WD07

Moving beyond numbers: Applying qualitative methodology to expand the scope of research and scholarship

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SGIM National Meeting 2016
Hollywood, Florida
May 12, 2016 from 1:30 PM to 3:00 PM
WORKSHOP GOALS

• Understand the applications of qualitative methods in health services and educational research
• Contrast qualitative and quantitative research methodology
• Discuss 3 main approaches to qualitative research
• Describe and practice key steps involved in qualitative study design
• Discuss strategies to ensure rigor in qualitative research
QUALITATIVE RESEARCH

1. **Natural settings** are the source of data and the investigator is an instrument

2. Data are **words** rather than numbers

3. Concerned with **process** as well as product

4. Analysis is **inductive**... mostly

5. Researchers are interested in the perspectives of subjects
<table>
<thead>
<tr>
<th>Research method</th>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic</td>
<td>Inductive</td>
<td>Deductive</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>Describe, understand people/groups, subsequently develop/test theory</td>
<td>Test hypotheses, isolate/manipulate variables to test their validity</td>
</tr>
<tr>
<td>Design</td>
<td>Emergent, flexible; findings affect subsequent stages of research</td>
<td>Controlled; variation in design and data is not desirable</td>
</tr>
<tr>
<td>Sampling</td>
<td>Purposive</td>
<td>More random</td>
</tr>
<tr>
<td>Data</td>
<td>Words , observed</td>
<td>Numbers, measured</td>
</tr>
<tr>
<td>Data collection &amp; analysis</td>
<td>Non-linear; concurrent data collection and analysis</td>
<td>Linear; analysis begins after data collection is completed</td>
</tr>
</tbody>
</table>
STUDY QUESTIONS

Quantitative

• What percentage of diabetic patients take their insulin daily?

• What percentage of teachers provide constructive feedback to trainees in your ... course?

• What percentage of patients with chronic pain achieve satisfactory pain control?

• What are student scores after implementation of the new curriculum?

Qualitative

• What factors prevent diabetic patients from taking their insulin daily?

• What barriers prevent teachers from providing constructive feedback to students?

• What are the factors that contribute to poor pain control in patients?

• What are students’ opinions about the new curriculum?
ESSENTIAL STEPS IN QUALITATIVE STUDY DESIGN
STEPS

• Topic
• Study question/s
• **Framework**
• Design
  • Population (teachers, trainees, leaders)
  • Sampling
  • Data
  • Outcome
• Analysis
• Quality and rigor

Phenomenology
Grounded theory
Ethnography
APPROACHES TO QUALITATIVE RESEARCH

➢ Ethnography
➢ Study of social interactions and cultural patterns in their natural settings

➢ Phenomenology
➢ Studying the reactions to or perceptions of a phenomenon or lived experience

➢ Grounded theory
➢ Developing a theory that can be tested or studied further
STEPS

• Topic
• Study question/s
• Framework
• Design
  • Population
  • **Sampling**
  • Data
  • Outcome
• Analysis
• Quality and rigor

Typical, Purposeful, Convenience, Extreme, Critical, Diverse, Snowball “Data Saturation”
STEPS

- Topic
- Study question/s
- Framework
- Design
  - Population
  - Sampling
  - Data
  - Outcome
- Analysis
- Quality and rigor

Observations in natural settings
Conversations (one on one, focus groups)
Narratives (reflections, open ended comments)
Archival documents (mission statements, course objectives)
**STEPS**

• Topic
• Study question/s
• Framework

**Design**
  • Population
  • Sampling
  • Data
  • **Outcome**

**Analysis**

**Quality and rigor**

Opinions
Reflections
Social interactions
Cultural beliefs
Barriers
Reasons for beliefs or behaviors
THE FINAL STEP

• Topic
• Study question/s
• Framework

Design
• Population
• Sampling
• Data
• Outcome

Analysis

Qualitity and rigor

Credibility (Internal validity):
Triangulation, Prolonged observation,
Skillful interviews

Transferability (External validity):
Detailed descriptions

Dependability (Reliability):
Multiple observations, Systematic
sampling data collection and analysis,
Respondent validation

Confirmability (Objectivity):
Detailed recording of notes, Grounded theory,
Include negative cases
SUMMARY

• Qualitative methods can
  • Bridge the gap between scientific evidence and practice
  • Provide opinions of participants in everyday context
  • Help us understand barriers to using evidence & guidelines and their limitations in informing health care or educational decisions

• Selection
  • Be clear on the research question(s), and select those participants who can best and most broadly inform the question(s)
  • Recruit participants purposefully until saturation or thorough understanding of the phenomenon is achieved.
STEPS IN ANALYSIS

- Raw text (notes, transcripts, recordings)
- Relevant text (codes)
- Repeating ideas (coding categories)
- Themes (groups of repeating ideas)
- Theoretical constructs (abstract grouping of themes by researcher)
- The narrative
BIBLIOGRAPHY

Applying Qualitative Methodology to Expand the Scope of Research and Scholarship

May 12, 2016

You are Dean Dumbledore of HMS (Hogwarts Magical School). HMS is the premier institution to educate students with potential wizarding traits and transform them into outstanding wizards who can protect the world from evil wizards like Lord Voldemort. Lord Voldemort and his team, the death eaters, are highly intelligent wizards with outstanding skills in dark arts. The Dean thinks that in order to defeat the death eaters, his young wizards need to understand the theory of the dark arts (knowledge), perform the spells that can shield or protect the world from evil spells (skills), and believe firmly in the value of good magic (attitudes).

With this in mind, he wants to pilot a course in school called “Defense of the dark arts”. Since this is a brand new course, a new curriculum needs to be designed and a course director appointed. The Dean wishes to explore what this curriculum should consist of and whom to appoint as Professor of this course. He convenes a subcommittee to help him design a study to answer both questions and decides that qualitative research design would be the most appropriate.

Using the worksheet provided and in small groups:

- Identify an area of interest from the case
- Please develop a qualitative study question for either or both of the following issues:
  - Curriculum design
  - Selection of course director
- Please choose one of 3 approaches for this study and justify your choice:
  - Ethnography
  - Phenomenology
  - Grounded theory
- Who is your study population?
- What sources of data might help answer your study questions?
- What data collection methods would you use?
Worksheet

A. Define a Research Question

What do I want to study?
_____________________________________________________________________________________
_____________________________________________________________________________________

What about this topic makes me curious?
_____________________________________________________________________________________
_____________________________________________________________________________________

What key findings about this area of study appear in the literature?

a) ______________________________________

b) ______________________________________

What is missing from the literature?

a) ______________________________________

b) ______________________________________

What about this area of inquiry may provide a good fit with qualitative methods? Why might quantitative methods be suboptimal for this inquiry?
_____________________________________________________________________________________
_____________________________________________________________________________________

Therefore, the purpose of this study is:
_____________________________________________________________________________________
_____________________________________________________________________________________

One central research question to address this is:
_____________________________________________________________________________________

Possible sub-questions:

1. ______________________________________
2. ______________________________________
3. ______________________________________

B. Approach

Which approach (e.g. phenomenology, grounded theory, ethnography) would best address the research question and why?
C. Design and Data Collection

Who is your study population? How will you sample the population (e.g. typical, purposive, convenience, extreme, critical, diverse, snowball)?

What method(s) of data collection would best help answer my question (e.g. observations, conversations, narratives, archival documents)?

What study outcomes are of interest?

What could be done specifically within my context/limitations/institution?
A Digital Ethnography of Medical Students who Use Twitter for Professional Development

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1Washington DC Veterans Affairs Medical Center, Washington, DC, USA; 2School of Medicine and Health Sciences, George Washington University, Washington, DC, USA; 3Georgetown University, Washington, DC, USA; 4Children’s National Health System, Washington, DC, USA.

BACKGROUND: While researchers have studied negative professional consequences of medical trainee social media use, little is known about how medical students informally use social media for education and career development. This knowledge may help future and current physicians succeed in the digital age.

OBJECTIVE: We aimed to explore how and why medical students use Twitter for professional development.

DESIGN: This was a digital ethnography.

PARTICIPANTS: Medical student “superusers” of Twitter participated in the study.

APPROACH: The postings (“tweets”) of 31 medical student superusers were observed for 8 months (May–December 2013), and structured field notes recorded. Through purposive sampling, individual key informant interviews were conducted to explore Twitter use and values until thematic saturation was reached (ten students). Three faculty key informant interviews were also conducted. Ego network and subnetwork analysis of student key informants was performed. Qualitative analysis included inductive coding of field notes and interviews, triangulation of data, and analytic memos in an iterative process.

KEY RESULTS: Twitter served as a professional tool that supplemented the traditional medical school experience. Superusers approached their use of Twitter with purpose and were mindful of online professionalism as well as of being good Twitter citizens. Their tweets reflected a mix of personal and professional content. Student key informants had a high number of followers. The subnetwork of key informants was well-connected, showing evidence of a social network versus information network. Twitter provided value in two major domains: access and voice. Students gained access to information, to experts, to a variety of perspectives including patient and public perspectives, and to communities of support. They also gained a platform for advocacy, control of their digital footprint, and a sense of equalization within the medical hierarchy.

CONCLUSIONS: Twitter can serve as a professional tool that supplements traditional education. Students’ practices and guiding principles can serve as best practices for other students as well as faculty.

KEY WORDS: social media; undergraduate medical education; internet; twitter; professional development.

Electronic supplementary material The online version of this article (doi:10.1007/s11606-015-3345-z) contains supplementary material, which is available to authorized users.

Published online May 8, 2015

BACKGROUND

Social media has transformed the way we communicate as a society. Medical students, who have grown up using these technologies, are adept at using social media for personal purposes. Ample attention has been paid to health professionals’ unprofessional use of social media, including privacy violations, conflicts of interest, and inappropriate relationships with patients;1–4 egregious lapses of professionalism have even resulted in medical school dismissal and state medical board sanctions.2,3 However, social media has power that could be harnessed for positive professional purpose. Sharing credible health content, advocacy, career networking, and staying up to date with one’s field can all be achieved through use of social media.5,6

Twitter is a social media platform with characteristics that can make it useful for professional networking. Its mission is, “To give everyone the power to create and share ideas and information instantly, without barriers.”7 Twitter has 271 million active users monthly, and 500 million tweets are sent each day.8 Among US online adults ages 18–29 years, 37 % use Twitter, and the majority of users have public accounts.8 Users write 140 character-limited messages called “tweets” that can contain links to webpages or other content. Users can interact with other users by following their accounts, and replying to, or mentioning other users in their tweets, thereby creating a network of connections. Many medical organizations and medical journals have Twitter accounts and share relevant information and news.9 Physicians on Twitter often post medical or health-related tweets and share information.10 Twitter has been identified as a potential learning tool in medical education.11,12 Medical education faculty can regularly participate in “chats” on Twitter, and others host Twitter journal clubs to discuss medical articles of interest. Hashtags help categorize tweets for indexing. There are currently active hashtags for medical education (#meded, #GME, #CME) and medical students (#medstudent).

Medical educators are challenged with guiding medical students along their professional development and giving
them the tools to succeed in their future careers. Little research has addressed how to leverage social media use for educational and career development. The goal of this research was to describe how and why medical students are using Twitter for their professional development.

**METHODS**

We conducted a digital ethnography with the research question, “What is the culture of medical students who use Twitter for education?” Sub-questions were, “How do they use Twitter?”, “With whom do they interact?”, and “What do they value?”

An ethnography is a qualitative research framework that seeks to provide a description and interpretation of a cultural group or system. This typically involves prolonged observation of the group, interviews with key informants who can provide insights into the group, and examination of cultural artifacts and documents. Digital ethnography (also called Internet, virtual, or online ethnography) is a research method used to examine the culture of online groups, modifying traditional ethnographic approaches and theory and applying them to the online space.

Our target group was medical student “superusers” who used Twitter for educational or professional purposes. We sought to describe this cultural group—their online behavior, their digital networks, and their values.

**Identification of Target Group**

We identified potential subjects by: 1) searching key words “medical student” and “med student” on Twitter.com; 2) searching existing public lists of medical students on Twitter collated by individual users; 3) searching relevant hashtags (#medstudent, #meded); 4) soliciting referrals by current subjects (chain sampling); and 5) hosting a medical education “tweetchat.” A “tweetchat” is a public real-time discussion on Twitter run by a moderator. For this study, two authors (KC and TK) hosted a 1 h tweetchat in April 2013 on how medical students use Twitter for educational or professional purposes, using the established #meded tweetchat. This helped to identify students in our target group, and also helped structure our interview guides.

All identified students were added to a general medical student Twitter list shared among the investigators. The number of students on this list was fluid, as students were continually added or removed (if not actually a student, for example), with a total of 293 at study closure. From the general medical student list, students were added to a superuser list if they were observed to post professional content (for instance, sharing a journal article or live-tweeting a medical conference), interact with other medical students and faculty, and/or participate in professional Twitter “chats.” The research team met weekly to establish consensus on who should be added to the superuser list. To be included, users had to be current medical students in the US. Current students at our medical schools were excluded. The final superuser list as of May 2013 included 31 subjects.

**Structured Observations**

Four investigators, including two expert Twitter users (KC and TK) and two novice users (MS and MT), observed tweets of the 31 superusers and of the general list of medical students for 8 months (May–December 2013), taking structured field notes, guided by key dimensions of descriptive observations (Space, Actors, Activities, Objects, Acts, Events, Time, Goals, Feelings). Subjects were invited for interview via email and provided an institutional review board (IRB)-approved information sheet on study procedures. Their agreement to participate served as consent. Interviews were digitally audio-recorded, and with the exception of personal identifiers, transcribed by an external service. At the conclusion of each interview, major themes were reviewed with the participant for member-checking. Interviews continued until saturation of themes was reached (n=10). For data triangulation, three faculty key informants, identified through student key informant interviews, were also interviewed. Faculty informants were asked to describe their interactions with students on Twitter, how they felt students used Twitter for educational purposes, and student best practices. All subjects interviewed were offered $25 for their participation. Interviews lasted between 30 and 60 min.

**Semi-Structured Interviews with Key Informants**

Using purposive sampling, key informant superusers were identified for interviews. We used a semi-structured interview guide designed to explore their use of Twitter, the nature of their interactions with other users, and what they valued from their use (Appendix). Subjects were invited for interview via email and provided an institutional review board (IRB)-approved information sheet on study procedures. Their agreement to participate served as consent. Interviews were digitally audio-recorded, and with the exception of personal identifiers, transcribed by an external service. At the conclusion of each interview, major themes were reviewed with the participant for member-checking. Interviews continued until saturation of themes was reached (n=10). For data triangulation, three faculty key informants, identified through student key informant interviews, were also interviewed. Faculty informants were asked to describe their interactions with students on Twitter, how they felt students used Twitter for educational purposes, and student best practices. All subjects interviewed were offered $25 for their participation. Interviews lasted between 30 and 60 min.

**Network Analysis**

In order to understand students’ use of Twitter, we extracted total number of tweets, number of followers, number followed, and for a subset of tweets, analyzed content for URLs, retweets, and hashtags for each key informant. Further, to understand and describe the virtual community in which students “live” and “interact,” we conducted two forms of network analysis: 1) an ego network (local network of an individual) analysis of key informants, and 2) a subnetwork analysis of key informants who were connected to each other. For the ego network analysis, we computed the centrality (ego behavior metrics) degree and clustering coefficient. The degree is the number of connections the individual (node) has, or the size of the local neighborhood. Clustering coefficient (value range 0–1) is a measure of the connectivity a local neighborhood. Higher clustering coefficients indicate a well-connected neighborhood and potential for rapid information dissemination.

Subnetwork analysis focuses on the characteristics of the network itself. The metrics we computed were subnetwork density, number of triangles, and subnetwork diameter. These
metrics help describe the connections between the key informants and the ability to transmit information within this group. We used R, Node XL (an Excel-based tool) and Gephi (network analysis and visualization software) for the network analysis.

Qualitative Analysis and Trustworthiness

The team met monthly to discuss observations and review interview transcripts. Memos captured emerging themes and analytic insights from comparing and contrasting the various forms of data (triangulation). We compiled a list of codes that emerged inductively from the data and applied these to all field notes and interview transcripts. Each transcript was coded independently by two investigators; in addition, to add consistency, a single investigator (KC) coded all transcripts. Codes were compared and any discrepancies were resolved through discussion; subsequent modification of codes resulted. Representative and exemplary quotes were highlighted for each code. Following principles of inductive analysis19 and incorporating network analysis results, we constructed a description of the target group.

We bolstered trustworthiness in several ways: 1) triangulation of data sources and methods; 2) inclusion of expert and novice Twitter users and a medical student on the researcher team; 3) member checking of main themes at the end of the interviews; 4) creation of an audit trail to document team decisions and discussion; 5) peer-review of transcripts with feedback given to interviewers; and 6) use of multiple interviewers. Qualitative data was managed with NVivo10 (Cambridge, MA). The Washington DC Veterans Affairs Medical Center Institutional Review Board approved the study.

RESULTS

Of the 31 superusers, 17 were female, 13 male, and for one, gender was not specified. Thirteen (41 %) linked to their blogs. The majority (25, 81 %) appeared to include their real name on their Twitter prolife. They represented all regions of the US and all years of medical school. For the ten student key informants, seven were female and three were male. They were in their first year (2), third year (2) and fourth year (6) of medical school. They lived in large cities on the East Coast, West Coast, Midwest, and Southern regions of the US.

Results are organized around how students use Twitter (practices), their interactions (network analysis), and why they use it (value).

Twitter Practices of Superusers

Overall, students were active Twitter users who were often early adopters of Twitter use among their medical school classmates. Many also had a personal blog. They followed other medical students, medical faculty, medical journals, medical and news organizations, and other health professionals, among others.

Medical student superusers used Twitter thoughtfully and were guided by the purpose of their use. They were mindful of their professionalism online and were careful not to mention specific patients to protect patient privacy. Many mentioned thinking twice before tweeting to avoid potential misinterpretation of what they meant to say. In general, they avoided venting and possible inflammatory statements and were aware of their public image. Their tweets included both professional and personal content.

“I’m a real-life person. I’m not a made-up person. I don’t think that that detracts from my professional interaction—that’s just me.” (Key informant 8)

“I try to go about my social media as if I was actually interacting with a patient. So if I were to see a patient in the office … you do share a little bit about your personality so that’s where I post things about myself and my personal life.” (Key informant 9)

Superusers also practiced “good Twitter citizenship” by contributing to conversations, sharing helpful information with others, and being cognizant of posting etiquette.

Students identified faculty role models on Twitter who helped guide their own use in terms of how to share information and how to respond to challenging situations with other users. We did not observe any unprofessional content posted. See Box 1 for a summary of superusers’ Twitter practices.

| Know purpose for use |
| Mindful of online professionalism |
| Avoid mentioning specific patients |
| Think twice, tweet once |
| Avoid venting |
| Avoid inflammatory statements |
| Aware of public image |
| Not strictly medical content, show “personality” |
| Practice “good Twitter citizenship” |
| Contribute to conversations |
| Share information |
| Aware of posting etiquette |
| Identify faculty role models for use |

Network Analysis of Key Informants

As of July 2014, the student key informants followed a median of 489 (range 56–6425) Twitter users. They, in turn, were followed by a median of 1770 (range 403–11169) users. The key informants posted a median 7371 tweets (range 4172–21057) since their Twitter debuts (which predated our study in all cases). Analysis of a subset of 2074 tweets (Twitter imposes restrictions on how much data can be imported) revealed that 553 contained URLs, 423 were re-tweets, and 647 contained one or more hashtags (Table 1).
Figure 1 shows the full followers network on the key informants. The ten key informants connect to 40,091 other individuals on Twitter. Based on the average directed degree (2) and the low clustering coefficients (0.054 directed, 0.102 undirected), key informant networks have limited overlap. They are not the center of a broader community structure, although they may participate with multiple separate overlapping communities. This suggests an opportunity for extensive information dissemination (access to different groups to share information with).

Figure 2 visually highlights the connectivity between key informants from the ego and subnetwork analysis. Overall, the informant network is well connected (clustering coefficient of 0.851, average directed degree 9). None of the males are connected to each other, but the majority of females follow each other. The overall subnetwork density is 0.46, high for a Twitter subnetwork. Subnetwork analyses support that students maintain large, diverse networks that have other key informants in them, but otherwise interact with different subgroups of people.

**Value for Medical Students**

Twitter served as a professional tool, something that supplemented their medical school education.

“I just think it’s helped me grow as a professional because…there is more to who you become as a physician that can enable better patient care that doesn’t happen just with textbooks.” (Key informant 4)

Students derived value from Twitter in two main domains of Access and Voice (Fig. 3).

**Access.** Medical student superusers gained access to information, to experts, to a variety of perspectives including patient/public perspectives, and to communities.

Twitter is a way that these students accessed information. They used it to stay up to date with general news and their fields of interest.

<table>
<thead>
<tr>
<th>Hashtag</th>
<th>Frequency count</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>#socaphealth</td>
<td>69</td>
<td>Socap Health conference; goal is to examine the roles of entrepreneurs, investors, and funding bodies in the larger public health ecosystem.</td>
</tr>
<tr>
<td>#meded</td>
<td>63</td>
<td>Medical education; weekly Twitter chat.</td>
</tr>
<tr>
<td>#hcsm</td>
<td>31</td>
<td>Healthcare communications and social media; weekly Twitter chat.</td>
</tr>
<tr>
<td>#fimrevolution</td>
<td>26</td>
<td>Family medicine revolution; Re-branding campaign started by family med residents to promote family medicine careers.</td>
</tr>
<tr>
<td>#ase2013</td>
<td>25</td>
<td>Association for Science Education 2013 conference</td>
</tr>
<tr>
<td>#sdoh</td>
<td>23</td>
<td>Social determinants of health</td>
</tr>
<tr>
<td>#fitstats</td>
<td>20</td>
<td>Fitness statistics derived from popular fitness app</td>
</tr>
<tr>
<td>#disruptinginequality</td>
<td>16</td>
<td>Disrupting inequality; advocacy for social change</td>
</tr>
<tr>
<td>#medschool</td>
<td>16</td>
<td>Medical school</td>
</tr>
<tr>
<td>#medstudent</td>
<td>15</td>
<td>Medical student</td>
</tr>
<tr>
<td>#residency</td>
<td>11</td>
<td>Residency</td>
</tr>
<tr>
<td>#usavsbel</td>
<td>11</td>
<td>USA versus Belgium World Cup game</td>
</tr>
<tr>
<td>#commdev</td>
<td>10</td>
<td>Community development</td>
</tr>
<tr>
<td>#obgyn</td>
<td>10</td>
<td>Obstetrics/Gynecology</td>
</tr>
</tbody>
</table>

*Tweets occurred between January 2013 and July 2014. No hashtags were excluded*
Students on Twitter find value in the ability to access content experts in medicine with whom they otherwise would not be able to connect. One key informant asked a question on Twitter during a lecture and had an international expert respond with the answer within 2 min—before the class instructor could look up the answer. Other key informants described having access to medical content experts during Twitter chats or following experts who tweeted clinical pearls.

Twitter provided some students with opportunities for professional collaborations, allowing them to connect with other medical students with similar interests.

Access to individuals with different perspectives was of particular value for students, including others’ opinions about health policy, medical education, and the medical profession in general. For many key informants, being able to gain the patient perspective was invaluable to their professional development.

“…looking at their feeds and hearing them talk about their experiences has really changed the way that I see the personal side of patients—how the medical system has worked for them, and that’s really not something that we get [in training].” (Key informant 1)

“[I] ask them a lot of questions about how they’ve been treated by their doctors…It’s kind of like an opportunity to just interview a lot of patients without having to wait until third year.” (Key informant 6)

Beyond the patient perspective, Twitter also allowed them a broader context by which to understand medicine, outside of the patient–physician dynamic.

Through Twitter, students gained access to communities of learning and support. One key informant shared, “The most valuable thing for me is a sense of community, because as an older medical student there’s just not a lot of community.”

Students described having a community of medical students that congratulate each other when milestones are reached, help each other study for exams and experience medical school together.

“We all kind of support each other and…are there to cheer each other on as we go through medical school.” (Key informant 10)

“We share information all the time. We share articles, we share study techniques.” (Key informant 8)

Students interacted with faculty on Twitter who provided advice, encouragement and virtual mentorships.

“We had basically a public discussion where I just asked her questions about what is the right way to talk
Students also connected with communities of like-minded others, such as communities centered on personal interests and hobbies or those who carried similar views. For some, these communities served as sources of inspiration.

For instance, one student commented on the impact of a Twitter community on her decision to pursue a primary care specialty.

"...coming from my institution... the attendings weren’t always the most supportive in trying to persuade people to go into primary care so having that online group of people that was really supportive and giving advice to each other and patting each other on the back— I think that was super inspiring." (Key informant 9)

These communities of like-minded others have helped students maintain their ideals.

"I want to make a difference ...Twitter gave me a community where I could like not like feel alone in doing that. How Twitter has influenced me is that it really connected me to other people that believe that we can make things better." (Key informant 8)

Voice. Twitter also provided students value by giving them a voice in the domains of advocacy and an enduring digital footprint, and was an equalizer of power.

Some students used Twitter as a platform to support political issues and to share their health policy opinions. It helped...
them develop their own voice and engage with others outside of their comfort zones.

“I think it’s important for everyone to have a voice and honestly I think a lot of times medical students really need to have the loudest voice of all, because they’re the people in the transition zone between being a patient and a receiver of healthcare to being a healthcare provider.” (Key informant 8)

Twitter allowed medical students a way to craft their digital footprint in a positive way.

“I want them to search for me and find a consistent presence that is positive.” (Key informant 7)

Finally, Twitter served as an equalizer and a “leveling force in terms of power hierarchy” (Key informant 5).

“A lot of times I don’t even know if … the person that I’ve talked to is faculty or student or resident… it’s often just a conversation… the great equalizer.” (Key informant 7)

“It kind of disrupts who gets a voice, like who gets to talk about what.” (Key informant 4)

**DISCUSSION**

For this group of students, Twitter served as a professional tool, giving them access and voice. It provided added value from the traditional medical school curricula; they gained support, networking opportunities, mentorship, and learning. These students do not represent the majority of medical students on Twitter, but a subculture who were often pioneers in their use of Twitter for professional purpose.

We were particularly moved by students’ interactions with patients. Note that these were not patients the students had cared for clinically, but people on Twitter who self-identified as patients with certain disease conditions. Students seemed to greatly value hearing patient perspectives, gaining greater cultural sensitivity and understanding of what it is like for patients living with their conditions. Social media, with its many virtual patient communities, could be a resource for medical students to better understand the patient experience.

The posting practices of these superusers align with guiding principles of online professionalism derived from national consensus statements and guidelines, research on stakeholders’ perspectives of what is appropriate and what is inappropriate to post, and expert opinion. These include safeguarding patient privacy, “pause before posting,” avoiding inflammatory material, and carefully considering material that is to be posted for public consumption. The one area where superusers deviated from published guidance is the advice to maintain separate personas or accounts for personal and professional purposes. Superusers included parts of their personal lives on their accounts and felt this added to their authenticity. Of note, others have disagreed with recommendations to separate professional and personal online identities, arguing that this is simply not possible on the Internet, is inconsistent with the concept of professional identity, and could be potentially harmful.

In comparison to the average Twitter user, the key informants in this study had more followers. The majority of Twitter users have fewer than 50 followers whereas the median number of followers for student key informants was 1770. In Twitter, the amount of community structure is correlated with the number followers a person has. Network analysis metrics of the key informant subnetwork reflect a social network community as opposed to an information network community. In other words, the students we studied tend to have social, reciprocal relationships on Twitter more so than simple information retrieval, and this may account for some of its added value.

In a systematic review of social media use in medical education that included 14 studies incorporating social media in formal curricula, Cheston et al. cited opportunities of promoting learner engagement, feedback, collaboration and professional development. Some medical educators have advocated for the use of Twitter, specifically, as a professional tool. In their pilot studies, George and Dellasega noted that Twitter, as one of several social media platforms incorporated into two humanities courses for fourth-year students, augmented learning and collaboration and allowed real-time communication between learners and instructors outside the classroom. Little research exists about how medical trainees or physicians actually use social media for informal learning and professional development. The present study thus fills a gap in the literature.

Connectivism is a learning theory that supports the use of Twitter for learning. Connectivism relates learning as a process of connecting information sources; nurturing these connections is needed for continual learning. A diversity of perspectives and opinions fuel learning and knowledge, and the capacity to increase one’s knowledge is more important than what one currently knows. Managing and filtering the information on Twitter and other social media platforms in order to obtain the most current information in students’ fields of interest may be a key competency for today’s learners that is not regularly addressed in undergraduate medical curricula.

Future research could explore how students critically appraise information on Twitter or other social media sites, as well as the quality of students’ learning.

The ability and desire to use Twitter as a professional tool may be specific to certain students. In one study of osteopathic medical students, students with learning styles self-assessed as active, global, intuitive and/or visual were more likely to access online educational materials than those whose learning styles were reflective, sensing, sequential, and/or verbal. In addition, individual student preferences and characteristics
may dictate whether students choose to use Twitter for professional development. Many in our sample also had a blog; this could indicate particular comfort in sharing ideas publicly. This study has potential limitations. Digital ethnography is a newer research method; diverse approaches have been used to study the Internet with an ethnographic perspective. Key informants may not have disclosed fully in interviews if concerned about anonymity, though efforts were made to reduce this possibility. Expert Twitter user faculty investigators may have carried pre-existing assumptions about student use; to test these assumptions, the team also included novice users and a medical student. Also, we limited network analysis to key informants (instead of the larger group of superusers) given we had only the informants’ expressed consent to be included in our study.

In conclusion, medical students who regularly used Twitter as a professional tool were doing so with thoughtfulness and purpose. Twitter allowed them access and voice that supplemented their medical school experience. Their Twitter practices can serve as best practices for other students as well as faculty, in their career lifelong learning and professional development.

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REFERENCES

Moral Distress Amongst American Physician Trainees Regarding Futile Treatments at the End of Life: A Qualitative Study

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BACKGROUND: Ethical challenges are common in end of life care; the uncertainty of prognosis and the ethically permissible boundaries of treatment create confusion and conflict about the balance between benefits and burdens experienced by patients.

OBJECTIVE: We asked physician trainees in internal medicine how they reacted and responded to ethical challenges arising in the context of perceived futile treatments at the end of life and how these challenges contribute to moral distress.

DESIGN: Semi-structured in-depth qualitative interviews.

PARTICIPANTS: Twenty-two internal medicine residents and fellows across three American academic medical centers.

APPROACH: This study uses systematic qualitative methods of data gathering, analysis and interpretation.

KEY RESULTS: Physician trainees experienced significant moral distress when they felt obligated to provide treatments at or near the end of life that they believed to be futile. Some trainees developed detached and dehumanizing attitudes towards patients as a coping mechanism, which may contribute to a loss of empathy. Successful coping strategies included formal and informal conversations with colleagues and superiors about the emotional and ethical challenges of providing care at the end of life.

CONCLUSIONS: Moral distress amongst physician trainees may occur when they feel obligated to provide treatments at the end of life that they believe to be futile or harmful.

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BACKGROUND

Ethical challenges are common in end of life care; the uncertainty of prognosis and the ethically permissible boundaries of treatment create confusion and conflict about balance of benefits and burdens experienced by patients. Embedded in end-of-life care are ethical dilemmas that are punctuated by conflicts between differing ethical obligations such as respecting a patient’s autonomy and the duty to do no harm.

Case studies in the ethical literature have described and hypothesized that physicians experience moral angst regarding overly aggressive or “futile” care.1,2 The definition of futility is controversial, and no one definition is universally accepted. One describes futility as an “effort to provide a benefit to a patient that is highly likely to fail and whose rare exceptions cannot be systematically produced.”3 In one study, nearly 70% of house staff reported acting against their conscience in the care they provided at the end of life, with four times as many respondents concerned about over-treatment than under-treatment.4 Surveys have shown that clinicians sometimes perceive care in the intensive care unit (ICU) as inappropriate or futile, resulting in high costs and resource utilization.5,6

Moral distress occurs when individuals believe they are unable to act in accordance with their ethical beliefs due to hierarchical or institutional constraints.7 Mobley et al. hypothesized that the intensity and frequency of moral distress increased with exposure time to futile care, resulting in burnout and emotional exhaustion.8 This can have significant negative effects on job satisfaction, psychological and physical well-being, and self-image, with consequent burnout and thoughts of quitting.6,9–11

The vast majority of the literature on moral distress focuses on the nursing profession.12,13 Several qualitative studies on nurses have demonstrated that moral distress is associated with provision of treatments perceived to be overly aggressive and non-beneficial to patients.10,14,15 While there have been theoretical discussions on moral distress experienced by physicians, there have only been a small number of empirical studies demonstrating moral distress in U.S. physicians, the majority of which have focused on physicians as members of
larger interdisciplinary teams. To our knowledge, there are no studies that describe the physician or physician trainee experience surrounding moral distress associated with end of life care in the United States.

This report is part of a larger study investigating physician and trainee views on resuscitation orders. During the course of these research interviews, moral distress emerged as a major theme amongst trainees. In this paper, we examine how medical physician trainees perceive and respond to ethical challenges arising in the context of treatments at the end of life that they perceive to be futile and how these challenges may contribute to moral distress.

**METHODS**

**Design**

Semi-structured in-depth interviews were conducted to investigate physician trainees’ experiences and attitudes regarding medical practices and treatments at the end of life.

**Hospital Sample**

We purposively sampled three academic medical centers with accredited internal medicine residency and fellowship programs in medium to large cities in the United States. These hospitals were chosen based on variations among them in end of life care. All three hospitals had palliative care and ethics consultation services.

**Physician Sample**

Participants were sampled by stage of training to provide a wide range of perspectives. Physicians were excluded if they had not attended medical school and residency in the United States. Our sampling strategy was opportunistic and non-probabilistic. Recruitment occurred through e-mail solicitations to residency list serves, announcements before house staff conferences, individual solicitations of physician trainees, and referrals from respondents of colleagues who might be interested.

Interviews were conducted in person, with the exception of two interviews that were conducted via Skype. An interview guide used across all sites provided thematic continuity (see appendix, available online). However, the interview format was open-ended, encouraging participants to explore issues they considered most relevant. Interviews lasted between 45 and 120 min and were audiotaped and transcribed verbatim. Data collection concluded when we reached theoretical saturation, a point where no new themes arose from the interviews.

**Analysis**

This qualitative study was exploratory in nature, intended to deepen conceptual understanding of underlying phenomena that drive physician attitudes and behavior. Themes and patterns emerged from initial interviews and analysis, and were refined and validated in subsequent interviews through questions added to the interview guide and probing of key themes during the interviews.

Our qualitative approach was grounded in a framework that acknowledges that multiple perspectives are intrinsic to the research process and the importance of the perspectives that the researchers bring to the fieldwork and analysis. Throughout the analyses, we drew upon our own clinical experiences in a reflexive manner, understanding how it would both inform and potentially bias our interpretation of the interview data. Data were analyzed and theories developed as more interviews were conducted and coded. Hypotheses and themes developed became the subject of questions in subsequent interviews to further confirm the trustworthiness of the data. Disconfirming cases were recognized and analyzed in light of their effect on the emerging theory.

Two independent readers (ED, AC) identified initial key themes and concepts that occurred through a subset of the interviews using an editing analysis style, and developed a codebook through an iterative process. They subsequently coded 20% of the interviews with rare disagreement, meeting to discuss emerging themes and patterns. One researcher (ED) then analyzed and coded the remaining interviews using the codebook, adding additional themes and adapting categories as needed. Data were coded by hand and managed in Excel. Member checking was conducted through regular discussions with individual physicians and in-group meetings where findings were discussed.

Informed consent was obtained from all interviewees and interview data were anonymized during transcription. The study was approved by the Johns Hopkins University Institutional Review Board.

**RESULTS**

Over a 9-month period, one investigator (ED) recruited and interviewed 22 internal medicine residents and medicine subspecialty fellows or physicians with less than 6 years of experience (Table 1). Because similar themes and patterns emerged in trainee responses across all sites, we based our

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<tr>
<td>Years of experience, range (mean)</td>
<td>1–6 (3.57)</td>
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<td>Resident, n (%)</td>
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Table 1 Demographic Characteristics of Study Participants (n=22)
assessment of theoretical saturation on the aggregate interviews among all three sites. Themes that emerged relating to moral distress included language of torture and suffering, practitioner suffering, powerlessness, hierarchy, and dehumanization. Physician trainees at one of the three hospitals also discussed institutionally organized coping mechanisms such as conversations about patients who died.

**TREATMENTS PERCEIVED TO BE FUTILE**

One hospital had a futility policy in place (Hospital B), another had a futility clause incorporated into their DNR policy (Hospital C), and the last did not have a futility policy at all (Hospital A). Trainees were generally not aware of futility policies or DNR policies, and rather appeared more aware of the culture of their institution regarding these policies than the policies themselves.

This study focused on trainee physicians’ attitudes towards treatments that they perceived to be futile. Respondents were asked to describe relevant cases. While we were primarily interested in their perceptions and reactions to clinical situations that they personally felt were futile and distressing, the majority of these cases appeared to fulfill the standard definitions of futility described earlier in the paper. One example is listed here; others can be found in the online supplement:

This person with advanced dementia had been in and out of the ICU multiple times that month at baseline, and had very poor cognitive functioning. She had no quality of life. She was septic. I forget how many other comorbidities on board. Just kind of a remote family member was making the decisions, and had spent a week in the ICU remaining full code despite everybody’s efforts, and ultimately code again and didn’t survive. But I think that’s a pretty common scenario, especially in the ICUs and everything (Hospital B, PGY-2).

**“TORTURE” AND “SUFFERING”**

Trainees sometimes felt obligated to provide end of life care that was not in the patient’s best interest. They frequently used the words “torture” and “suffering” to describe this treatment:

It felt horrible, like I was torturing him. He was telling us we were torturing him. I did not think we were doing the right things (A, PGY-3).

We spend a lot of time at the end of life in the ICU torturing our patients and so, I can’t in good conscience say that our current system really seems to serve the best interests of the patient because, we torture them before they die, even though we know that they are going to die (B, PGY-4).

A common source of moral angst among respondents appeared to relate to situations where surrogate decisions appeared to go against prior patient wishes. Physicians questioned whether the families made decisions in the patient’s best interests. For example, one said:

It is infuriating when the family is not there and they cannot see. I feel like it’s morally wrong. When people see their family members suffering and they are there suffering with them, I am more understanding of their decision…I agree with giving the patients choice, but oftentimes it’s the family member. If the patient says, “Torture me, I want everything done.” Fine. The family member is doing it for other reasons. Like guilt; they can’t let go (A, PGY-3).

**PRACTITIONER SUFFERING**

Many of the trainees expressed practitioner suffering and emotional angst over treatments they or their colleagues provided at the end of life:

At this point, the staff felt so much moral distress caring for this person. They just feel like they’ve been prolonging suffering as opposed to providing care (C, PGY-6).

I thought maybe we should involve ethics because the house staff team was very, very demoralized by this gentleman’s care (B, PGY-4).

Trainees felt particularly distressed providing what they believed to be overly aggressive treatments such as resuscitation that was unlikely to work:

A lot of traumatic things happen when you’re a resident. There was this tiny 90-year-old lady. We had to code her and it was one of the worst experiences of my life…I had a lot of moral distress when I kept coding her for an hour (B, PGY-6).

**PERCEIVED POWERLESSNESS**

One theme that frequently emerged from these interviews was a perceived powerlessness over physicians’ ability to prevent harmful and futile treatments:

You know there’s no good outcome. You just continue to code them and at some point they’re going to die. You’ve wasted time and resources and you’ve just provided futile care and tortured somebody for however much more time. Then there’s the whole disassociation where you want what’s best, but what can you do? And what do you have ability to affect? You just do your job (B, PGY-3).
HIERARCHY

Physician trainees attributed some of their powerlessness to a clear hierarchy in academic institutions. Trainees felt unable to question the decisions of their attending even when those decisions seemed contrary to what the trainee believed was right. The trend was often towards more aggressive care:

"I was taken aback. I had multiple patients where the patient and families were on board with comfort care. They had the goal of decreasing suffering and pain, but the attending was not on board with comfort care and DNR/DNI. That can be very difficult as a resident (A, PGY-2)."

Another reflected on the overall hierarchy, with less moral distress the more removed one was from patient care:

"It’s very significant moral distress. There are definitely patients that disturb the nursing staff because they are the ones who have to carry out the doctor’s orders and who are at bedside seeing the effects of our treatment—seeing patients suffer. That translates to the interns who are seeing the patients suffer, then the residents, fellows, and sometimes even attendings. So it goes up the chain, but I feel that each step is slightly further removed from the patient so they’re seeing less (C, PGY-6)."

DEHUMANIZATION AND RATIONALIZATION

This resident appeared to employ a process of dehumanization to detach himself as a coping mechanism:

"We’re abusing a body, and I get that, but as long as I remember I’m only abusing a body and not a person, it’s okay. Frequently when it’s an inappropriate code, that’s what’s happening (C, PGY-3)."

One fellow (A, PGY-4) remarked that she had become "numb to it" and that to not reflect upon these ethical dilemmas was the only way to make it through training. Another physician remarked:

"We do a lot of terrible things to critically ill patients and at the end of life. It’s routine care, and I feel pretty numb to having done those things… it seems like there is no benefit and only risk. Yet I am accepting the patient to have these procedures done to them. I’m in that situation all the time. I’m pretty powerless to do anything about it (B, PGY-4)."

This physician described the self-interest aspect of medical learning as a justification for futile resuscitation for the sake of medical education:

"We are torturing this poor gentleman; that is really all we are doing. I do vaguely feel uncomfortable about the general gestalt of what we do in the ICU to people at the end of life. I feel morally sick to my stomach about it of course. Some of what we do is awful, but some of those things have also given me the skills to resuscitate [others]. I don’t mean to justify the torture that we put our elderly critically ill and dying through, but it did provide me with many learning opportunities to help people who then could be saved (B, PGY-4)."

Another resident worried that his cynicism would affect his behavior and attitudes towards patient care:

"I have grown increasingly cynical about what medicine has the capacity to do. That has shaped how I converse with patients. I think cynically through residency I started to wish this person would be DNR/DNI because they are totally unfixable. The danger is that you get a bit sloppy and you’re looking for DNR as a way to off-burden your work and labor and not be meticulous (B-PGY-4)."

SUCCESSFUL COPING STRATEGIES AGAINST MORAL DISTRESS

The most common coping strategies described involved formal and informal open forum discussions. One of the three hospitals had a culture that actively promoted such conversation:

When I was a med student, a patient I was taking care of died. I didn’t find out for two days because I had left. I felt hurt by that. I have noticed that whenever a patient dies here, whoever is taking care of them is notified, whether it’s by a quick text message or whatever. The first time an intern has a patient who dies, I talk about it with them before, how to approach the family and talk about with them afterwards about how they felt it went to the family. I feel like there is a lot of space for emotions here (C, PGY-3).

The culture in this hospital seemed to be influenced in part by a palliative care-friendly environment, especially a program called “death rounds.” This weekly session facilitated open discussion and normalization of emotional issues, providing time and space for reflection within a busy resident schedule:
We have death rounds once a week and talk about our emotions around making these decisions. It gives us time to slow down and everybody can say their story about a patient that touched them, or a concern that they had, or that made them feel a little uncomfortable. It usually ends with people crying. The program, the staff, and the residents tend to talk about emotions a lot. I think death rounds helps facilitate that (C, PGY-3).

CONCLUSIONS

Our study sheds light on a significant cause of moral distress amongst physician trainees when they feel obligated to provide treatments at the end of life that they believe to be futile or harmful. Their words—“torture,” “gruesome,” “abuse,” “mutilate,” and “cruel”—evoke images more befitting penal regimes than hospitals. The moral toll exacted upon these physicians is evident in descriptions such as feeling “violated” and “traumatized.”

These findings are consistent with a study by Solomon et al. suggesting that trainees “acted against their conscience in providing care to the terminally ill.” The vast majority of respondents in the present study appeared more concerned about providing overly burdensome treatment than under-treatment. Their attitudes may reflect inexperienced doctors' feelings of being trapped by expectations and policies that prioritize patient autonomy, as they have yet to develop the experience or confidence to cope with these ethical conflicts.

Among physicians, trainees are particularly vulnerable to moral distress because they are subordinate but on the front line, which reinforces a perceived powerlessness to act as independent moral agents against treatments that they believe may do more harm than good. This study provides evidence that similar to nurses, trainees may experience moral distress from perceived futile care, thus highlighting the need for greater nuance and attention to differences between trainees and attending physicians. One study noted that decreased autonomy was associated with increased frequency and intensity of moral distress amongst nurses. Because the hierarchy of control over decision-making descends from attending to resident to nurse, the consequent degree of moral distress experienced by trainees may be more similar to nurses than attending physicians.

In light of this perceived helplessness, physician trainees can become emotionally detached and cynical, and may dehumanize their patients in order to protect themselves. Prior reports have highlighted the negative effects of cynicism and burnout on empathy, patient care, and the culture of medicine. Cynicism can alienate young physicians from their profession, as they begin to wonder whether their efforts are meaningless or harmful.

Trainee distress may be a root cause of a decline in empathy, and can be related to experiences such as perceived ethical and professional dilemmas and exposure to death and human suffering. Contradictions between the ethics taught in medical school and practices on the wards may contribute to the ethical erosion that can occur during medical training, which results from an inability to address the moral distress and ethically unjustified treatments they are asked to provide. Ethical erosion and empathy decline may reflect mechanisms of self-preservation through detachment and dehumanization.

The dispensation to inflict pain is a necessary professional duty, but it also engenders moral vulnerabilities. Stepping over the fine line between inflicting necessary and unnecessary pain, for example during futile treatments, may contribute to the decline in empathy during medical training, as demonstrated by previous U.S. studies. These experiences have significant impacts on physicians’ professional identity and moral personhood during their most formative years.

The limitations of this study include social desirability bias as well as a concern among respondents that their answers might affect their evaluations or be relayed to their superiors. However, participants were assured that interviews would be confidential and that the interviewer had no affiliation with their residency program. Another limitation is the exclusion of community hospital-based residency programs.

Interventions that remind physicians of the humanity of their patients and reconnect them to their own humanity and professional purpose can help mitigate moral distress and counteract loss of empathy. Programs such as Schwartz Center Rounds and death rounds (at Hospital C) serve as important coping strategies for dealing with these difficult issues.

Providing a safe space where emotions and compassion are encouraged helps to counteract the culture of stoicism in medicine. In the harried life of a resident, encouraging opportunities to stand back and reflect, even as simple as a text message or a short time-out, gives permission to acknowledge the inherently challenging emotional and humanistic aspects of patient care. These conversations also promote the importance of physician self-care, a prerequisite to one’s ability to care for others, which may in turn help foster the empathy needed to remain a compassionate physician. A crucial component of fostering open dialogue and awareness of issues surrounding death and dying is establishing palliative care-friendly environments through palliative care and ethics services and consultation.

Strategies for addressing moral distress explored in the literature thus far include re-calibration of emotional responses, resilience and mindfulness training, and promotion of inquiry and reflection. Medical education should continue to recognize the importance of addressing these issues through focus groups, didactic sessions, and awareness of the training environment and culture. Root cause analyses and other systematic methods to understand structural and organizational factors can also help in recognizing and addressing sources of moral distress. An example of a policy-oriented intervention includes a statement issued by the American

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Thoracic Society that addresses situations to which a clinician might morally object and seeks to establish institutional norms that allow for practitioners to personally excuse themselves from morally problematic situations.

These strategies, likely underutilized at many institutions, could be used to mitigate moral distress and loss of empathy during medical residency and fellowship training. This study describes experiences of moral distress amongst physician trainees in response to treatments administered at the end of life that they perceive to be futile. It provides insight into the scope and character of moral distress amongst physicians, and physician trainees in particular. These findings underscore the need to enhance support and training for physician trainees in the context of end of life care in order to address morally distressing situations.

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Collaborating in the context of co-location: a grounded theory study

Pamela Wener1* and Roberta L. Woodgate2

Abstract

Background: Most individuals with mental health concerns seek care from their primary care provider, who may lack comfort, knowledge, and time to provide care. Interprofessional collaboration between providers improves access to primary mental health services and increases primary care providers’ comfort offering these services. Building and sustaining interprofessional relationships is foundational to collaborative practice in primary care settings. However, little is known about the relationship building process within these collaborative relationships. The purpose of this grounded theory study was to gain a theoretical understanding of the interprofessional collaborative relationship-building process to guide health care providers and leaders as they integrate mental health services into primary care settings.

Methods: Forty primary and mental health care providers completed a demographic questionnaire and participated in either an individual or group interview. Interviews were audio-recorded and transcribed verbatim. Transcripts were reviewed several times and then individually coded. Codes were reviewed and similar codes were collapsed to form categories using using constant comparison. All codes and categories were discussed amongst the researchers and the final categories and core category was agreed upon using constant comparison and consensus.

Results: A four-stage developmental interprofessional collaborative relationship-building model explained the emergent core category of Collaboration in the Context of Co-location. The four stages included 1) Looking for Help, 2) Initiating Co-location, 3) Fitting-in, and 4) Growing Reciprocity. A patient-focus and communication strategies were essential processes throughout the interprofessional collaborative relationship-building process.

Conclusions: Building interprofessional collaborative relationships amongst health care providers are essential to delivering mental health services in primary care settings. This developmental model describes the process of how these relationships are co-created and supported by the health care region. Furthermore, the model emphasizes that all providers must develop and sustain a patient-focus and communication strategies that are flexible. Applying this model, health care providers can guide the creation and sustainability of primary care interprofessional collaborative relationships. Moreover, this model may guide health care leaders and policy makers as they initiate interprofessional collaborative practice in other health care settings.

Background

Individual Canadians seeking mental health services are most often seen by their primary care provider (PCP). Watson et al. reported that 30–40% of Canadians who visit their PCP have symptoms of a mental illness [1]. Individuals with mental illness make up at least 20% of primary care patient visits [2] and take up approximately 25–50% of the PCP’s practice time [3]. PCPs treat more than 50% of Canadians who are seeking mental health services [4–6], while mental health specialists treat only 25% of these individuals [4, 7]. Given these statistics, PCPs make a significant contribution to the overall Canadian mental health system.

Although PCPs provide most of the mental health services, their knowledge, skills, and comfort working with those who have mental illness varies. Some authors discuss family physician’s (FP) feelings of discomfort working with patients with depression [8–11]. Other authors, discuss the lack of PCPs’ knowledge and experience as a barrier to treating patients with depression. For example, Henke et al. describe a qualitative study...
using semi-structured interviews to gather information about the barriers to working with patients with depression. These authors collected data from 23 FPs who are practicing throughout the United States. In describing the study, the authors include their methods for creating the interview guide, the interview process and details of how they used a grounded theory approach to analyze the data. These authors reported six barriers to working with patients with depression including, difficulty diagnosing and a lack of experience. Anthony et al. conducted a mixed methods study of 40 PCPs including FPs, NPs, and general internists from one large urban centre in the United States [10]. These authors sought to understand PCPs’ decision to refer patients for depression care. The authors provide a thorough description of study process including, methodology, data collection instruments, and the specifics of the data analysis. The reported results of this study described the participants discomfort treating patients with depression. Prescribing medication is an important aspect of evidence-based treatment for depression and anxiety [12]. However, FPs report moderate levels of comfort prescribing medications for these patients [13]. For example, Craven and Bland [14] who conducted a comprehensive literature review reported that PCPs are comfortable treating individuals with mental illness who are responsive to medication that the provider is familiar with prescribing. Goossen et al. conducted a mixed methods evaluation of an existing CMHC program reported that PCPs, are less comfortable when medications need to be changed or combined [15]; a practice outlined in Canadian practice guidelines as an important part of improving a patient response [16].

In addition to prescribing medications, PCPs are aware of the effectiveness of evidence-based counseling. Grenier et al. surveyed 118 FPs in one Canadian province and found that 95% of FPs knew of evidence-based counseling for depression and anxiety such as, cognitive behavioural or interpersonal therapy [17]. These authors note that a lack of time and training make it difficult for PCPs to implement counseling within their practices [17]. While individuals with mental illness are most likely to be treated by a PCP, the practitioner may not possess the comfort, training or time to implement evidence-based treatment, leaving patients with less than optimal mental health services.

PCPs believe that their ability to deliver mental health services would improve if they had support from mental health specialists [18, 19]. Acknowledging that most of the mental health services in Canada are provided by PCPs, physician leaders recognized the need to increase PCPs’ access to mental health specialists in primary care settings. In 1997, the Canadian Psychiatric Association and the College of Family Physicians of Canada together developed a position paper calling on PCPs and psychiatrists to work together [20]. In this paper, Kates, et al. declared that primary and mental health care providers were joining together to improve access to mental health services in what is referred to as shared or collaborative mental health care (CMHC), two terms that are used synonymously in this paper [14]. Furthermore, these two professional groups agreed that:

*family physicians and psychiatrists work more cooperatively to integrate their respective skills and expertise in a complementary and cost effective manner ([21], p 1785).*

Although it was agreed that generalists, PCPs and specialists, mental health providers would work together, little was known about how to develop the collaborative relationship and the importance of relationship building to the overall interprofessional collaborative process.

Today, well over 100 CMHC programs exist in Canada, each reporting successes [22]. For example, Kates discussed CMHC that were integrated into Ontario’s family health teams and who saw symptom reduction and improved functionality for 50% of the patients with mental health concerns [23]. Bower et al. examined outcomes of CMHC for depression and concluded that partnering with case managers who receive supervision from a mental health specialist improved outcomes [24]. In terms of system changes, researchers report that CMHC results in increased access to timely psychiatric care [25–29], decreased referrals to outpatient psychiatry clinics [27], earlier detection of mental illness, reduced utilization of specialized mental health services [30, 31], and increased continuity of care [27, 28, 32, 33]. Researchers also found that individuals who participated in a CMHC program reported decreases in symptomatology, [32, 34–41], less interference with social activities [32, 33], and increased satisfaction [28]. Furthermore, researchers report that implementation of CMHC increases PCPs’ capacity to work with individuals with mental illness. Several researchers found that subsequent to the initiation of CMHC, PCPs reported having increased, mental health care skills and comfort [27–29, 34, 42, 43], provider satisfaction [27, 34], and physician perceived patient satisfaction [34]. The World Health Organization (WHO) and the World Organizations of Family Doctors (Wonca) released *Integrating Mental Health into Primary Care* to justify the need to integrate mental health services into primary care settings. One of the key messages reported in this document is that there is less stigma and discrimination when patients with mental illness are seen in PC settings [44].

While there seems to be some agreement about the value of CMHC for individuals diagnosed with common
mental illness such as depression and/or anxiety, there is little consensus about the patient outcomes of CMHC with individuals with serious mental illness. Fitzpatrick, et al. reported that CMHC did not improve patient outcomes for those individuals with serious mental illness [45]. Brown, et al. found FPs offered those with serious mental illness continuity of care, comfort and familiarity, and a whole person clinical approach [25]. In a chart review, Doey, et al. found that individuals with moderate to serious mental illness who participated in CMHC had reduced number of hospital and emergency room visits and patients reported high levels of satisfaction and continuity of care [46]. Smith et al. explored the effectiveness of collaborative care and found that while there is some reported improvements in patients with depression, the consistent finding was improved PCP prescribing practices [47].

Among those studying CMHC, there is some consensus about the components that contribute to an effective treatment program [48]. For example, most CMHC programs include a case manager; psychiatric consultation; brief forms of psychotherapy or counseling such as, cognitive behavioural approaches, motivational interviewing or interpersonal approaches; patient education; access to resources; and screening for depression and anxiety [48]. While these program components are essential, they must be developed upon an understanding of the PCP’s need for collaboration with the mental health specialist [15, 48] and a strong collaborative interprofessional relationship [25, 49–51].

Historically, PCPs and mental health providers report they have poor interprofessional relationships and a lack of mutual trust and respect [52] that seems to underpin a proclivity toward poor communication [19]. Kates stated that in addition to not meeting the needs of patients’ with mental illness, the relationship between PCPs and psychiatrists was poor including, insufficient access, poor communication, and a lack of understanding and support for the role of PCPs in delivering mental health services [20]. However after over a decade of CMHC, the Joint Working Group on Shared Care reported on the strides made in offering increased access to mental health services [48]. More recently, Goossen et al. [15] and Benzer et al. [11] recognized and reported that the interprofessional relationship is integral to shared care between primary care generalists and mental health care specialists. Although CMHC has been in place since the late 1990s, the development and sustainment of the interprofessional collaborative relationship aspect of the shared care model, has not been well developed. Thus while the shared care model has been widely implemented, we have little knowledge about how generalist and specialists build and maintain their interprofessional collaborative relationship. An increased understanding of how to build and maintain interprofessional collaborative relationships will provide much needed guidance to those health care providers attempting to navigate this complex process.

To date, there is little understanding of the relationship building process providers use to support the ongoing engagement to work together to provide primary mental health services. Understanding the providers’ perspective is essential to developing best practices that will ensure patients with mental illness receive the full benefits of the interprofessional primary mental health care team. Accordingly, we used a qualitative approach to explore the following study question: How do primary care providers and mental health care providers collaborate to provide mental health care in primary care settings. More specifically the research objectives included:

1. To detail the need for IPC in the delivery of mental health services in primary care from the perspective of the primary healthcare providers.
2. To detail primary healthcare providers and mental healthcare providers experiences and perspectives of IPC in the context of a primary care program, Collaborative Mental Health Care program.
3. To identify how the individual, group dynamics and system influence the IPC process in the context of the Shared Mental Health Care program.
4. To identify the opportunities and challenges of IPC in the context of the Shared Mental Health Care program.

This paper describes the grounded theory of interprofessional collaborative relationship building that providers described developing and maintaining to deliver mental health services in PC settings.

Methods
Study design
This study was best approached from a qualitative research paradigm where the exploration is grounded in the providers’ experiences of IPC [53]. The purpose of the study was not to deduce a single truth, but rather to understand the multiple realities of the participating health care providers from an emic perspective [54]. More specifically, social constructivist grounded theory methodology [55] was used to facilitate an inductive exploration of the interprofessional collaborative relationship building process providers use to work together to deliver mental health services in primary care. Grounded theory as described by Charmaz is an appropriate methodology to use when the study purpose is to understand, rather than try to explain process. Social constructivist grounded theory acknowledges the co-creation of the study findings by both the researchers and participants [55].
Symbolic Interaction (SI) served as the guiding theoretical framework for this study. As SI focuses on the meaning individuals ascribe to an interaction, this framework helps us to explore multiple realities rather than to seek a single explanation [56]. In this study, using an SI lens, we focused on understanding the meaning provider participants ascribed to the interprofessional collaborative relationship building process as they engaged to provide mental health services in primary care settings. As SI focuses on meaning ascribed by individuals as they interact with other it is thought to be a useful framework when one is exploring process and change [55]. Further description of the study design and conceptual framework used is available in the methodology paper by Wener and Woodgate [57].

Ethics, consent, and permission
The University of Manitoba Health Research Ethics Board provided ethical approval for this study (H2011:003). Informed consent was obtained from participants prior to the commencement of all interviews.

Consent to publish
Consent to publish anonymized individual participant's data was obtained as part of the informed consent process.

Participants
Purposive sampling was used to recruit providers who participate in one health region’s CMHC service. All 110 PCPs, (100 FPs and ten nurse practitioners (NPs), 16 shared care counsellors, and eight shared care psychiatrists who participate in the health region CMHC program were invited to participate through recruitment flyers. We sought to achieve diversity in terms of geographical location of practice, physician remuneration model, and practitioner’s gender in the sample through maximum variation sampling [58]. There are 11 identified communities within the urban centre, seven of which have a CMHC service. Recruitment occurred from all seven communities that offered CMHC. In general, family physicians within this urban centre are remunerated using a fee-for-service model or receive a yearly salary. We sought to ensure that we recruited a relatively equal number of family physicians from each of the remuneration models. Previous studies have shown that the average socioeconomic status, education and health care needs vary among these communities (MCHP). We assumed that the patients living in each of these communities are most apt to attend health care practices located within their communities and that these differences in income, education and health care needs, may contribute to the health providers’ interprofessional collaboration experience. Literature suggests that females are more apt to collaborate than males, therefore we attempted to ensure that we had representation of both male and female FPs, NPs, psychiatrists and counsellors [59, 60]. Sampling continued until categories could account for new data and theoretical sufficiency was achieved ([61], p 117).

Data collection
Demographic information was collected to obtain a profile of the participants. Information about how the providers collaborate to provide mental health services in primary care was gathered using semi-structured in-depth individual interviews and focus groups that took place in a private room in the participant’s place of work. Data was collected from three groups of participants: 1) PCPs, 2) groups of providers that included FPs, NPs, psychiatrists, and counsellors, and 3) health authority regional leaders. First, PCPs were interviewed individually. The initial interview guide was created based on the results of a literature review and a previously completed program evaluation [15]. The interview guide for the individual PCP interviews included open-ended questions about the patient population served, experiences providing mental health services, need for collaboration with mental health specialist and their experiences of collaboration. Second, interprofessional focus group interviews including PCPs, and mental health care providers were conducted. The focus group interview guide was based on the data analysis of the PCP interviews and the literature, and focused on understanding the details of the providers’ experiences of interprofessional collaboration to provide mental health services to patients. Focus group interview questions were created based on the emergent themes from the PCP individual interviews and the literature, and included asking providers about the meaning of interprofessional collaboration, process of collaborating, strengths and challenges of interprofessional collaboration, process of resolving conflicts among team members, influence of co-location on the interprofessional collaboration process, and the role of the health region in interprofessional collaboration. Questions about interprofessional conflict were added to the interview guide when it was noticed that participants did not discuss this issue, although it is reported in the literature. Third, interviews with the regional leaders were conducted. The Regional leaders’ and decision-makers’ interview guide was created based on the emergent findings from the previous interviews. Although these interview guides were used for all interviews, the interviewer (PW) was responsive to participants’ inviting them to further discuss issues raised. As well, the interviewer encouraged the participants to raise any issues that the participants wanted to discuss prior to ending each interview. A sample of interview questions from all three guides is included in Table 1.
Table 1 PCP Individual Interview Sample Questions

1. Tell me about your primary care practice?
2. Describe the patient population in your primary care practice?
3. Tell me about your experiences in your practice of providing health services to patients with mental health problems?
4. Tell me about an experience where you were asked by a patient to provide mental health services/support to a patient when you felt comfortable or equipped to do so?
5. Tell me about an experience where you were asked to provide mental health services/support to a patient when you did not feel comfortable or equipped to do so?
6. What have been your experiences working with the psychiatrist?
7. What have been your experiences working with the counsellor?
8. What kinds of decisions were made during these collaboration?
9. How did the collaborative decisions meet your needs?
10. How did the collaborative decisions meet your patient's needs?

Table 1 PCP Individual Interview Sample Questions (Continued)

7. Describe any or how the program or region impede interprofessional collaboration? What kinds of things could be changed to remove these barriers?
8. What role does this group play in developing and facilitating interprofessional collaboration?
9. What resources does this group access to encourage and support interprofessional collaboration? What kinds of resources are missing/unavailable that could further support interprofessional collaboration?

Data analysis

All demographic questionnaires were analyzed using descriptive statistics. Individual and group interviews were audio recorded and transcribed verbatim. Prior to initiating coding, the transcripts were read several times to gain an understanding of the whole. In keeping with grounded theory, the coding process consisted of initial and focused coding phases [55]. We analyzed the data, assigning initial codes for each transcript and writing memos to form initial definitions [55]. Using focused codes as preliminary categories, we wrote more in-depth memos from the first seven interviews and used constant comparison, remaining open to new and emerging categories as we analyzed the remaining interviews [62]. Authors met to discuss the overarching theme and categories to achieve consensus. Interview transcripts and a newsletter describing the preliminary findings were mailed to all study participants for feedback prior to the finalization of the overarching theme, categories and developmental model however, no participants suggested changes to the proposed categories.

We included several methods to ensure study rigour [63]. The credibility and dependability of this study was established by aligning data collection methods with the study questions [57]. Data was collected over a long period of time and included participants from different geographical locations and from practices with different remuneration models. We kept an audit trail and reflexive journal to establish confirmability [63]. Transferability was explored by sharing the overarching theme, categories and developmental model with study participants and solicitation of feedback at conferences, presentations, and from peers [62–64].

Results

Description of participants

Health care providers \((n = 32)\) and health region leaders \((n = 8)\) participated in this study and completed the demographic questionnaire. Of the health care providers that participated in the study, there were 16 (50 %) FPs, 8 (25 %) nurse practitioners (NP), 3 (9.4 %) psychiatrists, and 5 (15.6 %) counsellors. Of the 16 FPs, 10 (62.5 %) reported that they participate in the provincial fee-for-
service (FFS) remuneration program and 6 (37.5 %) of the FPs stated they receive a salary from the region (SFP). All NPs, psychiatrists and counsellors receive a yearly salary from the health authority, the regional body responsible for health care delivery.

The providers’ ages varied within each of the provider groups from 30 years to over 60 years of age. However, within the PCP sample, FFS FPs tended to be older than either the SFPs or the NPs and the NPs tended to be older than the SFPs. For example, 70 % of FFS FPs reported they were 50 years of age or older while none of the SFPs or NPs were over 50 years of age. In terms of years with the CMHC program only one of the 32 health care provider participants had been with the CMHC program for less than one year, while ten participants had greater than 5 years’ experience in the program. Taken together the health care providers worked in 12 different primary care clinics that varied in geographical location within the health region. Eleven FPs and five NPs participated in the initial individual interviews that took place over a 1 year period, March 2011 to February 2012. The six focus groups included 2–4 participants and took place over a 6 month from the end of November 2012 to May 2013. One counsellor, and two psychiatrists participated in more than one focus group interview because they provide service to more than one clinic. In these cases providers were directed to talk about their experiences in each clinic within the separate focus groups. One family physician participated in both an initial interview as well as a focus group and no specific directions were provided by the interviewer.

In addition to these health care providers, eight members of the regional leadership group participated in either a focus group or an individual interview based on the individual’s ability to attend the focus group. These interviews took place over a 2-month period from July 2013 to August 2013. The regional health leaders included individuals who belonged to a variety of health professions and had additional education in, health systems and administration. The members of this group were responsible for overall implementation and monitoring of the CMHC program. Pseudonyms are used in this manuscript to maintain confidentiality of study participants.

The findings revealed one overarching emergent theme, Collaborating in the Context of Co-location that includes a four-stage developmental interprofessional relationship building model. The emergent categories were the four stages of the developmental model and included: Looking for Help, Initiating Co-location, Fitting-in, and 4) Growing Reciprocity. This model and four developmental stages describe the role of the health region leaders and the providers in creating interprofessional relationships amongst the PCPs and mental health care providers. These relationships enabled providers to deliver primary mental health care. The authors used member checking to confirm that the developmental model and stages were an accurate representation of the participants’ interprofessional collaborative experiences. These developmental stages held true across professions and gender.

Collaborating in the context of co-location was the overarching theme that describes the evolving interprofessional relationships between primary care and mental health care providers for the purpose of meeting primary care patients’ mental health needs. Collaborating in the context of co-location is how the mental health care providers who are part of the CMHC program are situated within the PCPs office to facilitate the PCP’s patient-focused provision of primary mental health services. Lisa, a nurse practitioner describes how she and a co-located psychiatrist were able to provide mental health care when otherwise, this patient would not have received treatment. Furthermore, the psychiatrist is able to fulfill the NP’s patient care need, being available at the patient’s PC appointment time: I can think of at least, well more than one time... I had someone that was clearly very ill, with no insight. And would not agree to come and see a psychiatrist. I needed that assessment done... I just had to arrange for him to have an appointment with me... and then have our psychiatrist just kind of join us... being co-located allowed for that to happen. (NP, Lisa)

In supporting PCPs, all providers use a variety of communication methods with the explicit intention of learning to work together to both provide and enhance the capacity of primary mental health services. The providers’ evolving relationship proceeds through four stages over time that begin with looking for help to provide mental health services, to a stage where providers participate as partners of patient care as shown in Fig. 1. During each stage of development the providers build upon the aspects of the relationship established during the previous stage. The groups of providers were always focused on patient care using varied communication strategies that were implemented flexibly depending on the needs of the individual practice. Overall, co-located groups of providers moved through the stages at different rates of time and not all interprofessional collaborations develop to the stage of growing reciprocity.

Stage 1–looking for help

Looking for help is when the PCPs and regional leaders look to mental health experts to work with PCPs to help PCPs to deliver mental health services in their primary care settings. Participants in this study expressed their need for help; access to mental health services and clinical experts to help them increase their mental health
knowledge and skills. PCPs in this study, discuss how they need timely access to mental health services and how this access was not available prior to participating in CMHC program.

I have worked at other places where a 3-month wait for psychiatry and an eight-week wait for counselling is a short wait. Usually by that time, the problem that the person has come in to ask for help has now fizzled in one way or the other. So you’ve missed that opportunity. So access in a timely manner is massive. And I think that that only expedites the patient’s ability to improve or get better. (NP, Evelyn)

Although PCPs are patient-focused and want to provide mental health services to primary care patients, they perceive they have a lack of time, comfort and/or expertise. Comfort working with patients with mild to moderate mental illness varied amongst the PCPs participating in this study, with more experienced PCPs reporting that their comfort working with patients with a mental illness has grown over time and with life experiences. Sarah expressed this growing comfort:

I think as a whole with being in practice for a long time...I think part of it is just my own experience and my own competence or comfort with feeling not as overwhelmed with some of the people that come in with those problems. (FP, Sarah)

Participants in this study all reported that patients with mental illness that are difficult to diagnose, or that have a personality disorder, and those that are not responsive to medications require that PCPs have specialized knowledge and skills that are beyond their own clinical capacity. For example, this FP with many years in clinical practice describes the circumstances when he requires specialist help. ...mild to moderate depression I can usually handle. People with severe depression, people who present with mild to moderate depression who are not responding well to my initial approach, that's where the call for help usually comes in (FP, Gary). As patient-focused PCPs, these study participants want to provide primary mental health services, are aware of their knowledge and skill limitations, and require help from mental health specialists.

At a health region administrative and clinical level, the leaders identified and embraced the need to enhance mental health services in primary care settings through interprofessional collaboration between generalist PCPs, and specialists mental health care providers. As another regional health leader explained, the mental health service enhancement in primary care was logical as PCPs were already playing a key role in the mental health system, ...the need for collaboration... primary care physicians are providing a significant amount of mental health services. That’s a driver. (Regional Leader, Ralf)

**Stage 2-initiating Co-location**

Initiating Co-location is the regional leaders belief in the usefulness of the CMHC model and then situating the mental health providers into the primary care clinics. As this regional leader explains, learning about collaborative
mental health programs from an expert convinced her that co-location of providers was the next step in improving the mental health system: *I had been to a conference with Nick Kates* (Canadian Founder of Collaborative Care) and gone to a couple of presentations and thought, *this (co-locating providers) is where we need to go as a system* (Regional Leader, Leanne).

Initiating co-location, that is, geographically bringing providers together signaled to the PCPs and mental health care providers that the leadership was committed to intra- and interprofessional collaboration in primary care sites. As this counsellor and psychiatrist describe, creating the structures and processes to co-locate providers meant the regional leaders believed in the program: the (health) region supports collaboration because they’ve put this structure into place for us (Counsellor, Nofar); they (the health region) pay me a salary that I’m able to participate in the program (Psychiatrist, Eleni). Regional leaders secured the services of the psychiatrists, and counsellors providing yearly salary arrangements with an understanding that their days would include time for collaboration. Another counsellor and psychiatrist explain how initiating co-location, the regional leaders understand that providers need face-to-face time and value it as a critical component of the program. In this example the providers use the term collaboration to mean face-to-face time working together.

*...if I’m spending (face-to-face) time collaborating with any of the primary care providers, I know that Shared Care sees that as a legitimate use of my time. ...from a Shared Care perspective, we still need to see a certain amount of people but the (face-to-face) time spent collaborating is equally or more important even than that as a program.* (Counsellor, Elia)

*It’s (collaboration) valued.* (Psychiatrist, Daniel)

Unlike the PCPs on salary, initiating shared care in FFS PC sites regional leadership needed to be more flexible in how and when providers were co-located. For example, regional leaders had to negotiate with providers about the use of rooms and time for collaboration. This FP describes how part of bringing the providers together meant that providers needed to be willing to provide space for the mental health providers. While this may initially be perceived as negative, financial compensation alleviated the situation:

*...it might actually work even a little negatively because Patty (counsellor) is using one of my rooms and if I have a resident then I’m short one room, but Shared Care does pay us sort of a token rent so in the long run there’s no negative* (FP, Hart)

**Stage 3-fitting-in**

Fitting-in is when co-located mental health providers and PCPs begin to interact within one another to provide mental health services to PC patients. For many PCPs, bringing providers together was about creating a familiarity with the specialist provider that was profoundly different from the historical non-co-located generalist/specialist relationship. In this relationship, the mental health care providers work to fit-in into the PC clinics, interacting with the PCPs as they provide mental health services that the PCP identifies needing for the patients. During this stage all PCP study participants identify needing mental health consultation for diagnosis, medication management, and therapy. Essential to this this developmental stage is the mental health care provider being flexible with their time in order to fit in with the unique schedule of a PC clinic and/or the PCP. For example, one counsellor purposely altered his schedule to stay late into the early evening, ensuring that he was free to meet with the physicians when they were available. One of the psychiatrists at another PC setting describes waiting outside of physician’s examining room to be able to catch the doc between appointments. Another FP describes how the psychiatrist and counsellor have, *learned to fit with him, Because I don’t eat lunch downstairs. So, in my office, they’ve learned that, So if they want to find me they can.* (FP, Michael)

During this stage mental health care providers needed to develop patient-focused communication strategies that were flexible and fit with each PCP. However, in some practices psychiatrists and counsellors reported that not all PCPs consulted with them nor did all PCPs meet with them about the patients seen. Both mental health providers and PCPs described how fitting-in occurred with some providers and not others but in all cases mental health services were not provided and the relationships did not progress. This counsellor describes how she is able to develop a relationship with those PCPs willing to meet with her and the challenge when PCPs are not prepared to make the time to share in the care of patients:

*The challenges, that I believe that we get along really well but I can’t say that for every physician...And people do have different willingness to meet and to share and collaborate.... it’s like getting the mail delivered. They love having it come to the door and they don’t want it. But they don’t want to necessarily go to the corner to pick it up, you know. And so we’re here. Are they willing to put in extra effort? To work with me I would say, yea, it’s kind of a working collaboration. Not just the talking.* (Counsellor, Lori)

For this FP it is clear to him that when a PCP is not willing to meet with the mental health care provider
then the PCP is declaring that they are opting out of the collaborative relationship.

*...if you're providing a service for us and be willing to talk to us and everything else, to just say I won't ever sit down with you and talk...fine, then you've excluded yourself from this group.... It's just got to be that way at some point.* (FP, Michael)

Using patient-focused communication strategies such as short hallway conversations or patient referral forms along with the mental health care providers’ timely service provision, providers become more familiar with one another and their interprofessional relationships develop. One of the FPs describes how the face-to-face patient-focused interaction between providers is a key aspect of creating familiarity: *we've said over and over again that's been a huge part ...you literally can talk to somebody in the hallway ... just that physical presence is helpful ... a huge part for us* (FP, Adi). Collaboration was difficult for PCPs who did not fit in with providers at particular clinics. For example, when the mental health care providers work on days when a PCP was not present, the PCPs did not perceive that the mental health specialist service was available:

* ... maybe that is there (the ability to email or call the psychiatrist) and I’m just not aware of it. ...I’m not in every day, she’s in on a day that I’m not here, ...I don’t ever see her....* (FP, Jacquie)

Most of the mental health providers discussed how they expected PCPs to discuss their referral to the psychiatrist or counsellor with the patient to ensure there was an understanding and agreement from the patient. This counsellor suggests that PCPs who do not accept their responsibility do not fit with the CMHC program.

*I have someone (PCP) who habitually sends me people that don’t show up. That this person (PCP) kind of doesn’t get it or they don’t communicate to their patient what it’s really all about and why they have to come or why they would benefit by coming. I wouldn’t want anybody seeing me because they have to. Because as you’re, some people (PCPs) just won’t fit, you know. Because they have, there’s some responsibility to do something.* (Counsellor, Lori)

However, as Juliette describes during this third stage when providers fit in with the PC clinic, collaboration within the context of co-location moves beyond physical proximity of providers to the receptivity providers feel amongst them: *the biggest difference is one of familiarity cause I see Samantha (the counselor) every day that I work here and Greta (the psychiatrist)... she's very approachable, she's happy to talk about cases.* (NP, Juliette). As the providers work together to ensure the patients’ mental health needs are met, they are simultaneously creating interprofessional communication and service delivery strategies that work for their particular PC practice.

Written communication is an important aspect throughout the fitting-in stage. PCPs initiate a consultation to a mental health care provider and receive written consultation reports. While mental health services are provided to the patients, mental health care providers write progress notes in a common patient chart or electronic medical records (EMR). These written forms of communication contribute to building PCPs’ mental health knowledge, skills and comfort. FP participants describe how the specifics of the written communication processes are important to the PCP’s capacity to treat patients. This FP describes that because the written consultation includes treatment specifics, it is facilitative of the provider’s ability to comfortably treat the patient:

*I would look to that written consult... they're very specific as far as recommendations go for medications, for doses, for resources.* (FP, Leslie)

In contrast, one FP describes the inconsistent communication she typically experienced prior to participating in the CMHC program:

*I had a patient who has a mood disorder who was admitted... I worry about these people when I don’t see them, a discharge summary may come four months after they've been discharged from hospital, the flow of communication is often lacking.* (FP, Adi)

Although the written forms of communication are important, once the mental health consultation process was initiated, the PCPs relied on talking directly to the mental health providers for day-to-day patient-focused service provision. As this nurse practitioner describes, talking with the mental health provider facilitates timely treatment planning that is perceived to be meeting the patient’s needs:

*...she was evaluated and then we had a conversation right at my desk, right after she was evaluated and we talked about what do.* (NP, Donna)

All participants discussed that during this fitting-in stage, being familiar with one another facilitated direct communication, such as *quick talks before a patient is seen or after a patient leaves the visit*. Most study participants describe using direct communication between the
PCP and counsellor as an efficient and timely approach to patient care.

**Stage 4- growing reciprocity**

This last stage in the developing interprofessional collaborative relationships in the context of collaboration is when the providers come to know and care about one another, value each other's personal and professional expertise, and discover shared patient care values. The PCPs in this study appreciated when the psychiatrist and shared care counsellor shared their knowledge and suggested assessment and treatment approaches that enabled the PCP to respond to patients mental health needs confidently and in a timely manner. PCPs who participated in this study expressed an unequivocal trust in the psychiatrist and shared care counsellor. For example, Jacquie a FP, expresses appreciation for and confidence in the medication management suggestions provided by the psychiatrists: ...if I'm having trouble getting the right medication, then I'll refer to the psychiatrist and then I definitely take their opinion...(FP, Jacquie). Many study participants shared that they implemented the treatment recommendations as suggested and that they would not consider changing what was recommended: ...I would never alter it from what the psychiatrist has suggested but initially make sure I follow that exactly as they've suggested... (NP, Susan). On the other hand, this FP defines the interprofessional relationship in terms of being most responsible and acting on behalf of the patient:

*I'm still quarterback, I'm still the guy that's running the show for my patient and I'm ultimately responsible for what's going to happen, and I have to take the advice of the consultant and decide whether I think this is appropriate or not...Sometimes knowing your patient or knowing a different circumstance saying this isn't going to work you may not follow that bit. (FP, Ira)*

Participants also express relief and appreciation that the shared care counsellor knew of other mental health resources that the patients could access: ...knowing what other places offer counselling cause that's one of the big black holes out ...I have a sense of a few things just that I've learned over time, but she (counsellor) knows a whole lot more than I do so. (FP, Adi). The PCPs relief is coupled with the counsellors' recognition of how their ability to provide assistance deepens the developing interprofessional relationship: ...once somebody sees you actually can be helpful that will go a long way in building a relationship. (Counsellor, Brandon)

During this stage, the interprofessional collaborative relationship becomes deeper, as the valuing of one another process becomes reciprocal and providers recognize that they have shared values such as providing holistic patient care. This FP describes the psychiatrist or counsellor looking to him to ensure the specialist has a complete and holistic understanding of the patient...they'll call me in and ask if any other thoughts that I have [sic], cause a lot of these people I've known them for 35 years, I have the advantage of experience with them. (FP, Hart). Similarly, the mental health providers value and understand how the PCPs long-time knowledge of the patient was an important aspect of patient care:

*There's a lot of brainstorming too because if I just meet a client, for the first time, I'll come back, (to the PCP) ...these guys know that client well. And so I'll say, well this is my impression or this is kind of my feeling, what do you think? And so then it's usually we tease out kind of where we go together, you know. (Psychiatrist, Eleni)*

At this stage there is an ease and comfort between providers that has moved beyond a one-way valuing to a more comfortable reciprocal relationship that is based on a shared value of providing patients with the best care possible. As this provider describes there is an increasing comfort that includes flexibility ...sometimes I will go there or they will go here or we'll meet in the corridor and say I'd like to talk about so and so and it's a very comfortable relationship. (FP, Gary) For some groups of providers, a perceived non-hierarchical structure was an important contributor to the growing reciprocity. This counsellor describes the impact of perceived non-hierarchy on the providers' sense of cohesiveness:

*there's respect for the different roles that people play within the clinic...that has separated this clinic in terms of functioning and cohesiveness in a way that lots of clinics set up similarly haven't really been able to achieve. And I think that it's really been because of taking out that hierarchical structure. That has made the clinic function so much better as a workplace. (Counsellor, Corey)*

During this stage providers' shared value of being patient focused is heightened and together they create relationships that ensure patients have timely access to mental health services, while at the same time, retaining the PCPs' position as the key health care providers. This FP shares how the PCP and mental health specialist expressed their joint commitment to timely patient focused care:

*I know myself and at least one of my other colleagues may call him up and saying you know I've got this person or what do you think about this medication for*
this person that you already know and being able to make a lot of those decisions with his you know okay or with his input on a more informal and timely basis. (FP, Adi)

PCPs describe developing relationships with mental health providers that are based on trust and respect, and how this creates not only trust between providers but also trust between PCPs and the patients. This provider describes how the patients benefits from the established relationship among providers:

... from the patient’s perspective that’s helpful that we actually know each other. I’ve said to people there’s other specialists ...I don’t know them but I think they’re good... I think from the point of the view of the patient because it’s very personal that everybody’s kind of connected. (FP, Sarah)

Many of the study participants described that the collaborative relationship developed over time. This PCP share the sense of ease and trusting collaborative relationship that develops over time:

It’s also about establishing a relationship with them as well...I think the more you collaborate, the more you understand each other and the more your thinking tends to line up around how you deal with your patients or your clients. Like working with [counsellor’s name] for 8 years, I know how [counsellor’s name] thinks. I know what her patients are like. I know how she is going to treat her patients. I’ve worked with [psychiatrist’s name] for, I don’t know (FP, Jacque).

Another FP describes how the collaboration facilitates patients receiving the right care at the right time:

...if the counsellor was to see somebody and thought this person needs medication, they would come out and talk to me about it or as I say if it’s somebody that I think really needs to be seen more quickly than average I will make a point of going around and talking to the counsellor... (FP, Gary)

At this later stage of development the health care providers anticipate that as they come together to provide patient care, there will be different opinions about how best to meet the patient’s needs. Providers in this study understood that these differences emanate from the providers having different knowledge and skills but that all providers are motivated to do the best for the patient. Understanding that all providers share a common interest in meeting the needs of the patient seems to help the providers reframe interprofessional provider into a culture that welcomes diverse perspectives:

The only times there has been somewhat of a difference has been more on the impressions that we’ve had of what’s going on because we come to it from two different angles. But I don’t think there’s ever been really a disagreement about how to go forward from there because it does always involve the patient and their opinion..., and their preferences. And it does also always come from a place of wanting to do the best that we can by that person. And so it’s hard to imagine conflict when you have the same ultimate goal in mind. (Counsellor, Corey)

Providers express the evolving collaborative relationship with mental health providers as caring about one another on a more personal basis. This FP explains how when providers work together and get to know one another on a more personal basis, the relationship deepens and creates a closeness between providers that enriches the work relationship:

...when you know somebody and you know that they’re due with their next pregnancy or who their husband is and you know what their kids do... It’s really hard to have a bad relationship when you know people really well. And it’s so much easier to have great working relationships when you are that intimate with people... (FP, Taryn)

Discussion

Our study describes the stages of developing interprofessional collaborative relationships in a CMHC program in a primary care setting which to date, has received limited study. Using an SI lens allowed us to understand the meaning that the interactions between the regional leaders, PCPs, mental health care providers and the primary care context contributed to provider perceived interprofessional collaborative relationships. The results of our study situate co-location as a crucial component to developing interprofessional collaborative relationships in the shared care, primary care practice setting. Co-location has consistently been identified as an important factor in building collaborative teams between those in mental health and primary care [14, 41, 65]. Allport found that interpersonal contact is an effective way to overcome intergroup conflict, a suggestion he put forward as the contact hypothesis [66]. In this study, co-locating providers set the stage to develop interprofessional collaborative relationships. Similarly, Kates et al. reported that co-location enhances communication and eases the referral process, case discussions and improves continuity of care [27]. Participants in this study
described that co-locating providers encourages interprofessional interaction that they perceive to be critical to the developing interprofessional relationships.

Hewstone and Brown agreed that interpersonal contact is important, however, they state that it is not sufficient to increase trust among group members [67]. These authors suggest that to increase trust among group members there also needs to be personal interaction, equal status, common goals, support from the institution or agency, and cooperation. Mulvale et al. found that personal contact and face-to-face case conferences between providers is an important contributor to the success of the CMHC program [41] and FPs who worked with co-located counsellors and psychiatrists reported the highest levels of satisfaction [18]. The participants in our study also emphasized the importance of both face-to-face interaction as well as written forms of communication. Providers in this study also discussed the importance of a non-hierarchical structure, a common focus on improving patients’ mental health, and support from the program and health region leadership.

In this study, participants from different practices described a similar road taken to develop their relationships that included co-location of providers, a focus on fitting-in to the PC culture and clinic, and then a sense of having arrived at a mutually respectful and collaborative relationship where providers knew each other professionally and personally. However, while this study describes the patterns of the interprofessional collaborative relationship development, it falls short of helping us to understand what and how the team propels itself forward.

While the stages of the interprofessional relationship building process in a CMHC program have not been described previously, Chidambaram and Bostrom conducted a review of group development models. These authors described two broad types of group development, sequential and non-sequential [68]. In health care, most authors describe team development using a sequential linear progressive model where the team matures and is defined by improved performance over time [69]. Tuckman and Tuckman and Jensen’s sequential linear progressive model that includes five stages of development [70, 71] is widely accepted by experts of small group processes. Moreover, this team developmental theory has been used to describe interprofessional health care team development [72–74]. However, while the study participants described that interprofessional collaborative relationships develops over time, the participants in this study also describe the critical role of the regional leaders in the interprofessional team development.

In our model the regional leaders play an important role in the first two stages, identifying the need for interprofessional collaboration and initiating co-location of providers. Organizational leaders have long been recognized as an essential element to successful interprofessional collaboration. For example, San Martin-Rodriguez reviewed theoretical and empirical studies to determine the components for successful collaboration. These authors found that when the organization believes in interprofessional collaboration i.e. identify and/or understand the need for collaboration and create physical proximity between providers are among the important features necessary for interprofessional collaboration [75]. D’Amour and Oanadasan, 2005 also suggest that the organizational leaders or decision makers must be supportive and play an important role in implementing interprofessional collaboration [76].

The participants in this study describe fitting-in, where the mental health care provider fulfills the PCP’s patient needs by sharing their clinical expertise. As the PCPs recognize that their patient needs are being met, all providers begin to respect, trust and value one another, similar to the “norming” process that is Tuckman’s third stage of group development [70]. In a recent study, Benzer et al. reported that when mental health care providers in PC settings attend to the PCPs identified patient needs, communication between the PCPs and mental health care providers increased [11]. While Benzer’s work makes an important contribution to our understanding of interprofessional communication, it was not describing developmental stages nor grounded in health care providers’ experiences.

The fourth stage of our proposed relationship building model, Growing Reciprocity includes descriptions of increased cohesion, a sense of trust, belonging, and togetherness. Cohesion is reflected in the study participants’ discussion of comfort, trust, respect, sharing of values, and valuing of differences in opinion amongst providers. Cohesion, is thought to be an essential feature of group performance [77, 78] and was identified as a key component of interprofessionality [76, 79]. While several participants in this study discussed the importance of cohesion, further research would need to be done to understand the role of cohesion amongst the interprofessional health care providers.

In our study, participants discovered that they all valued a patient focus and holistic care that addressed patient and provider needs. As the participants in our study worked together, they recognized that they needed to be flexible depending on the primary care context and the unique needs of the patient and/or provider. Participants described adapting their communication strategies, approaches and schedules to meet each other’s and the patient’s needs.

The two central components of our model, communication strategies and the patient-centred approach have been reported findings of several previous studies. A
commonly reported findings is the importance of providers communicating openly aiming towards reciprocal dialogue [18, 25, 32, 34–41, 46] while Lucena and Lesage, discuss the importance of written communication strategies [80]. In support of the second key finding, authors describe how a focus on the patient may assist teams in dealing with role conflict [25, 28, 81]. Team conflict is often a result of role boundaries, scope of practice, and accountability. However, in our study providers focused on providing patient focused care where the PCP requested interprofessional collaboration based on the patient’s identified need for mental health services. Rather than focusing on areas that are the typical sources of conflict, such as role boundaries and scope of practice [82], providers in our study recognized that consideration of all of the perspectives may best meet the patient’s needs. Maintaining a patient focus helped providers in our study to not categorize the varying opinions as “correct” or incorrect, rather they were understood as a reflection of various professional knowledge and expertise. The Canadian Interprofessional Health Collaborative established interprofessional communication and patient-centred care as foundational competencies for interprofessional collaboration [83]. Flattened hierarchy [81] and flexibility [49] have also been discussed in the shared care literature, although not conceptualized within a model that facilitates the interprofessional collaborative relationship building process.

Findings from our study make an initial contribution to our understanding of the developing interprofessional collaborative relationship between health care providers. More research is needed to understand how the components of the interprofessional collaborative relationships within a stage of development facilitate or impede team development. Future research may also explore the application of this interprofessional collaborative relationship building model to other practice settings. This collaborative relationship building model highlights the location of providers; future research may explore virtual interprofessional collaborative teams and the processes they use to develop their relationships. Other limitations of this study include the possibility that only providers having positive interprofessional relationship building experiences volunteered to participate in this study thus, limiting our understanding of the role of conflict and conflict resolution. Furthermore, in this study the patient voice was represented by the health care providers and not by the patient themselves. Future research on the interprofessional collaborative relationships should include asking patients directly for their perspective [84].

Conclusion
Increasingly health care providers are asked to work collaboratively with their colleagues from other professions. However, little attention has been given to how these professionals are to initiate and maintain these interprofessional relationships. Providers participating in CMHC programs within Canada, collaborate to successfully provide mental health services in primary care settings. Exploring and documenting how these providers develop and maintain their interprofessional collaborative relationships contributes to our overall understanding of the importance of the provider-to-provider relationship. Recognizing that relationships develop in stages and require time for collaboration, may guide other health care providers to consider how they can individually and collectively maintain a patient-focus and use communication strategies that are aimed at achieving greater reciprocity within their health care team. Ultimately, understanding the characteristics of each developmental stage, the importance of co-location, patient-focus, and communication strategies and the need to be flexible may position health care providers from a variety of professional backgrounds to successfully navigate the journey of developing relationships that may provide improved patient care.

Competing interests
Neither of the two authors have any competing interests to report.

Authors' contributions
PW and RLW contributed to the conception and design of the study. PW was responsible for all data collection. PW and RLW performed the data analysis and contributed to the drafting, reviewing, and approving the article. Both authors read and approved the final manuscript.

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