriculum among academic institutions.

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ARTICLE SUMMARY

Strengths and limitations of this study:

- Strength: online discussion forums allow for inclusion and analysis of anonymous feedback provided by medical trainees
- Strength: online forums allow for dynamic interactions and participation among individuals from several training sites rather than a single academic institution
- Limitation: results may represent a subset of individuals who post on online discussion forums

INTRODUCTION:

Cynicism, defined as a decline in empathy and emotional neutralization during medical training, is a continued concern for medical educators. .[1,2] One hypothesis to the development of cynicism among trainees is perceived conflict between the formal and hidden curriculum, with the hidden curriculum defined as "a set of influences that function at the level of organizational structure and culture" that impact the perception of medicine and decision making by medical trainees.[2,3] Conflicts between the formal and hidden curriculum likely occur when trainees enter the clinical setting and realize the values of patient-centered care are often challenged by the demanding, time-pressured realities of medicine.[4,5]

There remains some debate in the literature on whether empathy wanes and cynicism escalates as one progresses in training.[6,7,8,9,10] Studies examining the underlying factors that contribute towards increasing cynicism and declining empathy are mostly qualitative in nature and primarily sample students and residents from a single academic institution.[2,11,12,13,14,15,16]

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Online discussion forums are widely popular and have been leveraged to provided insight into a variety of topics in medical education.[17,18,19] For medical trainees, online discussion forums such as Premed101 and Student Doctor Network are used to contribute questions, advice, and opinions regarding issues in medicine (e.g. the residency matching process, perceived competitiveness of specialties), the training process, and education.[20,21] This allows for dynamic sharing of information at various levels of medical training in a safe digital space that can be widely disseminated across institutions and archived for further participation at multiple time points. These digital forums can serve as unique resources to better understand trainee cynicism and the hidden curriculum.

Our goal was to perform a qualitative content analysis of online medical discussion forums (Student Doctor Network and Premed101) to explore: trainees' perceptions of cynicism, when cynicism occurs, whether cynicism is progressive through medical training, and the factors that enable and constrain the development of cynicism. We also sought to examine the impact of the hidden curriculum on the development of cynicism.

METHODS

Online discussion boards are categorized by topics known as threads, which feature questions, observations or conversations points. Online forums have provided users with more 'democratic' landscapes where they can share spontaneous narratives. These narratives represent a rich collection of emotional discourse, which are ideally suited for qualitative analysis, because this is where the tension between the lived experiences of medicine, healthcare, hidden curriculum, learning, expectations, behaviours and their interpretations exist. Commenters may reply to the original thread and to each other in text

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format on these discussion boards, which result in records that can be downloaded. We examined original postings and response posts from Premed 101 (http://forums.premed101.com/), a Canadian website, and Student Doctor Network(SDN) (http://www.studentdoctor.net/), an American website, specifically looking for threads pertinent to the development of cynicism. These two forums are the most widely used discussion forums among medical professionals in their respective countries, which was why they were chosen for analysis in this study. In order to identify threads for analysis, we used a purposeful sampling strategy, and a study member (JZP) completed a preliminary scan of discussion forum content and posts from 2010 to 2016 for relevance to the study topic. Based on the initial scan and most common terms noted in relevant threads, a keyword search was then conducted to locate additional threads and posts using the following search terms: 'cynicism', 'empathy', 'mental health', and 'medical school stress.' Once the preliminary review was complete, the team met to discuss forum content and select threads for inclusion based on relevance to the topic. Following this initial selection, threads were examined in a stepwise fashion with the understanding that the final sample size would be determined by the analytical requirement of data saturation and that additional threads would be reviewed as required.[22] We progressed gradually through analysis until no new ideas could be derived from the review of successive data and the collection of new data did not offer further insight on the topic.[23] At this point, theoretical sufficiency was reached and data collection was complete.[24] Data was imported into NVivo11 (QSR International) to facilitate data management.

We used a qualitative approach to perform inductive content analysis to identify the key themes in the discussion threads. During analysis, data was examined repeatedly in

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order to discern patterns and themes.[25,26] The process of coding the data and recognizing the overarching themes and subthemes involved three main stages: open coding, axial coding, and selective coding.[27,28] First, two researchers trained in qualitative methods (JZP and CC) reviewed the data independently, line-by-line, to identify patterns and generate a set of preliminary codes.[26] The researcher team (JZP, CC and AD) then met to discuss initial impressions of the data and the preliminary codes. Second, during the axial coding phase the code set was revised, refined, and regrouped into themes, highlighting areas of similarity and differences. The research team (JZP, CC and AD) assembled during this phase of analysis to review and discuss the axial coding. Finally, during selective coding, a general description of the research topic was formulated and the central phenomenon was constructed from the data. Codes were re-organized around unified themes. At this final stage, the research team (JZP, CC and AD) met to discuss themes, review the selected quotes, and establish concurrence. JZP and CC also searched threads for positive deviants that challenged existing themes. The trustworthiness of our findings was enhanced through the use of multiple independent coders, and team consensus building discussions at all three phases of coding. We conceptualized the varied perspectives of the research team members as an essential component of the interpretive process. The research team also maintained a detailed audit-trail of all coding and data-related decision making.

Ethical Considerations

The Children's Hospital of Eastern Ontario Research Ethics Board approved this research protocol prior to study commencement. While individual-level informed consent was not required for the analysis of aggregate data, we elicited permission from individual commenters prior to including direct quotations of comments or posting in the discussion

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threads. These select commenters were contacted privately via direct message to seek permission to include their anonymized quote in study publications and materials, and all commenters were given the opportunity to review their quote prior to its inclusion.

Patient and Public Involvement

Patients and the public were not involved in the design or conduct of the study; however a link to this article will be posted to both the Premed 101 and SDN discussion boards upon publication.

RESULTS

A total of 511 posts from 7 discussion threads in Premed 101 and SDN were included in analysis (See Table 1). A total of 205 posters participated in these discussion forums. Commenters self-identified as medical students, residents, and faculty staff, although not all commenters stated their level of training. Two posters were from other career backgrounds such as pharmacy and dentistry. We constructed three overarching themes and six sub-themes in our analysis. (See Table 2)

1. The challenges inherent to the hierarchal and demanding nature of medicine

A common discussion topic in the online forums was the challenging nature of medicine and medical training. The following sub-themes were recognized: *the progression of cynicism over time in medical training*; *reinforcement of hierarchy in medicine that creates a challenging work environment*; and *the pressure to work long hours and high demands in medicine*. Interestingly, there was widespread consensus that empathy declined and cynicism increased during the medical training process and no positive deviants were noted.

1A. The progression of cynicism over time in medical training

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There was consensus that the loss of idealism in medicine and feelings of cynicism occurred during the course of training from student to physician. Discussion posts emphasized that this occurs when patients are seen as a diagnosis rather than as people and as trainees become clinicians who prioritize efficient practice.

Although trainees are exposed to the physical and mental struggles faced by patients on a daily basis, the discussion groups revealed that this aspect of the clinical environment seemed to contribute less in creating cynicism. Rather than long work hours and a heavy workload, trainees expressed that perception of their low rank, worthlessness, and disrespect from mentors led to emotional neutralization. Consequently, they highlighted that time points in which cynicism predominates are transitions from pre-clerkship to clerkship and beyond. Cynicism was portrayed as a "staircase" that the trainee climbs during their career path rather than sporadic changes in attitude from individual clinical encounters. As students become more exposed to "real doctoring" in the clinical setting, cynicism may be a coping mechanism designed to protect oneself from hardships that one observes and experiences during medical training.

> "I personally know folks that are more jaded and clinical thinking now. People are less than people…. more a diagnosis." (Thread 2)

> "I think there is a major shift in cynicism throughout medical school…. There's an even bigger increase in cynicism as you go through clerkship. Hours are long, call is frequent, and you are always the low-person on the totem pole rotating into an unfamiliar specialty/ward. You also start to really experience the widespread dysfunction in medicine, and finally get lots of 1 on 1 time with bitter interns/residents/staff. You will probably get treated like crap by a higher-up at least once, if not frequently." (Thread 7)

1B. Reinforcement of hierarchy in medicine that creates a challenging work environment

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Medical students and clerks were in agreement that some of the greatest challenges they faced stemmed from the learning environment in the clinical context rather than the formal requirements of content and curriculum. Professional training was described as being cut throat and competitive, hindered by administrative policies, long hours, and the need to constantly maintain high level performance. Posters addressed the work culture challenges of residency that contributed to an overarching sense of not being respected or valued, including having limited control over scheduling, exposure to challenging colleagues and situations, and a general lack of recognition and support. It was believed that long work hours were a symptom of larger cultural problems in medical education rather than the root cause of the negative experiences.

> "That said, work hours are a symptom of the main problem: the attitude in medicine that treats residents (and to a lesser extent staff physicians and medical students) like they somehow don't have the same human needs as everyone else. Long work hours, lack of schedule control, lack of appreciation, and all the other forms of disrespect you list." (Thread 7)

> "Except what most people don't realize is the insane amount of unnecessary bureaucracy, unprofessional behaviour by superiors that goes unchecked, and sometimes toxic culture of the "Dedicate it all and to nothing else, or you are a "slacker"/"loser"" type etc." (Thread 6)

1C. Pressure to work long hours and high demands for efficiency

Sleep deprivation was repeatedly noted among students and residents as a major reason for feeling unhappy during training. Trainees shared a sample of their schedule, where working in the hospital often meant staying for long hours and subsequently arriving at early times for the following day.

> "Vampirish and inhumane hours, 12-15 hour days or staying up all night and then (if you're lucky) sleeping a few restless hours during the day only to then go do it the next day/night, 6 or 7 days a week, for 3-7 years." (Thread 1)

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The reported consequence of devoting the majority of one's clinical hours to meeting the demands of medical training included the breakdown of interpersonal relationships outside of the hospital. Trainees felt isolated, as they felt it challenging to have social interactions when work hour demands are rigorous. Students, residents and staff described this barrier as a cause of personal grief and feelings of isolation, which may contribute towards cynicism in all stages of medical training.

> "Above all, the breakdown of old relationships and the inability to form new ones… I don't think age takes the sting off of any of these." (Thread 1)

Another conflict shared by trainees pertained to wanting to meet staff demands while simultaneously balancing the amount of time spent directly with patients. For example, in order to get work done in time for rounds, some patient needs were bypassed. Several trainees expressed that the desire for efficiency and pleasing staff resulted in the objectification of patients and eventual loss of compassion.

Posts have attributed this desire for efficiency as a healthcare system issue that aims to quickly move patients in and out of hospitals. Commenters emphasized that doctors start out as genuine, but become jaded after trying to keep up with the highly demanding system for long periods of time.

> "…we all want to be "good doctors", do the right thing. The sad thing is that after a year or two of 1/4 call, where your worth as a person is determined by how quickly and efficiently you can keep the system moving, all of that goes out the window. It is a broken system that makes broken doctors." (Thread 7)

> "It's definitely happened to me as a clerk and in the first few months of residency, especially on off-service rotations, but on-service too, where I just haven't had the time or the energy to do things for patients that I really would like to be able to do." (Thread 7)

2. The challenge of safeguarding well-being

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The desire to maintain a sense of balance and well-being, professionally and personally, was a topic of discussion in the online boards. The following sub-themes were recognized: *the lack of support as a major stressor*, and *the consequences of cynicism on physician well-being and patient care*.

2A. Lack of support as a major stressor

Overall, residents described feeling undervalued for their work in hospitals. In some instances, residents pointed out that their pay did not correspond to the high stress environment that they were constantly working in, as well as the long, unpredictable hours. These sentiments were expressed in both the Canadian and American contexts on the online discussion forums. The sense of inadequate support also seemed to stem from a sense of impaired autonomy over work and personal life schedules, constantly having to relocate and adapt to working in unfamiliar and new environments, and general isolation due to work commitment. Posts repeatedly highlighted how aspects of residency training neglected "basic human needs" and failed to consider trainees' personal wellbeing due to prioritizing work needs.

> "After all, surgical have the same requirements for a healthy lifestyle as other residents, despite the occasional assertion to the contrary. Surgeons still need to sleep, eat, exercise, socialize and spend time with their families, just like everyone else*."* (Thread 7)

Several medical students discussed lacking support in terms of the discordance between meeting their attending's demands and their syllabus expectations. Students repeatedly emphasized their "low status on the totem pole" in the clinical environment, and felt that this lowly status instilled a hesitance to advocate for change due to fear of poor evaluations or seeming unprofessional if reported to the clerkship director. Students also

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emphasized that advocating for improvement seemed futile as they cannot resign from the job of a medical student if they are truly unhappy during a placement, and would rather tolerate mistreatment than risk poor judgment from preceptors.

2B. Consequences of cynicism on physician well-being and patient care

A common theme across discussion boards was the consequences of progressive cynicism throughout medical training, which likely had a negative impact on physician career satisfaction, the quality of patient care, and the quality of mentorship for future generations. Many also highlighted the intergenerational transmission of norms and how unhappy doctors tend to produce more unhappy doctors.

Medical trainee mental health was raised in a number of discussion threads related to career satisfaction. Commenters noted the high rate of poor mental health documented among medical students and residents compared to other professions. However, several students and residents were hesitant to seek help because they feared that this would be perceived as a sign of "weakness" in a field where professionalism and perseverance are highly valued. Overall, commenters felt that contributing factors to poor mental health should be addressed rather than criticizing individuals who suffer in order to promote changes in attitude in the medical profession.

Acknowledging cynicism in medical school also prompted individuals in the discussion groups to recognize the implications of mentorship. They advocated for the need for more focus on the consequences of cynicism in medicine. Posts praised the existence of forums that discussed the nature of cynicism in medicine, acknowledging that open dialogue and information sharing can support change, such as creating more informed pre-

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med students, promoting mental health programs in medical schools and residency, and working towards improving work environments rather than perpetuating shame in medicine.

> "Even at your (our) early stage of training, your actions and attitudes help to shape the culture in medicine. Please, help move it in the right direction, away from blaming the victim and towards fixing the problems that caused the harm in the first place." (Thread 6)

3. The culture of tolerance of unprofessional behaviours throughout training and across generations

Commenters felt that unprofessional work environments in medicine were slow to change due to the stigma among students and residents that feeling overwhelmed is an indication of being inadequate. Unprofessional behavior in this context typically referred to a lack of respect that trainees received from supervisors and trying to meet high demands in medicine that may compromise good patient care. Consequently, trainees are afraid to seek help or admit to being overworked in an environment where individuals are typically very high-achievers and set high expectations for themselves and their colleagues. The perpetuation of stressful work environments may be due to transmission of norms, namely preceptors normalizing the challenges they experienced in their formative years and then maintaining similar conditions for their trainees.

> "I've seen so many residents embrace the attitude in this weird form of quasi-Stockholm Syndrome, where they downplay, excuse, or even support the negative aspects of being a resident all while their quality of life suffers. I understand it as a coping mechanism, but it keeps that attitude alive for the next generation of residents." (Thread 7)

> "A culture in medicine that reflexively defends the sucky parts of medicine as necessary or desirable isn't a culture that's likely to promote change." (Thread 7)

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Students and trainees acknowledged that the harsh work environment and lack of respect posed a greater challenge than solely long work hours. However, the culture to prevail and achieve in medicine was again brought up as the reason for continued silence.

> "It is the med-school culture. There is little support. Students just don't admit how hard it is. There is an unsaid stigma that feeling stressed/overwhelmed/exhausted/or hurt makes one "weak" in medical school." (Thread 5)

Ultimately, the consequence of defending a culture that pushes for high efficiency and achievements at the expense of the individual's wellbeing was viewed as a barrier to progress in medical education.

> "It is still so difficult for people in medicine to open up about their struggles. When these disclosures are met with criticism, it encourages everyone else who may be unhappy with their situation to continue to suffer in silence." (Thread 6)

DISCUSSION

Our analysis of discussion posts exploring cynicism by Canadian and American medical students, residents, and faculty members emphasized three key findings: 1) the challenges inherent to the hierarchal and demanding nature of medicine; 2) the need to safeguard well-being; and 3) the culture of tolerance of unprofessional behaviors.

Results from previous studies have not made a definitive conclusion on whether empathy declines as medical students enter their clinical year of training. While some studies note that the first drastic decline in empathy and loss of idealization occurs in third year of medical school, others have suggested that changes in empathy levels do not differ significantly as medical students and residents progress in their training.[16,29,30,31,32,33] Our analysis of online discussion forums supports the notion that the loss of empathy and development of cynicism are progressive in nature and evolve largely during the transition

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from pre-clerkship to clerkship. This may occur because clerkship students are faced with similar clinical challenges and ethical dilemmas as the rest of the medical team, but have a minimal authoritative role. Being in this position makes students more vulnerable to influences by their mentors, and students may feel conflicted when their personal values of "good doctoring" do not align with preceptors' practices of "real doctoring." Our results align with other studies demonstrating that the hierarchal nature of medicine and poor role modeling can create unprofessional work environments and increased stress on trainees. This unprofessionalism may be more distressing than frequent exposure to traumatic clinical cases.[8,34,35]

Testerman et al. have proposed two models for the development of cynicism: 1) the intergenerational model, where a student's cynicism occurs progressively as a coping mechanism to mistreatment by cynical residents and staff, and 2) the professional identity model that suggests cynicism among trainees declines as individuals attain a higher authoritative position and become more confident in dealing with the contradicting values of the formal and hidden curriculum.[12] Testerman et al. supported the professional identity model because they noted a decline in cynicism among staff who achieved a "professional identity," as compared to residents and students. Results from our study, however, seem to favor the intergenerational model, as residents describe being more cynical during residency when compared to medical school, and attribute this progression to a "staircase" that one climbs throughout training. This conceptualization of the development and progression of cynicism was also noted in a study by Griffith et al, as within the first 5 months of postgraduate training, residents perceived their patients with less idealistic values.[36]

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Research has linked elements of the hidden curriculum to the development of cynicism. In a study of internal medicine residents, Billings ME et al. demonstrated that the hidden curriculum, and specifically unprofessional behavior from colleagues, nurses, and patients, correlated with residents' level of depersonalization, emotional exhaustion, and level of cynicism.[37] Similar to our findings, residents from this study also attributed belittlement from staff, lack of control over scheduling, loss of autonomy in the clinical setting, and poor work relationships as factors that led to burnout. Increasing cynicism among residents parallels the pattern of increasing cynicism among medical students; both medical students and residents start medical school and internship with higher empathy and lower emotional distress, but experience a decline in empathy overtime.[7,29] Our findings suggest that there may be a "double hit" scenario, where trainees are most vulnerable to increased cynicism when transitioning to clerkship, and then again when transitioning to residency. It has been posited that this may be a protective mechanism at times of transition.[14,15]

Emotional neutralization, a consequence of cynicism, carries a negative connotation during the early medical training process. That said, practicing physicians view emotional neutralization as a coping mechanism to sustain the various clinical, hierarchal, and system challenges that one faces in medicine.[38] Our findings support that cynicism occurs when trainees cope to safeguard their personal wellbeing in a highly demanding work environment. The impact of cynicism among physicians is substantial; consequences include a decline in professionalism, burnout, and a loss of empathy that can ultimately jeopardize patient care.[1,37,39] In order to mitigate these consequences, an understanding of how and why cynicism develops is key. Online forums provide a holistic view into this

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topic by presenting diverse perspectives from geographically dispersed individuals, and across the spectrum of training and practice.

As emphasized in previous studies, our findings also support the importance of role modeling and mentorship in addressing cynicism and the hidden curriculum.[40,41,42,43,44] Students and residents seek inspiration from mentors and experience more idealism when they identify positive role models.[7,45] On the other hand, the lack of positive role models, such as being taught by cynical residents and staff, facilitated the development of cynicism and a decline in empathy among medical students.[1,37,46] Results from our study support the notion that mentorship and positive role modeling should be made available throughout medical training, such that professional attitudes and support can be passed on from staff to trainees. Mentorship structures should be reinforced during the transition period from pre-clerkship to clerkship, and from medical school to residency, as these seem to be key moments when there is a potential increase in cynicism and decline in empathy. While the concept of mentorship in reducing cynicism is not a novel recommendation, this study highlights that although issues pertaining to the hidden curriculum have been acknowledged in the medical literature, they continue to persist in daily medical culture.

A major strength of this study design is that online discussion forums allow for a greater understanding of the hidden curriculum at an international level due to the ease of access to forums by users from Canada and the USA. That said, given the we were unable to isolate the geographical location of posters, this study does not allow for a detailed commentary on potential areas of congruence or divergence between nations. Over the last 10 years, there has been increasing evidence from studies done at single academic institutions that cynicism progresses from non-clinical to clinical years.[2,11,14,15] Our study

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expands on this idea and may carry greater external validity given that the viewpoints from discussion forums reflect those of individuals from several institutions, levels of training, and specialties. The capacity for user anonymity on forums promotes dynamic interactions between individuals with lower risk of consequence. These forums create a democratic space for sharing emotionally powerful experiences that highlight the tension between the realities of medicine as influenced by the hidden curriculum and personal expectations of good doctoring. Online discussion forums can also minimize social desirability response bias, which may be present in other qualitative methods that involve face-to-face interaction with peers and colleagues, such as focus groups involving staff, residents, and medical students. In a discussion forum, the hierarchal nature of medicine is minimized such that the pressure to respond in a manner perceived as acceptable or one that aligns with the dominant discourse are lessened.

Our study has some notable limitations. Contributors to discussion forums may be biased towards individuals who use forums to discuss their concerns and provide support for others on the site. Discussion posters in this study may comprise of individuals that feel more vulnerable and are reaching out anonymously for this reason, and they may in fact be more cynical that the general medical community. Although commenters on the discussion boards did not identify their country of origin, we assume that most commenters are residents of either the United States or Canada, reflecting North American medical practice. Additionally, our purposeful sampling and selection strategy of threads for inclusion in analysis could have introduced bias. For example, by selecting threads that explicitly examined cynicism, we may have inadvertently excluded threads containing divergent or opposing views. Finally, we obtained agreement from discussion board commenters

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retrospectively to include their verbatim quotes. This limited our sample of quotes for inclusion as some commenters may not have been active on the discussion boards at the time we contacted them and did not reply to our request for permission. In those instances, the content of postings was summarized and described but the verbatim quotes could not be included for publication.

Ultimately, cynicism among doctors has been shown to affect the quality of patient care.[47,48] Addressing and acknowledging cynicism as a main theme of the hidden curriculum can serve as an initial step in establishing true patient centered care.

CONCLUSION

Online discussion groups have the potential to provide unique insight into the culture of medical training. Our findings highlight that exposure to the differing values of the formal and hidden curriculum seems to impact cynicism in trainees at all stages of learning, and particularly at transition points. Interventions that can help reduce cynicism could focus on decreasing the gap between the formal and hidden curriculum that is passed on through stages of medical training. Examples of such interventions include mentorship and positive role modeling, especially at transition periods from pre-clerkship to clerkship and from medical school to residency. Future studies could explore perceptions and attitudes among trainees at key transition points to further examine how cynicism evolves between various stages of training.

Contributors: JP contributed to the acquisition, data analysis, interpretation and drafting of the project. CC contributed to the design, data analysis and interpretation of the work, and revised the manuscript for important intellectual content. AD contributed to the design, data

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analysis and interpretation of the work, and revised the manuscript for important intellectual content. All authors approved the final manuscript for publication.

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Ethical Approval: This study was approved by the Children's Hospital of Eastern Ontario Research Institute Research Ethics Board (ref 16/31X).

Data: Raw data is available by replicating our search strategy in the following discussion groups: *https://www.studentdoctor.net/ and http://forums.premed101.com/.*

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Table 1: Summary of discussion threads analyzed, discussion forums and country of origin for each thread and the number of posts examined.

Thread Name	Discussion forum and Country of Origin	Number of posts	Number of posters
1. Excessive and unnecessary stress on med students	Student Doctor Network – United States	269	
2. How does med school change a person	Student Doctor Network – United States	22	
3. My theory on why med students show decline in empathy	Student Doctor Network – United States	46	
4. Why the cynicism	Student Doctor Network – United States	54	
5. Mental health in medical school	Student Doctor Network – United States	29	
6. What they don't tell you before getting into medicine	Premed101 – Canada	42	
7. Is it possible to finish med school without becoming too salty or cynical?	Premed101 – Canada	49	

Table 2 Themes and subthemes from discussion group analysis

Themes of the Hidden Curriculum	Pertinent subthemes
Challenges inherent to the hierarchal and demanding nature of medicine	*The progression of cynicism over time* *The reinforcement of hierarchy that creates an unpleasant work environment* *The pressure to work long hours and high demands for efficiency*
Challenges of safeguarding well-being	*Lack of support as a major stressor* *Consequences of cynicism on physician well-being and patient care*
Culture of tolerance of unprofessional behaviors throughout training and across generations	

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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BMJ Open

Uncovering cynicism in medical training: A qualitative analysis of medical online discussion forums

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Uncovering cynicism in medical training: A qualitative analysis of medical online discussion forums

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ABSTRACT

OBJECTIVE: The development of cynicism in medicine, defined as a decline in empathy and emotional neutralization during medical training, is a significant concern for medical educators. We sought to utilize online medical student discussion groups to provide insight into how cynicism in medicine is perceived, the consequences of cynicism on medical trainee development, and potential links between the hidden curriculum and cynicism.

SETTING: Online analysis of discussion topics in Premed101 (Canadian) and Student Doctor Network (American) forums.

PARTICIPANTS: 511 posts from 7 discussion topics were analyzed using NVivo 11. Participants in the forums included medical students, residents and practicing physicians.

METHODS: Inductive content analysis was used to develop a data-driven coding scheme that evolved throughout analysis. Measures were taken to ensure the trustworthiness of findings, including duplicate independent coding of a subsample of posts and the maintenance of an audit trail.

RESULTS: Medical students, residents, and practicing physicians participating in the discussion forums engaged in discourse about cynicism and highlighted themes of the hidden curriculum resulting in cynicism. These included the progression of cynicism over the course of medical training as a coping mechanism; the development of challenging work environments due to factors such as limited support, hierarchal demands, and long work hours; and the challenge of initiating change due to the tolerance of unprofessionalism and the highly stressful nature of medicine.

CONCLUSION: Our unique study of North American medical discussion posts demonstrates that cynicism develops progressively and is compounded by conflicts

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between the hidden and formal curriculum. Online discussion groups are a novel resource to provide insight into the culture of medical training.

ARTICLE SUMMARY

Strengths and limitations of this study:

- Strength: online discussion forums are a novel resource to obtain medical trainees' anonymous perspectives regarding graduate and postgraduate education
- Strength: online forums allow for dynamic interactions and participation among individuals from several training sites rather than a single academic institution
- Limitation: results may represent a subset of individuals who post on online discussion forums

INTRODUCTION:

Cynicism, defined as a decline in empathy and emotional neutralization during medical training, is a continued concern for medical educators. .[1,2] One hypothesis to the development of cynicism among trainees is perceived conflict between the formal and hidden curriculum, with the hidden curriculum defined as "a set of influences that function at the level of organizational structure and culture" that impact the perception of medicine and decision making by medical trainees.[2,3] Conflicts between the formal and hidden curriculum likely occur when trainees enter the clinical setting and realize the values of patient-centered care are often challenged by the demanding, time-pressured realities of medicine.[4,5]

There remains some debate in the literature on whether empathy wanes and cynicism escalates as one progresses in training.[6,7,8,9,10] Studies examining the underlying factors that contribute towards increasing cynicism and declining empathy are mostly

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qualitative in nature and primarily sample students and residents from a single academic institution.[2,11,12,13,14,15,16]

Online discussion forums are widely popular and have been leveraged to provided insight into a variety of topics in medical education.[17,18,19] For medical trainees, online discussion forums such as Premed101 and Student Doctor Network are used to contribute questions, advice, and opinions regarding issues in medicine (e.g. the residency matching process, perceived competitiveness of specialties), the training process, and education.[20,21] This allows for dynamic sharing of information at various levels of medical training in a safe digital space that can be widely disseminated across institutions and archived for further participation at multiple time points. These digital forums can serve as unique resources to better understand trainee cynicism and the hidden curriculum.

Our goal was to perform a qualitative content analysis of online medical discussion forums (Student Doctor Network and Premed101) to explore: trainees' perceptions of cynicism, when cynicism occurs, whether cynicism is progressive through medical training, and the factors that enable and constrain the development of cynicism. We also sought to examine the impact of the hidden curriculum on the development of cynicism.

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METHODS

Online discussion boards are categorized by topics known as threads, which feature questions, observations or conversations points. Online forums have provided users with more 'democratic' landscapes where they can share spontaneous narratives. These narratives represent a rich collection of emotional discourse, which are ideally suited for qualitative analysis, because this is where the tension between the lived experiences of

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medicine, healthcare, hidden curriculum, learning, expectations, behaviours and their interpretations exist. Commenters may reply to the original thread and to each other in text format on these discussion boards, which result in records that can be downloaded. We examined original postings and response posts from Premed 101 (http://forums.premed101.com/), a Canadian website, and Student Doctor Network(SDN) (http://www.studentdoctor.net/), an American website, specifically looking for threads pertinent to the development of cynicism. These two forums are the most widely used discussion forums among medical professionals in their respective countries, which was why they were chosen for analysis in this study. In order to identify threads for analysis, we used a purposeful sampling strategy, and a study member (JZP) completed a preliminary scan of discussion forum content and posts from 2010 to 2016 for relevance to the study topic. Based on the initial scan and most common terms noted in relevant threads, a keyword search was then conducted to locate additional threads and posts using the following search terms: 'cynicism', 'empathy', 'mental health', and 'medical school stress.' Once the preliminary review was complete, the team met to discuss forum content and select threads for inclusion based on relevance to the topic. Following this initial selection, threads were examined in a stepwise fashion with the understanding that the final sample size would be determined by the analytical requirement of data saturation and that additional threads would be reviewed as required.[22] We progressed gradually through analysis until no new ideas could be derived from the review of successive data and the collection of new data did not offer further insight on the topic.[23] At this point, theoretical sufficiency was reached and data collection was complete.[24] Data was imported into NVivo11 (QSR International) to facilitate data management.

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We used a qualitative approach to perform inductive content analysis to identify the key themes in the discussion threads. During analysis, data was examined repeatedly in order to discern patterns and themes.[25,26] The process of coding the data and recognizing the overarching themes and subthemes involved three main stages: open coding, axial coding, and selective coding.[27,28] First, two researchers trained in qualitative methods (JZP and CC) reviewed the data independently, line-by-line, to identify patterns and generate a set of preliminary codes.[26] The researcher team (JZP, CC and AD) then met to discuss initial impressions of the data and the preliminary codes. Second, during the axial coding phase the code set was revised, refined, and regrouped into themes, highlighting areas of similarity and differences. The research team (JZP, CC and AD) assembled during this phase of analysis to review and discuss the axial coding. Finally, during selective coding, a general description of the research topic was formulated and the central phenomenon was constructed from the data. Codes were re-organized around unified themes. At this final stage, the research team (JZP, CC and AD) met to discuss themes, review the selected quotes, and establish concurrence. JZP and CC also searched threads for positive deviants that challenged existing themes. The trustworthiness of our findings was enhanced through the use of multiple independent coders, and team consensus building discussions at all three phases of coding. We conceptualized the varied perspectives of the research team members as an essential component of the interpretive process. The research team also maintained a detailed audit-trail of all coding and data-related decision making.

Ethical Considerations

The Children's Hospital of Eastern Ontario Research Ethics Board approved this research protocol prior to study commencement. While individual-level informed consent

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was not required for the analysis of aggregate data, we elicited permission from individual commenters prior to including direct quotations of comments or posting in the discussion threads. These select commenters were contacted privately via direct message to seek permission to include their anonymized quote in study publications and materials, and all commenters were given the opportunity to review their quote prior to its inclusion.

Patient and Public Involvement

Patients and the public were not involved in the design or conduct of the study; however a link to this article will be posted to both the Premed 101 and SDN discussion boards upon publication.

RESULTS

A total of 511 posts from 7 discussion threads in Premed 101 and SDN were included in analysis (See Table 1). A total of 205 posters participated in these discussion forums. Commenters self-identified as medical students, residents, and faculty staff, although not all commenters stated their level of training. Two posters were from other career backgrounds such as pharmacy and dentistry. We constructed three overarching themes and six sub-themes in our analysis. (See Table 2)

1. The challenges inherent to the hierarchal and demanding nature of medicine

A common discussion topic in the online forums was the challenging nature of medicine and medical training. The following sub-themes were recognized: *the progression of cynicism over time in medical training*; *reinforcement of hierarchy in medicine that creates a challenging work environment*; and *the pressure to work long hours and high demands in medicine*. Interestingly, there was widespread consensus that empathy declined

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and cynicism increased during the medical training process and no positive deviants were noted.

1A. The progression of cynicism over time in medical training

There was consensus that the loss of idealism in medicine and feelings of cynicism occurred during the course of training from student to physician. Discussion posts emphasized that this occurs when patients are seen as a diagnosis rather than as people and as trainees become clinicians who prioritize efficient practice.

Although trainees are exposed to the physical and mental struggles faced by patients on a daily basis, the discussion groups revealed that this aspect of the clinical environment seemed to contribute less in creating cynicism. Rather than long work hours and a heavy workload, trainees expressed that perception of their low rank, worthlessness, and disrespect from mentors led to emotional neutralization. Consequently, they highlighted that time points in which cynicism predominates are transitions from pre-clerkship to clerkship and beyond. Cynicism was portrayed as a "staircase" that the trainee climbs during their career path rather than sporadic changes in attitude from individual clinical encounters. As students become more exposed to "real doctoring" in the clinical setting, cynicism may be a coping mechanism designed to protect oneself from hardships that one observes and experiences during medical training.

> "I personally know folks that are more jaded and clinical thinking now. People are less than people…. more a diagnosis." (Thread 2)

> "I think there is a major shift in cynicism throughout medical school…. There's an even bigger increase in cynicism as you go through clerkship. Hours are long, call is frequent, and you are always the low-person on the totem pole rotating into an unfamiliar specialty/ward. You also start to really experience the widespread dysfunction in medicine, and finally get lots of 1 on 1 time with bitter

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> interns/residents/staff. You will probably get treated like crap by a higher-up at least once, if not frequently." (Thread 7)

1B. Reinforcement of hierarchy in medicine that creates a challenging work environment

Medical students and clerks were in agreement that some of the greatest challenges they faced stemmed from the learning environment in the clinical context rather than the formal requirements of content and curriculum. Professional training was described as being cut throat and competitive, hindered by administrative policies, long hours, and the need to constantly maintain high level performance. Posters addressed the work culture challenges of residency that contributed to an overarching sense of not being respected or valued, including having limited control over scheduling, exposure to challenging colleagues and situations, and a general lack of recognition and support. It was believed that long work hours were a symptom of larger cultural problems in medical education rather than the root cause of the negative experiences.

> "That said, work hours are a symptom of the main problem: the attitude in medicine that treats residents (and to a lesser extent staff physicians and medical students) like they somehow don't have the same human needs as everyone else. Long work hours, lack of schedule control, lack of appreciation, and all the other forms of disrespect you list." (Thread 7)

> "Except what most people don't realize is the insane amount of unnecessary bureaucracy, unprofessional behaviour by superiors that goes unchecked, and sometimes toxic culture of the "Dedicate it all and to nothing else, or you are a "slacker"/"loser"" type etc." (Thread 6)

1C. Pressure to work long hours and high demands for efficiency

Sleep deprivation was repeatedly noted among students and residents as a major reason for feeling unhappy during training. Trainees shared a sample of their schedule,

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where working in the hospital often meant staying for long hours and subsequently arriving at early times for the following day.

> "Vampirish and inhumane hours, 12-15 hour days or staying up all night and then (if you're lucky) sleeping a few restless hours during the day only to then go do it the next day/night, 6 or 7 days a week, for 3-7 years." (Thread 1)

The reported consequence of devoting the majority of one's clinical hours to meeting the demands of medical training included the breakdown of interpersonal relationships outside of the hospital. Trainees felt isolated, as they felt it challenging to have social interactions when work hour demands are rigorous. Students, residents and staff described this barrier as a cause of personal grief and feelings of isolation, which may contribute towards cynicism in all stages of medical training.

> "Above all, the breakdown of old relationships and the inability to form new ones… I don't think age takes the sting off of any of these." (Thread 1)

Another conflict shared by trainees pertained to wanting to meet staff demands while simultaneously balancing the amount of time spent directly with patients. For example, in order to get work done in time for rounds, some patient needs were bypassed. Several trainees expressed that the desire for efficiency and pleasing staff resulted in the objectification of patients and eventual loss of compassion.

Posts have attributed this desire for efficiency as a healthcare system issue that aims to quickly move patients in and out of hospitals. Commenters emphasized that doctors start out as genuine, but become jaded after trying to keep up with the highly demanding system for long periods of time.

> "…we all want to be "good doctors", do the right thing. The sad thing is that after a year or two of 1/4 call, where your worth as a person is determined by how quickly

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> and efficiently you can keep the system moving, all of that goes out the window. It is a broken system that makes broken doctors." (Thread 7)

> "It's definitely happened to me as a clerk and in the first few months of residency, especially on off-service rotations, but on-service too, where I just haven't had the time or the energy to do things for patients that I really would like to be able to do." (Thread 7)

2. The challenge of safeguarding well-being

The desire to maintain a sense of balance and well-being, professionally and personally, was a topic of discussion in the online boards. The following sub-themes were recognized: *the lack of support as a major stressor*, and *the consequences of cynicism on physician well-being and patient care*.

2A. Lack of support as a major stressor

Overall, residents described feeling undervalued for their work in hospitals. In some instances, residents pointed out that their pay did not correspond to the high stress environment that they were constantly working in, as well as the long, unpredictable hours. These sentiments were expressed in both the Canadian and American contexts on the online discussion forums. The sense of inadequate support from peers, colleagues and in particular, supervisors also seemed to stem from a sense of impaired autonomy over work and personal life schedules, constantly having to relocate and adapt to working in unfamiliar and new environments, and general isolation due to work commitment. Posts repeatedly highlighted how aspects of residency training neglected "basic human needs" and failed to consider trainees' personal wellbeing due to prioritizing work needs.

> "After all, surgical have the same requirements for a healthy lifestyle as other residents, despite the occasional assertion to the contrary. Surgeons still need to sleep, eat, exercise, socialize and spend time with their families, just like everyone else*."* (Thread 7)

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Several medical students discussed lacking support in terms of the discordance between meeting their attending's demands and their syllabus expectations. Students repeatedly emphasized their "low status on the totem pole" in the clinical environment, and felt that this lowly status instilled a hesitance to advocate for change due to fear of poor evaluations or seeming unprofessional if reported to the clerkship director. Students also emphasized that advocating for improvement seemed futile as they cannot resign from the job of a medical student if they are truly unhappy during a placement, and would rather tolerate mistreatment than risk poor judgment from preceptors.

2B. Consequences of cynicism on physician well-being and patient care

A common theme across discussion boards was the consequences of progressive cynicism throughout medical training, which likely had a negative impact on physician career satisfaction, the quality of patient care, and the quality of mentorship for future generations. Many also highlighted the intergenerational transmission of norms and how unhappy doctors tend to produce more unhappy doctors.

Medical trainee mental health was raised in a number of discussion threads related to career satisfaction. Commenters noted the high rate of poor mental health documented among medical students and residents compared to other professions. However, several students and residents were hesitant to seek help because they feared that this would be perceived as a sign of "weakness" in a field where professionalism and perseverance are highly valued. Overall, commenters felt that contributing factors to poor mental health should be addressed rather than criticizing individuals who have a reduced quality of life and difficulties in work life balance.

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Acknowledging cynicism in medical school also prompted individuals in the discussion groups to recognize the implications of mentorship. They advocated for the need for more focus on the consequences of cynicism in medicine. Posts praised the existence of forums that discussed the nature of cynicism in medicine, acknowledging that open dialogue and information sharing can support change, such as creating more informed pre-med students, promoting mental health programs in medical schools and residency, and working towards improving work environments rather than perpetuating shame in medicine.

3. The culture of tolerance of unprofessional behaviours throughout training and across generations

Commenters felt that unprofessional work environments in medicine were slow to change due to the stigma among students and residents that feeling overwhelmed is an indication of being inadequate. Unprofessional behavior in this context typically referred to a lack of respect that trainees received from supervisors and trying to meet high demands in medicine that may compromise good patient care. Consequently, trainees are afraid to seek help or admit to being overworked in an environment where individuals are typically very high-achievers and set high expectations for themselves and their colleagues. The perpetuation of stressful work environments may be due to transmission of norms, namely preceptors normalizing the challenges they experienced in their formative years and then maintaining similar conditions for their trainees.

> “I've seen so many residents embrace the attitude in this weird form of quasi-Stockholm Syndrome, where they downplay, excuse, or even support the negative aspects of being a resident all while their quality of life suffers. I understand it as a

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> coping mechanism, but it keeps that attitude alive for the next generation of residents." (Thread 7)

> "A culture in medicine that reflexively defends the sucky parts of medicine as necessary or desirable isn't a culture that's likely to promote change." (Thread 7)

Students and trainees acknowledged that the harsh work environment and lack of respect from supervisors posed a greater challenge than solely long work hours. However, the culture to prevail and achieve in medicine was again brought up as the reason for continued silence.

> "It is the med-school culture. There is little support. Students just don't admit how hard it is. There is an unsaid stigma that feeling stressed/overwhelmed/exhausted/or hurt makes one "weak" in medical school." (Thread 5)

Ultimately, the consequence of defending a culture that pushes for high efficiency and achievements at the expense of the individual's wellbeing was viewed as a barrier to progress in medical education.

> "It is still so difficult for people in medicine to open up about their struggles (with balancing efficiency vs learning). When these disclosures are met with criticism, it encourages everyone else who may be unhappy with their situation to continue to suffer in silence." (Thread 6)

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DISCUSSION

In the present study, we utilized an novel analysis of discussion posts to explore cynicism by Canadian and American medical students, residents, and faculty members and uncovered three key themes: 1) the challenges inherent to the hierarchal and demanding nature of medicine; 2) the need to safeguard well-being; and 3) the culture of tolerance of unprofessional behaviors.

Results from previous studies have not made a definitive conclusion on whether empathy declines as medical students enter their clinical year of training. While some

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studies note that the first drastic decline in empathy and loss of idealization occurs in third year of medical school, others have suggested that changes in empathy levels do not differ significantly as medical students and residents progress in their training.[16,29,30,31,32,33] Our analysis of online discussion forums supports the notion that the loss of empathy and development of cynicism are progressive in nature and evolve largely during the transition from pre-clerkship to clerkship. This may occur because clerkship students are faced with similar clinical challenges and ethical dilemmas as the rest of the medical team, but have a minimal authoritative role. Being in this position makes students more vulnerable to influences by their mentors, and students may feel conflicted when their personal values of "good doctoring" do not align with preceptors' practices of "real doctoring." Our results align with other studies demonstrating that the hierarchal nature of medicine and poor role modeling can create unprofessional work environments and increased stress on trainees. This unprofessionalism may be more distressing than frequent exposure to traumatic clinical cases.[8,34,35]

Testerman et al. have proposed two models for the development of cynicism: 1) the intergenerational model, where a student's cynicism occurs progressively as a coping mechanism to mistreatment by cynical residents and staff, and 2) the professional identity model that suggests cynicism among trainees declines as individuals attain a higher authoritative position and become more confident in dealing with the contradicting values of the formal and hidden curriculum.[12] Testerman et al. supported the professional identity model because they noted a decline in cynicism among staff who achieved a "professional identity," as compared to residents and students. Results from our study, however, seem to favor the intergenerational model, as residents describe being more cynical during

residency when compared to medical school, and attribute this progression to a “staircase” that one climbs throughout training. This conceptualization of the development and progression of cynicism was also noted in a study by Griffith et al, as within the first 5 months of postgraduate training, residents perceived their patients with less idealistic values.[36]

Research has linked elements of the hidden curriculum to the development of cynicism. In a study of internal medicine residents, Billings ME et al. demonstrated that the hidden curriculum, and specifically unprofessional behavior from colleagues, nurses, and patients, correlated with residents’ level of depersonalization, emotional exhaustion, and level of cynicism.[37] Similar to our findings, residents from this study also attributed belittlement from staff, lack of control over scheduling, loss of autonomy in the clinical setting, and poor work relationships as factors that led to burnout. Increasing cynicism among residents parallels the pattern of increasing cynicism among medical students; both medical students and residents start medical school and internship with higher empathy and lower emotional distress, but experience a decline in empathy overtime.[7,29] Our findings suggest that there may be a “double hit” scenario, where trainees are most vulnerable to increased cynicism when transitioning to clerkship, and then again when transitioning to residency. It has been posited that this may be a protective mechanism at times of transition.[14,15]

Emotional neutralization, a consequence of cynicism, carries a negative connotation during the early medical training process. That said, practicing physicians view emotional neutralization as a coping mechanism to sustain the various clinical, hierarchal, and system challenges that one faces in medicine.[38] Our findings support that cynicism occurs when

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trainees cope to safeguard their personal wellbeing in a highly demanding work environment. The impact of cynicism among physicians is substantial; consequences include a decline in professionalism, burnout, and a loss of empathy that can ultimately jeopardize patient care.[1,37,39] In order to mitigate these consequences, an understanding of how and why cynicism develops is key. Online forums provide a holistic view into this topic by presenting diverse perspectives from geographically dispersed individuals, and across the spectrum of training and practice.

As emphasized in previous studies, our findings also support the importance of role modeling and mentorship in addressing cynicism and the hidden curriculum.[40,41,42,43,44] Students and residents seek inspiration from mentors and experience more idealism when they identify positive role models.[7,45] On the other hand, the lack of positive role models, such as being taught by cynical residents and staff, facilitated the development of cynicism and a decline in empathy among medical students.[1,37,46] Results from our study support the notion that mentorship and positive role modeling should be made available throughout medical training, such that professional attitudes and support can be passed on from staff to trainees. Mentorship structures should be reinforced during the transition period from pre-clerkship to clerkship, and from medical school to residency, as these seem to be key moments when there is a potential increase in cynicism and decline in empathy. While the concept of mentorship in reducing cynicism is not a novel recommendation, this study highlights that although issues pertaining to the hidden curriculum have been acknowledged in the medical literature, they continue to persist in daily medical culture.

A major strength of this study design is that online discussion forums allow for a greater understanding of the hidden curriculum at an international level due to the ease of

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access to forums by users from Canada and the USA. That said, given the we were unable to isolate the geographical location of posters, this study does not allow for a detailed commentary on potential areas of congruence or divergence between nations. Over the last 10 years, there has been increasing evidence from studies done at single academic institutions that cynicism progresses from non-clinical to clinical years.[2,11,14,15] Our study expands on this idea and may carry greater external validity given that the viewpoints from discussion forums reflect those of individuals from several institutions, levels of training, and specialties. The capacity for user anonymity on forums promotes dynamic interactions between individuals with lower risk of consequence. These forums create a democratic space for sharing emotionally powerful experiences that highlight the tension between the realities of medicine as influenced by the hidden curriculum and personal expectations of good doctoring. Online discussion forums can also minimize social desirability response bias, which may be present in other qualitative methods that involve face-to-face interaction with peers and colleagues, such as focus groups involving staff, residents, and medical students. In a discussion forum, the hierarchal nature of medicine is minimized such that the pressure to respond in a manner perceived as acceptable or one that aligns with the dominant discourse are lessened.

Our study has some notable limitations. Contributors to discussion forums may be biased towards individuals who use forums to discuss their concerns and provide support for others on the site. Discussion posters in this study may comprise of individuals that feel more vulnerable and are reaching out anonymously for this reason, and they may in fact be more cynical that the general medical community. Although commenters on the discussion boards did not identify their country of origin, we assume that most commenters are

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residents of either the United States or Canada, reflecting North American medical practice. Additionally, our purposeful sampling and selection strategy of threads for inclusion in analysis could have introduced bias. For example, by selecting threads that explicitly examined cynicism, we may have inadvertently excluded threads containing divergent or opposing views. Finally, we obtained agreement from discussion board commenters retrospectively to include their verbatim quotes. This limited our sample of quotes for inclusion as some commenters may not have been active on the discussion boards at the time we contacted them and did not reply to our request for permission. In those instances, the content of postings was summarized and described but the verbatim quotes could not be included for publication.

Ultimately, cynicism among doctors has been shown to affect the quality of patient care.[47,48] Addressing and acknowledging cynicism as a main theme of the hidden curriculum can serve as an initial step in establishing true patient centered care.

CONCLUSION

Our unique study has demonstrated the potential for online discussion groups to provide unique insight into the culture of medical training. Our findings highlight that exposure to the differing values of the formal and hidden curriculum seems to impact cynicism in trainees at all stages of learning, and particularly at transition points. Interventions that can help reduce cynicism could focus on decreasing the gap between the formal and hidden curriculum that is passed on through stages of medical training. Examples of such interventions include mentorship and positive role modeling, especially at transition periods from pre-clerkship to clerkship and from medical school to residency.

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Future studies could explore perceptions and attitudes among trainees at key transition points to further examine how cynicism evolves between various stages of training.

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Data: Raw data is available by replicating our search strategy in the following discussion groups: *https://www.studentdoctor.net/ and http://forums.premed101.com/.*

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Table 1: Summary of discussion threads analyzed, discussion forums and country of origin for each thread and the number of posts examined.

Thread Name	Discussion forum and Country of Origin	Number of posts	Number of posters
1. Excessive and unnecessary stress on med students	Student Doctor Network – United States	269	
2. How does med school change a person	Student Doctor Network – United States	22	
3. My theory on why med students show decline in empathy	Student Doctor Network – United States	46	
4. Why the cynicism	Student Doctor Network – United States	54	
5. Mental health in medical school	Student Doctor Network – United States	29	
6. What they don't tell you before getting into medicine	Premed101 – Canada	42	
7. Is it possible to finish med school without becoming too salty or cynical?	Premed101 – Canada	49	

Table 2 Themes and subthemes from discussion group analysis

Themes of the Hidden Curriculum	Pertinent subthemes
Challenges inherent to the hierarchal and	*The progression of cynicism over time*

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demanding nature of medicine	*The reinforcement of hierarchy that creates an unpleasant work environment* *The pressure to work long hours and high demands for efficiency*
Challenges of safeguarding well-being	*Lack of support as a major stressor* *Consequences of cynicism on physician well-being and patient care*
Culture of tolerance of unprofessional behaviors throughout training and across generations	

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the inter view or focus group?	
Duration	21	What was the duration of the inter views or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

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