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Methodology Matters

# Qualitative research methods: Why, when, and how to conduct interviews and focus groups in pharmacy research

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## Abstract

*Issue:* The value of qualitative research methodologies is increasingly being recognized within health services research, and particularly within pharmacy research. Unlike quantitative research, **qualitative research can offer insights into the question of “why” people engage in particular actions or behaviors.** However, for the potential of this research to be fully realized within pharmacy teaching and learning, appropriate consideration of methodological issues surrounding qualitative research methodologies in interviews and focus groups is needed.

*Methodological literature review:* Before undertaking an interview or focus group it is important for the researcher to have carefully considered which data collection approach will provide the best information to answer the research question under investigation. Next researchers must carefully construct their interview guide, and collect their sample of participants. Finally, all interviews or transcripts must be completely transcribed and analyzed to identify important themes.

*Recommendations:* A total of eight recommendations are offered for researchers when considering, and undertaking, interviews or focus groups within pharmacy education research.

*Applications and implications:* Interviews and focus groups could be very helpful in scholarship around pharmacy teaching and learning as it is designed **to provide an in-depth understanding of participants’ experiences and perceptions.** In particular, this type of research has already been used to improve understandings around interprofessional education. It could also be used to better understand students’ and faculties’ perceptions of CAPE 2013 Education Outcomes.

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*Keywords:* Qualitative interviews; Focus groups; Qualitative research methods

## Issue

In this methodology review I provide an outline of in-depth interviews and focus groups, how they may be used in pharmacy education research, as well as a number of important methodological considerations to help ensure your research is of the highest quality. My research training began and focused primarily on qualitative research methodologies in sociology. My first research into pharmacy practice was a study that used in-depth interviews of pharmacists, nurses,

and physicians, to examine the integration of pharmacists onto hospital rounding teams.<sup>1</sup> Since that time I have consulted on and conducted a number of qualitative research studies in fields from pharmacy to treatment decisions in patients with end stage renal disease.<sup>2–5</sup>

Qualitative research is increasing in popularity in health services research as is evidenced by the number of commentaries espousing the value of qualitative research,<sup>6,7</sup> as well as guidelines that outline the best approach to reporting qualitative research.<sup>8</sup> This research methodology also makes a regular appearance in many pharmacy research journals. For example, recent studies have examined topics that include in-depth interviews about clinical pharmacists’ care-taking behaviors,<sup>9</sup> a qualitative assessment of a cognitive pharmaceutical

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program in a community pharmacy,<sup>10</sup> improvement in pharmacy students' cross-cultural competencies,<sup>11</sup> and examination of the perceptions of physicians and pharmacists around increasing numbers of patients suffering from chronic kidney disease.<sup>12</sup> It is anticipated that the popularity of qualitative research will continue to rise because it provides a mechanism through which the richness of patient experience can be explored and leveraged into patient-centered or quality improvement research studies.<sup>7,13,14</sup>

Traditionally, qualitative research methods are used in two circumstances. First, qualitative research methods are also employed when the researcher is interested in understanding the “why” behind peoples' behaviors or actions. From this perspective qualitative research provides a way to get an in-depth understand of the underlying reasons, attitudes, and motivations behind various human behaviors.<sup>15</sup> For example, a group of Canadian researchers conducted a study to better understand the motivations of pharmacists who leave the profession to become physicians.<sup>16</sup> In this study one of the themes identified is exemplified in the following quotation from an interviewee:

When you're growing up, and you're pretty good at math and science, well, everyone just assumes you want to be a doctor. Doctors save people, doctors are heroes. I don't know many people who had a life-long dream to become a pharmacist...<sup>16p87</sup>

As this quote outlines many of the participants described their desire to become physicians with “idealistic, expansive notions related to the manifest destiny of physicians...”.<sup>16p87</sup> By delving into the motivations of these former pharmacists, the authors were not only able to gain a better understanding of why the interviewees decided to become physicians, but also insight into the cultures of both the profession of pharmacy and the profession of medicine.

Second, qualitative research methods are also used when the researcher is interested in better understanding a particular topic from the perspective of participants in order to develop a survey to draw upon a larger, generalizable sample. For example, Chisholm et al.,<sup>17</sup> conducted a series of focus groups to explore six pre-specified tenets for professionalism with pharmacy students, pharmacists, and pharmacy faculty, to develop a measure of pharmacy student professionalism. The themes identified through the analysis of these focus groups were then used to develop the survey instrument, which was administered to pharmacy students, and recent pharmacy graduates.<sup>17</sup> These are typically referred to as mixed-methods studies and will be explored in an upcoming issue of *Methodology Matters*.

## Methodological literature review

### Definitions

There are a number of methodologies in qualitative research including observations, in-depth interviews, and

focus groups that may be used to collect data. While this discussion will focus on in-depth interviews and focus groups, see Patton<sup>18</sup> for more information about observational research.

In-depth interviews involve the posing of open-ended questions and follow-up probes designed to obtain an in-depth understanding of participants' experiences, perceptions, opinions, feelings, and knowledge.<sup>18</sup> Focus groups are structurally similar to in-depth interviews in the sense that they are comprised of open-ended questions designed to capture the in-depth experiences of respondents.<sup>19</sup> However, focus groups are a distinct data collection technique from in-depth interviews, which will provide researchers with data that relies upon the interaction of the group members to formulate answers to the researcher's questions. For this reason focus groups should not be thought of as an efficient way to “interview” a large number of people with a minimal investment of time. The decision about which of these methodologies is best depends on whether or not the research question is looking for individual or a group's perceptions of experiences.

### Question types

Given qualitative research's reputation as being more open and fluid than quantitative research, it is understandable for novice researchers to assume that in-depth interview and focus group questions need not be carefully designed. However, the quality of the data received from an in-depth interview or focus group is dependent upon the level of thought put into the development of the questions posed to interviewees.<sup>18</sup>

There are following six primary kinds of open-ended in-depth interview or focus groups questions: (1) experience or behavior questions, (2) sensory questions, (3) opinion or value questions, (4) knowledge questions, (5) feeling questions, and (6) background or demographic questions.<sup>18</sup> Experience or behavior questions are designed to get at an interviewee's actions, either past or present.<sup>18</sup> In particular, a participant's responses should reflect a direct observation that could have been made by watching the participant. These kinds of questions are often followed by sensory questions. This is a particularly useful questioning strategy because sensory questions focus on things that the interviewee physically experienced,<sup>18</sup> and can help them to better remember other experiences or behaviors. Opinion or value questions, as the title implies, are designed to elicit interviewees' understanding of a particular phenomenon or experience, and provide specific insight into their goals and intentions.<sup>18</sup> Knowledge questions seek factual information from interviewees.

Feeling questions are slightly different than opinion or value questions as they are intended to elicit a description of an emotion from the participant.<sup>18</sup> As such, it is particularly important to develop the wording of these questions carefully. Consider the following example:

*Interviewer: How do you feel about that?*

*Interviewee: I think that's probably the best we could expect.*<sup>18p350</sup>

Here the interviewer was looking for the interviewee to reply to this question with something like, “Well that experience made me feel really happy.” However, the interviewee's interpretation of the question led them to provide their opinion about the circumstances, that is, “[It was] the best we could expect.”<sup>18</sup> To avoid such a situation the interviewer should have reworded the question to ask, “What emotion did that situation evoke?”

Finally, background or demographic questions allow for the characterization of the people participating in the in-depth interview or focus group. However, if a careful and thoughtful sampling strategy has been utilized much of this information should already be known by the researcher. In general these questions should be kept to a minimum as they can be interpreted as boring, and potentially insulting to participants.<sup>18</sup> If additional background information is required consider asking interviewees to complete a screening form before the in-depth interview or focus group.

### *Question design*

Once the in-depth interview or focus group questions have been drafted it is important to make sure that they conform to a few additional guidelines. First, the questions should be truly open-ended and neutral.<sup>18</sup> In practice this means that the questions should neither make assumptions about what the interviewee thinks about the topic, nor should they offer any clues as to what the interviewer hopes the interviewee will say.<sup>18</sup>

Second, the questions should be singular, asking about only one topic at a time.<sup>18</sup> For example, the question, “Could you tell me about your experiences with, and feeling about, the provision of MTM services to people with diabetes?” asks the interviewee to complete two tasks. To begin, the interviewee is asked to tell about his/her experiences, and then to tell the interviewer about his/her feelings. This can be confusing to interviewees, and often results in their answering only one part of the question. In this case it would be more appropriate to ask, “Tell me about your experiences with providing MTM services to people with diabetes?,” and then asking, “What emotions do you feel when providing MTM services to people with diabetes?”

Third, your questions must be clear.<sup>18</sup> The key to achieving this is to think carefully about the kind of information you anticipate from each question in the in-depth interview question guide. Then think about the question from the point of view of the interviewee, would they interpret the question in the same way? Also consider the level of knowledge and education of interviewees; are they professionals, or are they patients? It is often helpful to have a colleague unfamiliar with the project look through

the in-depth interview question guide and flag any potentially unclear questions.

With the question wording finalized it is important to place the questions in a coherent order. The interviewee is relying on the interviewer to guide them through the questions. If the interviewer fails to do this, there is a good chance that the interviewee will become frustrated with the in-depth interview, resulting in bad data. Keep in mind that it is always easier to remember recent events and feelings, but that it is possible to work backwards into past events or experiences carefully and patiently. Furthermore, speculating about future events or situations is often difficult without the specific context of the future situation. Therefore, consider providing specific details or scenarios to interviewees if future information is integral to answering the research question.

### *Sampling*

Determining the appropriate sample size for in-depth interviews or focus groups is an important step in the research process. In quantitative studies researchers are particularly concerned with obtaining a generalizable sample.<sup>20</sup> However, generalizability is not the primary objective for in-depth interviews of focus groups, but rather the objective is to develop an understanding of the meaning behind behaviors.<sup>15</sup> Therefore, sampling for in-depth interviews or focus groups is about balancing between the need to obtain a rich experiential description from interviewees, without sacrificing the equal representation of experiences across the population of possible participants.<sup>18</sup> This balance is generally achieved through the application of the “saturation” principle, which means that data collection is discontinued when no new information is being generated.<sup>21</sup>

Successfully achieving this balance can be difficult. While convenience sampling makes the data easy to obtain, it is not ideal. Sampling people who just happen to be available, may result in data that is not specific or detailed. One reason for this is that **the “convenient” people do not have the requisite experience under investigation in the research question.**<sup>18</sup> Depending on the research question the researcher may consider using a sampling approach such as purposive sampling, wherein individuals are recruited specifically because they have the experience under investigation.<sup>22</sup> **A sub-type of purposive sampling is snowball sampling,** which involves asking interviewees to identify additional participants who also have similar experiences, and is particularly useful in accessing difficult to reach populations.<sup>18</sup> Deviant case sampling, involves the identification of extreme examples of a phenomenon.<sup>18</sup>

### *Interview modality*

Next it is important to consider whether or not you will be conducting the in-depth interviews in person, or by some

other means. For example, it is possible to conduct in-depth interviews over the telephone, or via an app such as Skype, Google Hangouts, or Face Time. These modalities are particularly enticing because they are cost effective and allow the researcher to obtain results from a geographically disparate sample. In the past telephone in-depth interviews have been disparaged because of concerns such as the interviewer not being able to pick up non-verbal cues from interviewees.<sup>23</sup> However, there is currently little evidence that demonstrates that the data collected over the phone is different than that collected in in-person.<sup>23</sup> Moreover, with the proliferation of free video-chat apps, like Skype, these concerns are further mitigated.

If you decide to conduct your in-depth interviews using one of these approaches keep in mind that you must still record the content of the conversation. Some online services, such as freeconferencecall.com, offer the option of recording in-depth interviews and storing them online. This service has been quite reliable in my own experience, but does require the participant to call into the service, rather than the interviewer calling the participant. I have also had success in using speakerphone on a landline, or computer speakers while on Skype, and a recording app on my smart phone to record in-depth interviews. One thing to keep in mind if your in-depth interviews occur online is that, depending on your internet speed there may be some lag time in your conversation. At times this can be quite distracting to both you and the interviewee. I find that it is best to let the interviewee know about the possibility at the beginning of the in-depth interview, so that if problem arise they are prepared. As with the use of any technology it is important to test everything before the interview to ensure you are capturing the data.

Depending on the purpose of the focus groups, and the kinds of interviewees you are targeting, it is also possible to conduct them over the telephone or using one of the apps outlined above. However, do keep in mind that the interviewer is called upon to an even greater extent here to ensure that all interviewees are contributing to the discussion, and that side conversations do not start up.<sup>24</sup> Furthermore, if you are conducting focus groups online internet speed becomes even more important consideration, as delays and connection failures can seriously impede the discussions. For this reason these groups should be kept small.

There has also been some suggestion that in-depth interviews can be undertaken via email. For instance, one study interviewing people with traumatic brain injury found that email interviews allowed the interviewees more time to reflect on and compose their responses.<sup>25</sup> Again, depending on the population of interviewees you are dealing with, this approach may be particularly useful. However, it should not be taken as an opportunity to ask a huge number of questions, rather it would probably be better to ask no more than five well thought out questions, so that the burden placed on your interviewee is not too high. Remember it is much easier, and quicker, to articulate a verbal answer than it is to type a coherent response to a question.

### *Conducting the interview*

Once the sample has been identified it is time to consider the approach to the in-depth interview or focus group. While the in-depth interview should feel like a casual conversation to the interviewee, the interviewer must be aware of the interview's flow and how the interviewee is reacting to the questions.<sup>18</sup> It is also important to let the interviewee know what kinds of responses are helpful. For example, consider telling the interviewee, "It's really helpful to get such a clear statement of what the program is like. That's just the kind of thing we are trying to get at".<sup>18p375</sup> This type of direct and explicit feedback will help the interviewee to provide the kind of information needed to answer the research question.

Focus groups require an even greater level of attention from the interviewer because there can be up to 12, or even 15, interviewees participating. In addition to the factors considered in the conduct of in-depth interviews, interviewers conducting focus groups must also attend to the relationships developing between the group members. In focus groups, interviewers should be unobtrusive, draw all interviewees into the discussion by encouraging interaction, and use **strategic summarizations** of the discussion to help the group refine its thoughts or explanations.<sup>18</sup> It is not recommended that novice researchers undertake focus groups in a first attempt to conduct qualitative research.

Note-taking during in-depth interviews should be kept to a minimum, as it is often distracting to the interviewee.<sup>18</sup> For focus groups it is also advised to have an official note taker, in addition to the interviewer present, especially for larger groups.<sup>18</sup> This note taker should keep track of where participants were seated in relation to each other, and any noteworthy non-verbal communication. Finally, for both the interviews and focus groups should be well trained in the methodology for conducting this work and not be known to the interviewees to reduce a potential bias.

From a technical perspective it is also important to consider how to capture the data collected during the in-depth interview or focus group. Typically both in-depth interviews and focus groups are audio recorded for the purposes of later transcription. There are a number of reliable applications ("apps") available if you choose to use your smart phone as a digital recorder, but be sure to understand the "apps" functioning capabilities before using them for data collection—remember you cannot ask for an in-depth interview do-over. If conducting a focus group, it is also advisable to have a back-up recorder as multiple participants lead to increased background noise that may impede later transcription.

### *Transcription*

Once the in-depth interviews or focus groups have been conducted the next step is transcription of the audio files to written text for further analysis. This can be a very lengthy

process depending on the quality of the recording and the experience of the transcriber, but is necessary for the analytic process and to maintain the confidentiality of participants. It is valuable to attempt at least one transcription as a new qualitative researcher, but no additional value is added to the analytic process for the researcher to complete all transcriptions. However, it is a good idea for the researcher to check the transcriptions against the recordings to ensure accuracy. Professional transcriptionists are more efficient and accurate than an untrained researcher, and should be a line item in any qualitative research project budget. Depending on the company, or individual, with whom you work, transcription rates can vary from per minute of recording charges, to per page of transcription charges, or even hourly rates. For example, the transcription cost of a recent student project of 11 interviews, which were roughly 30 minutes each, was \$483.00 (rate = \$1.50/minute).

### *Data analysis*

With the transcriptions complete, analysis of the in-depth interview or focus groups can take place. At its most basic level qualitative analysis involves “thick description” that is the process of taking the reader into the setting, context, and content of the in-depth interviews or focus groups.<sup>18</sup> At least two members of the research team, but ideally three researchers, should be directly involved in this process. No formal training is necessary for all members of the research, but all members should be reminded of the research objectives and the considerations for analysis outlined below.

To start the thick description the researchers<sup>1</sup> independently read, and re-read each of the transcripts to identify recurring ideas, as well as omissions by interviewees. This process is called coding, and often involves highlighting interviewee comments and writing notes in the margins of transcripts.<sup>19</sup> In general, this process identifies a large number of codes, many of which will overlap in meaning and intent. Thinking about words or phrases that are synonyms can identify these overlapping codes. As such, the next step in the analytic process is to abstract those related codes into themes.<sup>19</sup>

It is important for researchers to take their time in this step, and often requires obtaining a measure of objective distance from the transcripts to ensure the researchers' own biases and perceptions do not unduly influence the themes generated. Ideally each researcher will identify three to five themes, with one or two potential sub-themes for each. The presentation of more than five themes generally indicates that the researcher has merely translated interview guide

questions into themes. While this can and will happen occasionally, careful thought, and consideration must always be demonstrated in this process.

Once the researchers have independently identified their own themes they can come together to triangulate the findings and make decisions about the final themes to be presented. Triangulation in the analysis of in-depth interviews or focus groups involves research team members presenting and discussing the themes and sub-themes each identified through careful readings of the transcripts.<sup>26</sup> Through this process of discussion and debate, consensus should be built on the final set of themes that represent the content of the in-depth interviews or focus groups.

Content analysis is often the generic term used to describe the analyses undertaken by researchers in health sciences qualitative research. However, there are also a number of other types of qualitative analyses, including phenomenology, grounded theory, or ethnography that could also be applied depending on the research question.<sup>27</sup> If the researchers identified a theoretical framework, such as grounded theory,<sup>18</sup> for use as part of the study the components of the framework may also be used to direct the analysis. However, it is also important to identify and record components of the in-depth interviews or focus groups that do not conform to the framework.

The final list of themes should always be taken back to the original transcripts by all research team members to verify the applicability of the themes to the actual data. Some qualitative researchers will also take the results of the analysis back to interviewees to perform “member checking,” as a way to ensure the credibility of the analytic process.<sup>28</sup> While member checking offers the highest degree of certainty of credibility, it is not always feasible or reasonable to undertake this process.

Depending upon the number of in-depth interviews or focus groups conducted it might be helpful to employ a data management program to assist with the coding process. Examples of these programs include NVivo™ or atlas.ti™. Recent reviews of these programs have been published in the pharmacy education and qualitative research literature.<sup>29,30</sup> Limited trials of the software can be downloaded from the respective websites. These programs will require some initial training and experimentation to get the most out of what each offers. It is also important to note that these programs do not analyze the transcripts. The researchers will still need to read, and re-read the transcripts to develop the themes and subsequent codes. These programs are very helpful in organizing and presenting large volumes of data in an effective and efficient fashion.

### *Writing up and publishing qualitative research findings*

Once the analysis has been completed it is time to write up the results of the research for publication. The basic format of the report is similar to a traditional quantitative project. Begin in the background with a literature review,

<sup>1</sup>The term “researchers” has been used purposely here to indicate that the analytic process should be a group endeavor. Multiple perspectives, or triangulation, will help the team produce the most credible interpretation of the in-depth interviews or focus groups.

and justification of the research question. It is also important to include definitions of any terminology specific to your study in this section.<sup>22</sup>

Then in the methods section outline the study design, providing a justification for why qualitative research methods were used, the sample, the interviewee recruitment process, how data collection was undertaken, and the data analysis process. If applicable it would also be appropriate to provide a detailed explanation of how the theoretical framework directed data analysis. The methods section should provide enough information to another researcher to exactly replicate the process through which you went to collect your data. The methods section should also adequately outline how the research team conceptualized data collection and analysis, thereby providing some insight into potential biases of the team. This transparency helps readers understand how researchers reached their interpretations, and increases a study's credibility.

Next, the results of the data analysis are outlined. In general each of the themes is described and accompanied by representative direct quotations from the in-depth interview or focus group transcripts. These quotations are particularly important as they show the readers how the researchers have interpreted the actual data, and applied the theoretical framework (if applicable). All quotations should be embedded within the text of the results section, and not be listed in a table. Unlike the results of a *t*-test or linear regression, quotations from in-depth interviews or focus groups cannot stand apart from the researchers' thematic interpretations. However, it is also important that these representative quotations be as short as possible, lengthy quotations do not add to the readers understanding of the theme and will likely be interpreted as annoying.<sup>22</sup>

Also remember it is not appropriate to leave out those quotations or comments that did not conform to the overall themes identified, or your theoretical framework. Human experience is complex and presenting a narrative that does not reflect this complexity is not authentic. Moreover, these omissions may force readers to call into question the credibility of the research.<sup>22</sup>

In the final section of the article a summary of the themes should be provided, along with a re-contextualization of findings in previous research. It is also important to outline any limitations of the study and for the researcher to reflect briefly on how their own conceptions may have influenced the research findings.<sup>22</sup> However, keep in mind that because the purpose of qualitative research is not to generalize, a small sample size is not a limitation of this type of work.<sup>31</sup>

## Recommendations

Based on this review of considerations for in-depth interviews or focus groups, there are eight recommendations I would suggest for any researcher thinking about conducting this type of work.

- (1) *Carefully consider which data collection approach best answers your research question.* Remember focus groups are not efficient in-depth interviews; rather they offer qualitatively different data.
- (2) *Thoughtfully develop, and order, your in-depth interview or focus group question guide.* Poor, ill-considered, or mis-ordered questions will result in poor data and findings.
- (3) *Think about the best sampling approach for your research question.* Keep in mind the primary purpose of qualitative research is **to obtain in-depth understandings of peoples' experiences, so you need to talk to people who have had the experience you want to learn more about.**
- (4) *Decide on which of the interview modalities you are going to use (i.e., face-to-face or telephone).* To date there is little evidence that one modality is better than another, but each presents a unique set of challenges that must be carefully considered.
- (5) *The interviewee should always feel at ease during the interview.* However, the interviewer must be actively tracking all aspects of the in-depth interview to ensure success.
- (6) *Hire a professional to transcribe your in-depth interviews or focus groups.* The additional expense will pay dividends during data analysis.
- (7) *Be sure each research team member takes the themes back to the original transcripts to check that themes still make sense within the actual data.* This check will help to ensure the credibility of your findings.
- (8) *Write up your in-depth interview or focus group findings for publication, being sure to provide enough detail for others to replicate your study process.* The data provided by qualitative research cannot be obtained through traditional quantitative methods and should be shared.
- (9) *Embed direct quotations from the in-depth interviews or focus groups into the text of your article.* Quotations cannot stand without your interpretation.

## Applications and implications

An excellent example of qualitative research, which generally follows the recommendations outlined above is Austin's work entitled, "Negotiation of interprofessional culture shock: the experiences of pharmacists who become physicians."<sup>16</sup> Other, more recent, non-pharmacy, examples can be found in a focus group study of nursing students' first experience with a clinical rotation,<sup>32</sup> and a multiple case study project that used both in-depth interviews and focus groups to understand patients' perspectives on chronic disease management.<sup>33</sup> In each of these studies the researchers justified the use of in-depth interviews or focus groups,

## Box 1

## Additional resources.

## General qualitative research methods:

- (1) Patton MQ. *Qualitative Research and Evaluation Methods*. 3rd ed. Thousand Oaks: Sage Publications; 2002.
- (2) Anderson C. Presenting and evaluating qualitative research. *Am J Pharm Educ*. 2010;74(8): Article 141.
- (3) Tong A, Flemming K, McInnes E, Oliver S, Craig JC. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol*. 2012;12:181. doi: 10.1186/1471-2288-12-181.

## In-depth interview research methods:

- (1) Merton RK, Fiske M, Kendall PL. *The Focused Interview*. New York: The Free Press; 1990.
- (2) Novick G. Is there a bias against telephone interviews in qualitative research? *Research in Nursing and Health*. 2008;31(4):391–398.

## Focus group research methods:

- (1) Krueger RA, Casey MA. *Focus Groups: A Practical Guide for Applied Research*. Thousand Oaks: Sage Publications; 2008.
- (2) Allen MD. Telephone focus groups: strengths, challenges, and strategies for success. *Qualitative Social Work*. 2014;13(4):571–583.

depending on the research question, carefully outlined the sampling approach used, analyzed transcribed data, and wrote up the findings, with quotations embedded within the text of the article.

There are a number of additional resources worth examining to gain a more complete understanding of the range of methodological approaches to qualitative research. Box 1 shows for some of the resources I have found helpful in my own work. There are also guidelines available for conducting and writing up qualitative research, which may be used as a checklist when completing your own work.<sup>8,22</sup>

More qualitative research in the form of in-depth interviews or focus groups could prove particularly helpful in pharmacy teaching and scholarship. For example, consider a recent study examining pharmacy and medical students' experience in an interprofessional education (IPE) program.<sup>34</sup> The authors found, at the conclusion of the IPE

program, that students had begun to demonstrate one of the core IPE competencies, mutual respect, and shared values.<sup>34</sup> A competency which could be difficult to capture using more traditional quantitative survey methodologies that tend to apply researcher developed questions and response choices that may be unfamiliar to student respondents.<sup>34</sup>

Furthermore, additional readings of the focus group quotations provided insight into the differing professional cultures of the students. Consider the following student comments on working in the student-run clinic:

Pharmacy student: "It's really small, tight area within the pharmacy...it would obviously be a lot better if it was bigger."

Medical student: "You better figure it out because everyone else is running around busy too."<sup>34p306</sup>

As the authors' point out, the pharmacy students were much more apt to identify challenges within the student-run clinic, versus medical students who were more likely to present solutions to any perceived problems.<sup>34</sup> If students from differing professional backgrounds are not made aware of these multiple perspectives before working together, it is possible that each group would become frustrated with the other. Research on interdisciplinary health care team has suggested that a lack of understanding about team members professional culture can impeded success, and by extension patient outcomes.<sup>35,36</sup>

By extension data from in-depth interviews or focus groups could also prove very helpful as schools of pharmacy from across the country work to effectively implement, and track, the Accreditation Council for Pharmacy Education (ACPE) 2016 Standards.<sup>37</sup> While it is entirely possible to develop a survey asking the degree to which students feel they possess adequate knowledge, skills, and abilities, how much more powerful would those findings be if we could hear students' own voices telling that they possess tremendous knowledge, but are afraid to talk to patients? Or that they have never witnessed a pharmacist conducting a comprehensive medication therapy management review in a community pharmacy, and wonder if and how they will be able to do this important clinical work when they graduate? Qualitative research methodologies represent an important set of tools that will provide valuable research insight that can be used to improve pharmacy teaching and learning.

### Conflict of interest

None.

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