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## An Exploration of Pharmacy Education Researchers' Perceptions of and Experiences Conducting Qualitative Research: Challenges and Benefits

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## RESEARCH ARTICLE, THEME – QUALITATIVE RESEARCH

### **An Exploration of Pharmacy Education Researchers' Perceptions of and Experiences Conducting Qualitative Research: Challenges and Benefits**

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#### ABSTRACT

**Objective:** To investigate pharmacy education researchers' experiences conducting qualitative research (QR) and their perceptions of qualitative research in pharmacy education utilizing a phenomenological approach.

**Methods:** One-time, in-depth interviews were conducted with 19 participants across 12 schools/ colleges of pharmacy. Faculty represented the largest numeric subgroup in the sample, followed by graduate students, postdoctoral fellows/scholars, and residents. Interview transcripts were coded, and themes were identified using a modified form of the Sort and Sift, Think and Shift method.

**Results:** This study reveals that pharmacy education researchers have varying levels of training in conducting qualitative research or none at all. Salient findings include: 1) Pharmacy educators' lack of training and exposure to QR serves as a barrier to entry to conducting QR; 2) Perceptions that the lack of understanding and value of QR in pharmacy education impacts acceptability of QR projects; 3) QR offers

several benefits to advance pharmacy education and answer complex research problems (e.g. exploratory attributes, rich data, holistic view of a problem).

**Conclusion:** The application of rigorous QR in pharmacy education clearly holds great potential in addressing complex and evolving healthcare problems. However, findings from this study suggest that increased opportunities for training and exposure to QR are needed to enhance preparation and appreciation. This work provides empirical evidence to an anecdotal dialogue that has long existed in pharmacy education concerning why some researchers are hesitant to conduct qualitative research, the challenges encountered by those who employed qualitative approaches, and the benefits qualitative approaches provide.

## INTRODUCTION

Practitioners and researchers in health science fields increasingly recognize the value and critical role of rigorous qualitative research (QR) in addressing complex and evolving healthcare problems.<sup>1-5</sup> Unlike quantitative inquiry, QR can provide holistic insights into *why* people engage in particular actions or *how* they experience it.<sup>1-5</sup> In-depth interviews, focus groups, and participant observations, among other methods frequently employed in health services research, have also been vital research tools in pharmacy education. For instance, while some studies focus exclusively on qualitative methods, others have applied this approach to complement or explain quantitative results or serve as a preceding exploratory method to guide quantitative approaches (i.e., mixed methods).<sup>5-7</sup> Nevertheless, as some researchers have noted, qualitative research methods remain considerably underutilized by most pharmacy education

researchers.<sup>1,5,8</sup> Moreover, ongoing calls (and guidelines) for more rigorous standards in reporting qualitative research are pervasive in the health science literature.<sup>1-5</sup>

QR involves the study of social phenomena in natural settings, delving into the meaning, experiences, and views of the participant in the world.<sup>1,9</sup> Compared to quantitative research, qualitative approaches offer the advantages of an emergent and fluid design, the exploration of a problem in natural settings, and the ability to capture participants' meanings via rich, thick description.<sup>1,9</sup> Notwithstanding the multiple strengths of qualitative research methods, a significant divide exists among researchers on issues of ontology and epistemology and the standards for methodological rigor. In light of present debates and the increasing significance of this methodological approach, it is essential that pharmacy education researchers reassess their experience and preparation for conducting qualitative research. In order to advance qualitative scholarship within the field, researchers must leverage rigorous qualitative research methods consistent with guidelines issued by the American Journal of Pharmaceutical Education (AJPE).

The purpose of this study was to investigate pharmacy education researchers' (i.e., faculty, postdoctoral fellows, pharmacy/graduate students, and residents) experiences conducting qualitative research (including challenges and barriers) and their perceptions of qualitative research in pharmacy education (QRPE). Three central research questions guided this study to explore pharmacy educators' experiences conducting QRPE:

- 1) What concerns impede pharmacy educators from employing QRPE?
- 2) What are the barriers and challenges of employing QRPE?
- 3) What are pharmacy educators' perceptions of the benefits of employing QRPE?

The results of this study provide key insights into continued uptake of qualitative methods in pharmacy education.

## **METHODS**

Aligning with the purpose of the research, a phenomenological qualitative approach was used to address the study's guiding questions. The phenomenological approach best positioned us to understand how the participants experience and make meaning of the phenomena under study<sup>10</sup>. This approach is suitable because while we explore an important topic that has been prevalent in anecdotal discourse in pharmacy education, no systematic research has yet been published. The exploratory work may both support anecdotal discourse regarding QRPE known by some (i.e. researchers with QR expertise) and shed light on issues unknown to important stakeholders who may conduct, review, and publish qualitative projects. The University of North Carolina at Chapel Hill (UNC) Institutional Review Board (IRB) for the Protection of Human Subjects in Research approved this study. One-time, in-depth interviews were conducted with 18 participants using a semi-structured protocol. Purposeful sampling—that is, participant selection according to a set of predetermined criteria—was used to capture multiple perspectives and explore information-rich cases.<sup>9</sup> Participants were selected based on the following predetermined criteria: (a) identified as a pharmacy faculty, postdoctoral fellow/scholar, resident, graduate student; and/or staff member; (b) affiliated with an accredited school/ college of pharmacy; and (c) had experience conducting pharmacy educational research (e.g. quantitative, qualitative, and/or mixed methods).

To begin recruitment, the primary investigator sent an introductory email to pharmacy education researchers via listservs (e.g., email distribution list) and contacts from pharmacy educational research centers. The researchers began with listservs from two institutionally recognized centers for pharmacy educational research: The Wulling Center for Innovation and Scholarship in Pharmacy Education (W-CISPE) at the University of Minnesota and the Center for Innovative Pharmacy Education and Research at the University of Chapel Hill. These centers were selected due to their dedication to advancing educational research and scholarship in pharmacy education and their expansive listservs of collaborators. In addition to these centers, information on the research project was sent to other pharmacy education insiders and gatekeepers across the US for dissemination. Consistent with snowball sampling, in the initial recruitment email, prospective participants were asked to forward the email to other contacts who may be interested and fit the inclusion criteria.<sup>9</sup> Before the interview, participants completed an informed

consent form and demographic survey online (e.g., educational attainment level, employee or trainee classification, and prior experience conducting qualitative research). The majority of the interviews were conducted via video-conference call (Zoom), although some were facilitated in-person or via telephone. Modified from previous work completed by Povee and Roberts<sup>11</sup>, our interview protocol questions explored several topics, such as how participants defined qualitative research, their past experiences using qualitative research, their exposure to formal or informal training related to qualitative research, and their perceptions of how qualitative research might be used to advance pharmacy education research. Each interview was audio recorded. Interviews lasted between 30-45 minutes, on average. Upon completion of the interviews, the audio data were professionally transcribed by Rev.com. The de-identified transcripts were then uploaded to a password protected drive. Participants did not receive any incentive for participation.

We employed a modified form of the Sort and Sift, Think and Shift method to analyze the data.<sup>12</sup> This approach “is an iterative process whereby analysts dive into data to understand its content, dimensions and properties, and then step back to assess what they have learned and to determine next steps.”<sup>12</sup> The Sort and Sift, Think and Shift process is informed by a variety of key qualitative components including: Labov’s six identifiable elements of storytelling (abstract, orientation, complicating action, evaluation, result or resolution, and coda),<sup>13</sup> Seidel’s model of qualitative data analysis process (collecting, thinking, noticing, and engaging),<sup>14</sup> and five common qualitative traditions (specifically, phenomenology, grounded theory, narrative, and case study). The comprehensiveness of the Sort and Sift, Think and Shift process developed a unique framework for data analysis, conducted through several rounds of coding, review, and consensus building.

The first step in the data analysis process was selecting the five most substantive interviews to review. Next, the lead analyst (AB) used qualitative data analysis software (i.e., Atlas.ti, v.1.6.0) to review each interview transcript and highlight powerful segments of the data (i.e., pulse quotations) that were meaningful, interesting, and/or impactful (first round open-coding).

Then, AB utilized Microsoft PowerPoint to develop a visual depiction of each of the reviewed transcripts (i.e., episode profile) affording an opportunity to connect the data and identify relevant topics within each transcript across three pre-determined themes: 1) pharmacy educators' qualitative research experiences, 2) barriers and challenges when considering and conducting qualitative research in pharmacy education, and 3) benefits of employing qualitative research in pharmacy education. Topics (or categories) were selected if they were considered to be relevant to the purpose of the research, impactful, comprehensible, and/or connected to other topics. Upon completion, the five episode profiles were compared and topics were identified across the data. Next, the identified categories were used to develop a codebook. The codebook consisted of a code name, description of the code, and a sample participant quotation for each code. The codebook was then reviewed by a fellow member and lead interviewer from the research team (MA). MA and AB met to discuss any areas of disagreement and come to a consensus. The codebook was then modified to reflect the agreed upon changes.

Next, the lead analyst employed the modified codebook to code all interviews in Atlas.ti (second round coding). Upon completion of second round coding, the lead analyst (AB) exported the data from Atlas.ti to a Microsoft Excel document for a third round of coding. During the third round of coding, the lead analyst (AB) reviewed each coded quotation to ensure that it was captured under the appropriate code and combined similar codes to develop themes and subthemes related to each research question. The final themes were reviewed by the remaining members of the research team (AP and MA) and areas of disagreement were discussed and consensus was built. The employment of this rigorous data analysis process, which included several rounds of extensive coding, afforded us with an opportunity to glean a comprehensive understanding of the participants' experiences and enhance the trustworthiness of our study and results. Participant pseudonyms were selected by an online random name generator (<http://random-name-generator.info/random>).

## **RESULTS**

Demographically, faculty (including administrators and/or staff with faculty appointments) (n=15) represented the largest numeric subgroup in the sample, followed by graduate students (n=2),

postdoctoral fellows/scholars (n=1), and residents (n=1) (see Table 2). All participants had attained either a professional degree and/or doctoral degree and represented 10 schools/colleges of pharmacy. The majority of the participants had experience in conducting qualitative research, and, on average, had either led or contributed to three qualitative projects.

Several themes were developed from this exploratory study. The themes are presented below as aligned with the research questions and provided in Appendix A, accompanied by exemplar participant quotations. Two themes surfaced relating to pharmacy educators' qualitative training experiences. Specifically, participants noted that they gained qualitative research training through both formal and informal means. Some participants received formal qualitative research training via courses taken to fulfill degree requirements for a master's (i.e., as a resident) or doctorate. The levels of this training were varied. Some participants noted that they took courses with a specific focus on qualitative research (i.e., Introduction to Qualitative Research). Nancy, a faculty member stated, "I took a number of courses in qualitative methods." Leonard, also a faculty member noted, "I got full training in qualitative through my master's and my Ph.D., but primarily in my Ph.D. is where I went more in-depth with it." Other participants noted that while they have taken educational research design courses, the qualitative specific sections were occasionally distributed throughout the courses. For example, in describing their training, Mark, a resident noted, "I would say it would be limited...There are a couple [of] classes that either directly or indirectly include qualitative research content...sometimes it's like a whole class on qualitative research, but then sometimes it's just looped in through the course as we go."

Other pharmacy educational researchers received what Sylvia, a faculty member, noted as "on the job training" or informal training. Specifically, these participants were self-taught, acquiring their qualitative knowledge through a variety of alternative mechanisms. One way was engaging in professional development/continuing education opportunities (e.g., workshops, research institutes, short courses, and sessions at professional conference). Participants also received qualitative research training through trial and error by designing and engaging in qualitative research projects and figuring it out along the way. Roberta described this as "diving right in." Erin, a faculty member, participant stated, "I haven't



received any formal qualitative research training. I think I've mainly learned through jumping in with a few projects here or there.” Participants also received informal training by reading research and methodology articles and reviewing other sources such as books to assist in the designing of qualitative research projects: “I've been reading about it on my own, whether that's through books or articles (Priscilla, faculty member).” Willie noted, “I think reading the educational research, you begin to understand what people do when they [conduct] qualitative analysis or do qualitative research. So reading other qualitative studies and reading about qualitative research to help us better understand how to do it.” Lastly, the participants shared how they sought training from colleagues, faculty, and staff, with qualitative expertise from both within their schools/colleges of pharmacy, at their university, and/or at other institutions. For example, Erin, a faculty member stated, “So, we'll go to an expert...and just kind of learn by watching their analysis of that information as best I can...So, kind of learning how to think through the methodology of a particular project, and the steps that we should go through to have a valid research process.”

The next set of themes convey the participants' barriers and challenges when considering and conducting qualitative research in pharmacy education. Three barriers and challenges were found. First, participants noted how their lack of training and limited exposure to qualitative research presented what Nancy described as a “barrier to entry” to considering and/or conducting qualitative research. Another pharmacy educational researcher, Roberta, stated, “Nowhere in our pharmacy education, at least nowhere in my pharmacy education did we talk about qualitative research.” Participants noted that quantitative approaches (i.e., clinical trials, etc.) were primarily emphasized during their pharmacy training. As expressed by faculty member Armando, “I'm more comfortable with quantitative because I was trained...to do quantitative types of research.” However, participants did express that increased training and exposure to qualitative research and improved accessibility of colleagues with such expertise would be helpful in increasing their understanding and potentially foster the value of qualitative research. As Erin argued, “If we became more familiar with how to do qualitative research and understand it, then...we would probably become more accepting of it.”

The second barrier identified by pharmacy educational researchers who have conducted qualitative research is a variety of challenges surrounding recruiting participants, data collection, and data analysis. Concerning recruitment and data collection, participants described difficulties including managing the logistics of scheduling interviews and focus groups as well as the time needed to collect qualitative data. Evelyn, a graduate student, stated, “I think it's challenging to recruit participants because you're asking for a fairly significant amount of their time... I think one of my biggest barriers, number one, is just feeling comfortable asking people for their time...Then, number two, finding participants who are willing to give up their time.”

Participants in this study also perceived barriers related to the role of the researcher in this process, funding sources, and how the volume of data makes qualitative data analysis and interpretation time consuming. Indeed, even with assistance from a qualitative data analysis software program (e.g., Atlas.ti), the onus is on the researcher to analyze the data. Spencer, a faculty member, stated, “I think [qualitative research] generates a lot of data, which is good but that's also a disadvantage in that then you've got to analyze that data,” Erin expressed similar concerns related to analyzing qualitative data: “It's harder to access the information and process it. In clinical research, it was very easy to download 100 patients' hemoglobin A1Cs, and rapidly get that into an average with means and standard deviations, and run T-tests on them, and all of that kind of stuff. I think the barrier, [or]onus, of [conducting] qualitative research is processing large amounts of information.” Issues related to analyzing qualitative data included converting audio-recorded interviews into transcribed text, specifically, paying someone or a service to transcribe the recordings. Some participants noted that funding for interview transcription within qualitative research projects was scant: “I just remember funding because I just begged to get funding for transcription...even when you collaborate with faculty, I think some of them don't really have research money, and that can be difficult. So I think if there was like a pool or something that we could apply for that would give the resources and funding, it [would] make it a lot easier. Because there is a lot of work ahead to transcribe that data, analyze it, do the journal, it's going to be a lot. (Mark, resident)”

The final theme found concerning challenges and barriers was related to perceptions of qualitative research in pharmacy education. Participants expressed that issues concerning the acceptability, perceived value, and lack of appreciation for qualitative research in pharmacy education triggered apprehension for those considering the method and served as a barrier for scholars who frequently use the approach. Carmen, a graduate student, stated, “In the pharmacy world when I’ve tried to conduct qualitative research, I feel this insecurity for legitimacy...like I have to make it look more like quantitative methods for it to be accepted.” The participants expressed that qualitative research was open to more scrutiny than quantitative approaches and perceived to be considered less scientific than quantitative approaches, which may impact the legitimacy of qualitative research. One participant described the divide between quantitative and qualitative approaches as a “paradigm war (Spencer, faculty member).” Kelly noted that formal training might contribute to the acceptance and perceived value of qualitative approaches, “because we’re not trained formally in qualitative methodology, there is less acceptance of it.”

Due to perceptions of the acceptability and value of qualitative approaches, participants expressed that it has been difficult to get qualitative research projects accepted for publication in prominent pharmacy education journals and at pharmacy education conferences. The participants communicated that, in some instances, reviewers “questioned the veracity of the work,” “wanted to see numbers (Willie, faculty member),” and had limited understanding of qualitative research. However, a few participants also noted that challenges exist in determining the best approach to present their qualitative work. For example, one participant stated that there were challenges, “Not necessarily knowing...how...the results are communicated to a larger audience.” Roberta discussed the challenge of writing as a qualitative researcher: “Qualitative researchers have to be like really prolific writers, and describe and tell stories, and paint the picture, and describe the meanings behind what your participants are telling you or showing you.” Participants also noted that the jargon used in qualitative versus that used in quantitative research might contribute to qualitative approaches not being understood. Spencer stated, “I think when we’ve

done quantitative research in the past in pharmacy, it's been looking at validity...[but] those words aren't used so much in qualitative research.”

The final set of themes summarized participants’ views of the benefits of employing qualitative research in pharmacy education. Three benefits surfaced from the interviews. First, the participants discussed how the exploratory nature of qualitative research affords the profession with an opportunity to investigate a variety of topics in which little to no research exists. The researchers noted that the landscape of pharmacy education is changing. For example, Evelyn stated, “I think our field has a whole lot to offer, especially because it's evolving right now. Pharmacy education is evolving. I think capturing it via qualitative methods is ...very valuable. I think that's probably the biggest thing that we can gain by conducting qualitative research in pharmacy education. It's just capturing everything that's going on, with a new approach to research...” In light of the ongoing transformations to pharmacy education and practice, participants expressed that different perspectives might be needed to explore unknown topics. As Sylvia, a faculty member, expressed, “I think [qualitative approaches] gives us a different way to look at some of the things that we're doing on the educational side of things, that we haven't had before. I think it's a different way to communicate some of that ... those findings, that information. I think there's a need for it...[We may] gain some information that will help us do things moving forward.”

The second benefit noted by participants was that qualitative approaches could be employed to answer complex problems (questions) that quantitative methods may inadequately address. Verna, a faculty member, suggested, “I think a lot of the questions that we need to ask can't be answered quantitatively. I still come to this with a bias that quantitative research answers some questions better than qualitative research can, but there's definitely a place for qualitative research...” Similarly, another participant shared their reasoning for employing qualitative approaches: “It's been pretty clear that multiple questions can't be answered quantitatively, so that's why I'm branching out into qualitative research.” However, participants also noted how qualitative and quantitative approaches could be combined (i.e., mixed methods) to provide a holistic view of a research problem. As Verna expressed, “I also see qualitative research sort of as a precursor in some ways to being able to ask other quantitative

questions. I see the two go kind of hand-in-hand because pharmacists like numbers. Let's face it; they want to look at the numbers, too. But I see that qualitative research has the potential to inform the quantitative research and maybe help expedite or progress that area of pharmacy education research as well.”

The final benefit expressed by the participants was that qualitative methods provide greater depth of inquiry via the collection of rich data. One participant noted that qualitative approaches afford an opportunity to “put a human touch on your study” (Erin, faculty member) and hear the voices of the participants. Describing their experiences collecting qualitative data, Judy, a faculty member, expressed the following: “Even though I have not attended the classes, it's just amazing. It's almost like through their response...about what they're gaining, and what has helped them to gain that understanding, and vicariously traveling through the class... I feel like giving them that self-report opportunity with no prompts gives you authentic data from them.”

## **DISCUSSION**

The purpose of this study was to explore pharmacy education researchers' experiences and perceptions of qualitative research in pharmacy education. Several themes were found. Presenting opportunities for the academy to address gaps in the preparation of researchers in or entering the field. The first two themes that we found reflected the dichotomy of training experiences: either formal or because of a faculty member's own fruition. This is especially notable for a variety of reasons. Perhaps the most critical reason is that, as one participant noted, qualitative researchers (i.e., humans) are the “instruments” in QR.<sup>10,15</sup> Thus, as Kuh and Andreas stated, “The integrity of qualitative data depends on the competence of the data collection instruments—human beings. That is, the data are only as good as the qualifications of the inquirer.”<sup>15,16</sup> However, just as faculty are rarely formally trained to teach, they also are unlikely to be formally trained in qualitative methods. Thus, faculty often seek out professional development to learn these desired skills which may be problematic for faculty and staff with limited resources or if insufficient opportunities exist.

The academy has recognized this and resources have been developed recently in response. For example, the *AJPE* released this special-themed issue on QR to provide frameworks and resources and has previously published similar work<sup>1</sup>. Additionally, the American Association of College of Pharmacy has had presentations about qualitative research.<sup>17,18</sup> In 2014, the *Journal of Academic Medicine*, published standards for reporting qualitative research,<sup>4</sup> and in 2011, the *Journal of Graduate Medicine* published a series on qualitative methods.<sup>19</sup> While it may be challenging for faculty to receive formal training in qualitative methods, there are available resources to help. Similar to other faculty development models, a mentoring model or community of practice may be appropriate to help develop these skills. In fact, some pharmacy educational researchers included in the study expressed a need for such mentoring and suggested that increased exposure, training, and understanding of qualitative research may increase its value and acceptability in pharmacy education. This goal could be accomplished if institutions develop partnerships with other schools employing faculty with expertise in QR, with schools of education, and/or within a national organization.

These next set of themes emphasize the barriers to qualitative research. The first theme was the lack of training or exposure. Because faculty may have not seen substantial quantities of QR and have no formal training in it, they may be more averse to engage in these methods. This is consistent with self-determination theory, where self-efficacy is a driving force of motivation.<sup>20</sup> This barrier can be addressed in two ways. The first is increased training through methods mentioned above. The second way is to increase the presence of qualitative research in educational publications read by pharmacy educators. By providing model papers, this reinforces the appropriate methods and rigor of QR. Journal editors could play an important role here by selecting and promoting these articles.

This theme parallels the next, the acceptability or appreciation of qualitative research. Most pharmacy educators are more familiar with quantitative methods used to practice evidence-based medicine—it is, after all, how clinical trials are conducted. Notably, the distrust and lack of appreciation for qualitative approaches “may stem from [an] insufficient understanding of the philosophical background for qualitative research,” which is linked to the pharmacy educators’ lack of training and

exposure to the approach.<sup>21,22</sup> As such, the hesitancy to accept qualitative methods is not surprising. This issue could be addressed by having better examples within the literature of qualitative methods and manuscripts that use qualitative methods to “close the loop” on research questions. In fact, most faculty may do this unwittingly when reviewing the open-ended comments from course evaluations. Instructors who engage in scholarly teaching use end of semester evaluations to improve their courses. By reviewing student comments, and the richness within, themes may appear that can allow for course modifications – more so than the quantitative part. For example, the quantitatively-measured responses may show a course is disorganized, but without the open-ended comments, the instructor may not be able to remedy the situation because they do not have the context from which students base their judgment (e.g., learning management system, class time). Qualitative methods can help provide the examples to improve learning and learning process by providing concrete examples.

The next subtheme regarding barriers was the process of conducting of the research. One predictable challenge was time, specifically, the time researchers must spend recruiting participants, collecting data, transcribing the data, and coding the data. When conducting QRPE, recruiting participants “is often the most challenging and resource intensive aspect of a study.”<sup>23</sup> Frequently, researchers misjudge the amount of time needed to recruit participants as well as the participants’ interest, availability, and eligibility to participate in the study.<sup>23</sup> Perhaps this is not only an issue for qualitative research but also recruiting participants for educational research projects in general. However, in qualitative research, the logistics and time surrounding participant recruitment and data collection (e.g., interviews, focus groups) are especially problematic if researchers fail to anticipate challenges and consider options to address said challenges.<sup>23</sup> Archibald and Munce review some of the potential challenges and outline several strategies to employ: 1) designate a member of the research team to lead recruitment efforts; 2) create a recruitment protocol with clear instructions, aligning recruitment strategies with the participant sample (e.g., different strategies will be needed to recruit faculty versus students versus patients); 3) anticipate prolonged engagement with the study site and gatekeepers prior and during recruitment to build trust; and 4) provide incentives for participation.<sup>23</sup>

Concerning data analysis, qualitative methods are often perceived to be “labor intensive and cumbersome.”<sup>15</sup> It is no surprise some participants with formal qualitative research training identified this as a barrier. Such feelings are amplified for those participants “diving into” projects with little to no formal training. To alleviate such challenges, some participants noted that they sought the qualitative research expertise of their colleagues. Employing a collaborative, team-based approach may decrease the time needed to analyze data (i.e., increase efficiency) and enhance meaning-making.<sup>15</sup> However, employing a team-based approach is not without challenges. When developing teams, it is important to be thoughtful about roles, responsibilities, and expectations and have consensus on managing and analyzing the data to increase productivity.<sup>24</sup>

The data revealed several benefits of QR as described by the participants. The benefits centered around the richness of the data, the ability to answer questions that quantitative approaches may not be best positioned, and the exploratory nature of qualitative research. As stated by Givens, “The term rich data describes the notion that qualitative data and their subsequent representation in [a] text should reveal the complexities and the richness of what is being studied... In short, rich, thick description builds on rich data to grab readers, giving them a sense that they are there, experiencing what the researcher is representing.”<sup>25</sup> Much of the educational research conducted in pharmacy centers on people (i.e., learners, trainees, faculty, and/or patients). Their experiences provide context and perspective<sup>26</sup> and help to inform decisions and policies made to improve educational outcomes.

Crucially, in some cases, qualitative data may inform a quantitative approach. For example, from this data, a survey could be developed to capture a broader audience’s opinions. Conversely, the qualitative approach may follow the quantitative approach to add necessary details about “mechanism.” Ultimately, the mixed method approach, the fourth theme from the benefits category, may allow a more holistic picture of a problem.

While this exploratory work corroborates anecdotal discourse regarding qualitative research in pharmacy education known by some (i.e. researchers with QR expertise), it reveals issues unknown to important stakeholders who may conduct, review, and publish qualitative projects. Thus, while this work



provides key information to propel the dialogue regarding barriers to entry, challenges conducting, and the benefits of qualitative research, more work should be done. Considering the aforementioned, we offer suggestions for future research to provide a deeper and more holistic understanding of this phenomena. For example, the themes emerging from our data may provide a framework for a researcher to sample a larger number of educational researchers via a survey or mixed methods approach to find keys to success and best practices among those who have been successful in conducting qualitative research. There are also limitations in this study that could be addressed in future research. Specifically, the study focused on the experiences of a variety of pharmacy educators including faculty, students, and residents. However, faculty garnered the majority of participation in the study. Thus, future studies may consider delving deeper into the experiences of students and residents. As trainees, understanding their perspectives and knowledge of qualitative approaches and research training experiences could provide key insight into what is needed to prepare the next generation of scholar-practitioners.

## **CONCLUSION**

Despite the increasing application of rigorous qualitative approaches in many health science fields today, it mostly remains underutilized in pharmacy. In an attempt to catalog pharmacy education researchers' perceptions of and experiences conducting qualitative research, we provide empirical evidence to an anecdotal dialogue that has long existed in pharmacy education to explain why some researchers are hesitant to conduct qualitative research, the challenges encountered by those who employed qualitative approaches, and the benefits qualitative approaches provide. The findings from this study are especially useful in pharmacy and pharmaceutical sciences as the need to address complex problems intensify in a rapidly evolving environment. Whether as a standalone method or combined with quantitative approaches, qualitative approaches may provide a suitable solution to advance pharmacy educational research.

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APPENDIX A

Themes and Participant Quotations

Research Question	Theme	Participant Quotes
1. Pharmacy Educators' Qualitative Training experiences	1A. Formal qualitative research training via courses taken to fulfill degree requirements	<ul style="list-style-type: none"> <li>• I mean, not much (training). I think in our research and methodology class we learned about it...It was a research and methodology class as part of our pharmacy curriculum. It was the start, because we did a three-year research project as part of our graduation requirements. It was a mandatory, lay the groundwork, this is how we conduct research kind of class. (Margarita, fellow)</li> <li>• Yeah, so I would say it would be limited, but I did take [a required course for residents]... There's a couple classes that either directly or indirectly include qualitative research content... Like sometimes it's like a whole class on qualitative research, but then sometimes it's just kind of looped in through the course as we go. (Mark, resident)</li> </ul>
	1B. "On the job training": Informal qualitative research training	<ul style="list-style-type: none"> <li>• I've been to a couple of trainings about doing research in general, but there's not a lot of emphasis on [qualitative research]... more about what is qualitative research and their different methods of doing it but no specifics on how to go about doing it. Primarily just lack of experience and in terms of the research design and then analysis. So when I have done it, again, it when there have been other colleagues who know how to do it and have shared their expertise. You know, part of the research team. (Mark, resident)</li> <li>• Informal training has been basically I guess you'd call it immersion. I've gotten involved with projects that involved qualitative approaches and so I learned by going through that process what I know about qualitative research... I've been through two projects like that. In each case I learned from others who were more experienced how qualitative work was done. (Armando, faculty member)</li> </ul>
2. Barriers and Challenges to Considering and Conducting Qualitative Research in Pharmacy Education	2A. "Barrier to entry": Lack of training and exposure.	<ul style="list-style-type: none"> <li>• I think one [concern or limitation] that impedes pharmacy educators from employing qualitative research in pharmacy education] is lack of knowledge, because they are primarily, even in practice, they primarily live in a quant world. You're doing dosages, calculations... And so I think emanating from a discipline that I think has a quant mindset, even though pharmacy is evolving because they're becoming more patient centered, but predominately it's a quant mindset. (Judy, faculty member)</li> <li>• I think there's a big barrier to entry... People not knowing how to get started. Not feeling like they have the training or the confidence, or the authority to jump into it. Not knowing who to collaborate with. Since there's not a lot of publications of solid and big qualitative projects, educators may not know who to look for either at their own institutions, or around the country (Nancy, faculty member)</li> <li>• I think it's lack of understanding about or lack of training in qualitative research. It's fear of something different and they've got to learn about it and how to analyze that data. And it's about having that training in place or training available to do that. (Spencer, faculty member)</li> </ul>
	2B. Recruitment of participants and collecting data	<ul style="list-style-type: none"> <li>• I think it's challenging to recruit participants, because you're asking for a fairly significant amount of their time... I think one of my biggest barriers, number one, is just feeling comfortable asking people for their time... Then, number two, finding participants who are willing to give up their time. I can think of it even right now with my pharmacy student who's doing research with me. We did the survey piece of [the project] and now she's interviewing. I personally don't have time to interview 20 community pharmacists for an hour. She does, so that's how that's happening. And then if we were to do a focus group, it's the logistics of scheduling and so making sure you have the ability to do that and set that up. That was one of our biggest hurdles when I was doing my training and we were doing our early immersion pilot as well. Keeping those things in mind of who your audience is and how to best access them for the type of research we do. Since if we're interviewing pharmacists, many of them work and [we're] trying to work around their schedules. (Evelyn, faculty member)</li> </ul>
	2C. Resources needed to analyze qualitative data (e.g. time, people, funds)	<ul style="list-style-type: none"> <li>• It's harder to access and [analyze the data]. In clinical research, like I was doing, it was very easy to download 100 patients' hemoglobin A1Cs, and rapidly get that into an average with means and standard deviations, and run T tests on</li> </ul>

<p>3.Perceived Benefits of Employing Qualitative Research in Pharmacy Education</p>	<p>2D. Perceptions of the lack of acceptability, value, and appreciation of qualitative research in pharmacy education</p>	<p>them, and all of that kind of stuff. I think the barrier, kind of onus, of the qualitative research is processing large amounts of information. (Erin, faculty member)</p> <ul style="list-style-type: none"> <li>• There's an increasing emphasis for all schools and faculty to be pursuing research that draws in funding, and I'm not familiar with all of the funding sources that might fund this type of research. So it might not be valued as much at the institutional level. (Sylvia, faculty member)</li> <li>• I think as well, one of the other barriers may be to do with publication...Having somewhere suitable to publish. My colleague and I submitted 2 abstracts to a pharmacy conference. And the reviewers' comments that came back just showed that they had absolutely no understanding of what qualitative research was trying to achieve. I can't remember the specific comments, but the abstracts were rejected and they were saying, "there's not a big enough sample size, you need to have numbers in it to know," which completely undermines the philosophy of qualitative research. (Cristina, faculty member)</li> <li>• And more important than understanding, that they appreciate it. Because I think I've found a lot of people that, just because we're taught to be so, especially as pharmacists, so discrete and everything's about numbers and things that are measurable, that sometimes qualitative research gets put in the backseat compared to everything else...Because I think some people do understand it, but they don't appreciate it. Some people don't understand it, and don't appreciate it. I think some people know what you're doing and they understand what you're doing; they just don't think it's robust. Where some people don't even know what it is, I mean wouldn't even know what it is to even have the capacity to appreciate it. (Willie, faculty member)</li> </ul>
	<p>3A. Exploratory nature of qualitative research and the need to answer complex research problems</p>	<ul style="list-style-type: none"> <li>• One of the things that we're working on right now is trying to assess student perceptions of learning methods that we're using, and getting their perception of whether the activity was built to assist in their learning development, or was it built to assess their performance. There's not really a tool that exists to measure that, so what we're trying to do is basically gather what their thoughts are, and try to identify themes of what creates in their minds a learning activity as something that encourages learning as opposed to something that is there to assess their performance.</li> <li>• I think we're all hopefully starting to see now that to address the big challenges in education we simply need to understand the learning process better. Education I think is moving away from a redemptionist kind of approach where we try to control everything like education with a clinical trial or anything. A redemptionist approach isn't really going to improve and isolate the way we should do things. So we're needing qualitative methods to better understand context. (Gwendolyn, faculty member)</li> </ul>
<p>3.Perceived Benefits of Employing Qualitative Research in Pharmacy Education</p>	<p>3B. The richness of qualitative data</p>	<ul style="list-style-type: none"> <li>• We have collected survey data from [students]...And even though I have not attended the classes, it's just amazing. It's almost like through their response...about what they're gaining, and what has helped them to gain that understanding, I am vicariously traveling through the class... I feel like giving them that self-report opportunity with no prompts gives you authentic data from them.... Richness of data...It opens a possibility of things, because when you do quant, you are limiting your perspective to whatever is on your instrument, or whatever you're collecting...But I feel like with qual, you have a rich terrain to see what is inside, and kind of have a wider perspective of that. You end up getting things that you didn't even envision, so I feel like it's more indicative of the uniqueness of the particular setting, or the particular demographics that you're trying to investigate. (Judy, faculty member)</li> <li>• It just provides a better, larger picture and I don't know ...you're hearing someone's voice and it's not just reading numbers off of a paper. That's where I feel it's rich. And even when you read people's reflection papers and you're looking for themes emerging from that. It's their voice, and so that's why I feel like it's rich in the sense that it's not just someone checking a box of yes, no, or sometimes I agree, sometimes I don't. You get the background behind why do they agree on a certain things, or why is it specifically. That's where the richness comes from is the depth. The depth of the responses. (Roberta, faculty member)</li> </ul>
	<p>3C. Answering questions quantitative research may not be best positioned to answer</p>	<ul style="list-style-type: none"> <li>• I think a lot of the questions that we need to ask can't be answered quantitatively. I still kind of come to this with bias that quantitative research answers some questions better than qualitative research can, but there's definitely a place for qualitative research. (Gwendolyn, faculty member)</li> </ul>

3D.Providing a holistic view of a problem or solution via mixed methods.

- I also see qualitative research sort of as a precursor in some ways to being able to ask other quantitative questions. I see the two go kind of hand-in- hand because pharmacists like numbers. Let's just face it, they want to look at the numbers, too. But I see that qualitative research has the potential to inform the quantitative research and maybe help expedite or progress that area of pharmacy education research as well. (Gwendolyn, faculty member)
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