

Lessons learned from pharmacy learner and educator experiences during early stages of COVID-19 pandemic

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Purpose. To explore pharmacy learner (eg, resident, fellow) and educator (eg, residency program director, preceptor) experiences and lessons learned during the coronavirus disease 2019 (COVID-19) pandemic.

Methods. In May 2020, attendees of the virtual Research in Education and Practice Symposium (REPS) were invited to participate in two 1-hour networking sessions. During these sessions, participants completed individual and group reflection exercises during which they were asked questions about their experiences during the initial stages of the COVID-19 pandemic. Participants who volunteered submitted their responses through an electronic survey application. Anonymous responses were coded using thematic analysis to address the research questions.

Results. Sixty-eight and 38 participants, respectively, attended the 2 networking discussions. Participant-identified professional impacts of the COVID-19 crisis included unexpected learning experiences, greater adaptability, workflow and learning interruptions, and decreased productivity. Personal impacts included a greater focus on well-being, physical and social isolation, and changes in travel plans. Participants noted positive and negative emotions including acceptance, encouragement, anxiety, stress, and frustration. The main lessons learned focused on adaptability, gratitude, and empathy. Participants indicated that they would have foreknowledge of the anticipated duration of the pandemic, associated workflow changes, and the reliance on technology the pandemic would engender. In addition, they predicted that pharmacy practice will require changes to workflow flexibility, training expectations, the pharmacist's role, and organizational structure.

Conclusion. The COVID-19 pandemic has positively and negatively impacted the professional and personal lives of pharmacy learners and educators, with the most notable impacts being in the areas of well-being and adaptability. Future research should explore the experiences of other workforce personnel and evaluate the long-term impact on pharmacy practice, patient outcomes, and workforce well-being and resiliency.

Keywords: COVID-19, residency programs, experiential learning, wellbeing, workforce development

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The coronavirus disease 2019 (COVID-19) pandemic has significantly impacted pharmacy practice; these impacts include medication and personal protective equipment shortages, increased workloads, employee furloughs, transitions to telehealth or remote work, and disruptions to travel and national conferences.^{1,2} The pandemic has notably affected the physical, social, and emotional well-being of healthcare providers; pharmacists have described it as a “trying time” in a work environment that is “more stressful than normal.”¹ Conversely, healthcare providers also acknowledge that the pandemic has promoted resiliency and a greater commitment to patient care needs.¹

Pharmacy practice reports note a variety of creative responses to the COVID-19 pandemic. Examples include the expansion or implementation of telehealth services to offer counseling, primary care, and specialty care for disease management.²⁻⁴ Inpatient workflow practices have also shifted to ensure patient and workforce safety while offering optimal clinical coverage. These workflow changes include enhancing integration of learners (eg, first-year residents staffing in intensive care units to provide sufficient coverage), rationing medication and personal protective equipment supplies (eg, collecting equipment for high-risk areas or personnel), implementing clinical care tools for enhanced asynchronous collaboration within electronic medical records (eg, using telemedicine and virtual consults), and expanding the capacity of investigational research teams (eg, supporting investigational drug services).^{4,5}

The American Society of Health-System Pharmacists (ASHP) has emphasized the importance of monitoring workforce well-being and resiliency. It is critical to understand the impact of pandemics on individuals’ professional and personal lives, as these impacts can heighten threats to well-being and resiliency.⁶ A specific group of interest includes participants in pharmacy practice residency programs, including residents, residency program directors (RPDs), and preceptors. Early responses to the pandemic included training of residents for intensive care unit staffing, integration of residents into emergency response processes, and

adjustment of rotations to minimize virus exposure, if possible.⁷ Residents often function as crucial extenders to fulfill clinical needs; however, they can also be susceptible to burnout and increased work pressures due to their learning requirements and clinical commitments.^{8,9}

The immediate impact of the COVID-19 pandemic on residents, RPDs, and preceptors has not been adequately explored. The purpose of the research described here was to collect and describe the experiences of this critical group of the pharmacy practice workforce. The goals were to describe positive and negative experiences during the pandemic, as well as lessons learned from those experiences, and to summarize predictions of future impacts on pharmacy practice. Our aim is to inform residency and workforce management as the pandemic continues to reveal opportunities for improvement in health-system pharmacy practice.

Methods

The objective of the study we conducted was to explore the experiences of health-system pharmacy residents, preceptors, and RPDs during early stages of the COVID-19 pandemic. To accomplish this, we engaged participants who attended the annual Research in Education and Practice Symposium (REPS) hosted by the University of North Carolina (UNC) Eshelman School of Pharmacy. The REPS is a 2-day regional forum, held in the eastern United States, where residents present results of their respective research projects.

In May 2020, the REPS was held virtually through use of the Zoom videoconferencing application (Version 5.0; Zoom Video Communications, San Jose, CA). Each morning, the symposium started with 1-hour networking sessions titled “CommuniTea Time” sessions. All participants ($n = 172$) were invited to attend. During these sessions, participants engaged in individual and group reflection activities based on the Gibbs Reflective Cycle model, discussing their experiences during the COVID-19 pandemic. The Gibbs framework provides a structured approach to promote learning from experiences through questioning that addresses 6 stages: (1) describing the experience, (2) explicating feelings, (3) evaluating the positive and negative impact, (4) making sense of the situation, (5) summarizing lessons learned, and (6) identifying

opportunities to manage similar situations in the future.¹⁰ These aspects of the framework were targeted with questions about professional and personal experiences during the COVID-19 crisis at the time of the symposium. A schedule of the CommuniTEA Time events and sample reflection prompts are available in Figure 1 as well as the supplemental appendix.

The first session included a 20-minute individual reflection that participants completed in Qualtrics (June 2020 release; Qualtrics, Provo, UT). This reflection session included questions about the impact of COVID-19 on their professional and personal lives, feelings experienced, and methods of evaluating and making sense of their experiences. Participants were then randomly assigned to small breakout groups that were organized for either learners (eg, residents, fellows) or educators (eg, preceptors, RPDs). In the 30-minute Zoom breakout room sessions, groups were encouraged to discuss their experiences and network with other attendees. Discussion questions were provided in Qualtrics and referred to common experiences, impact, benefits, challenges, and lessons learned during the COVID-19 pandemic. Groups were encouraged to appoint one member to summarize their conversation and submit the summary through the electronic survey. A similar approach was used for the second session; reflection and discussion questions were focused on how COVID-19 might impact participants' future, the future of pharmacy practice, and opportunities for the pharmacist's role.

All survey responses were collected and stored anonymously via Qualtrics. Descriptive statistics were used to summarize demographic data collected from REPS registrations. Qualitative analysis was conducted using a one-coder, two-cycle, open coding process with conventional content analysis.¹¹ Recorded reflection responses were organized by participant type (ie, learner or educator) and separated by the specific prompt question. The research team lead analyzed responses from all participants and inductively created a list of codes with sample quotations. These codes were aggregated and consolidated based on similarities across responses to each prompt; this process was conducted with a second research team member to verify the accuracy of the findings. Disagreements between the researchers were discussed and resolved until there was complete agreement in coding. The research team organized the results

around the experiences and impact of COVID-19 as well as the lessons learned and predictions about the future.

Informant feedback was also used to validate data from session 1 (eg, the perceived experience and impact). Participants were provided a summary of session 1 results during the second session and asked to confirm or refute the findings. They submitted their thoughts in a reflection prompts section of the day 2 electronic survey. The results presented to the participants were organized around shared experiences and impacts. The study was considered exempted by the UNC institutional review board.

Results

One-hundred seventy-two pharmacists registered to attend the REPS, including representation by 42 residency programs across 5 states: North Carolina ($n = 100$, 58.1%), Virginia ($n = 56$, 32.6%), Tennessee ($n = 7$, 4.1%), South Carolina ($n = 5$, 2.9%), and Maryland ($n = 4$, 2.3%). Most attendees were from community hospitals ($n = 87$, 50.6%), academic medical centers ($n = 71$, 41.3%) or community pharmacies ($n = 11$, 6.4%).

Of the REPS registrants, 68 (39.5%) and 38 (22.1%) attended the first and second CommuniTEA Time sessions, respectively. The first session included predominantly postgraduate year 1 (PGY1) residents ($n = 52$, 76.5%), preceptors ($n = 7$, 10.2%), and RPDs ($n = 6$, 8.8%), who most often identified as female ($n = 54$, 85.3%). Most participants were 20 to 29 years of age ($n = 49$, 72.1%) and White ($n = 47$, 69.1%) or Asian ($n = 11$, 16.2%). Individuals were split into 10 small breakout groups (8 learner groups and 2 educator groups).

The second session included mostly PGY1 residents ($n = 29$, 76.3%), RPDs ($n = 5$, 13.2%), and preceptors ($n = 3$, 7.9%), who identified as female ($n = 31$, 81.6%). Attendees completing second-year specialty practice (ie, postgraduate year 2 [PGY2]) residencies or fellowships and those who identified as Black or Hispanic were poorly represented, with less than 2 participants in each group. Participants were usually 20 to 29 years of age ($n = 30$, 78.9%) and/or White ($n = 29$, 76.3%). Individuals were split into 9 small breakout groups (7

learner groups and 2 educator groups). The results of the thematic analysis are summarized according to the 3 objectives of the study: to describe learner and educator experiences, the impact and lessons learned, and the future of pharmacy practice.

Experiences and impact of COVID-19. Experiences and impact of COVID-19 were best categorized as positive and negative attributes that influenced professional lives, personal lives, and participants' emotions and feelings (Figure 2). These findings were presented to participants during session 2; no participants refuted or disagreed with the findings. One participant confirmed, "the responses were not surprising . . . felt like what I've been hearing from friends/coworkers and what I have experienced." In addition, one participant shared that the results were affirming in that "a lot of us were surprised by the dynamic responses some residents described . . . they felt disappointed and relieved at the same time . . . it gave us reassurance for our own mixed emotions."

Professionally, both groups acknowledged that COVID-19 offered unexpected learning experiences and required greater adaptability. One resident shared, "because we have no ICU pharmacist right now, my coresident and I are acting independently as the ICU pharmacists"; and another identified, "I was able to gain a lot of experience working with patients virtually and telephonically." In addition, both groups identified negative experiences with workflow and learning interruptions and decreased productivity. Educators specifically described changes to how they precepted and worked on teams remotely, which was particularly challenging.

Many participants identified a substantial impact on their personal lives, especially as it related to their well-being and mental health. One participant stated, "The COVID-19 pandemic [has] impacted my personal life by amplifying my anxiety and depression." Both groups noted negative impacts such as physical and social isolation, changes to travel plans, stress, and concern for loved ones. One learner identified the balanced importance of physical contact with concerns for COVID-19 transmission, mentioning, "I have learned that in-person contact is truly so much more valuable than . . . technological contact. Mental health versus risk transmitting COVID-19 . . . where is the line?" Distinctively, learners noted a mixed impact on work-life

balance. One resident revealed, "Working remotely, I found that the lines between when I was working and not working were easily blurred." Whereas another resident noted improved focus on wellbeing, such that "as time went by, I appreciated the time I had to myself to be productive in regard to self-improvement and reflection. Ultimately, I believe my overall mental health improved."

Of note, there was substantial variability in the emotions and feelings participants shared during the reflection exercises; both groups expressed a mix of positive and negative emotions. Learners and educators similarly referenced frustration, stress, disappointment, and isolation as part of their experience. Some individuals noted positive emotions such as being more grateful, encouraged by their progress, and more accepting of their situations and surroundings. A resident shared, "After watching a twenty-something almost die in the ICU due to COVID-19, it caused me to pause and reflect on the wonderful family I have, the friends I was able to catch up with . . . I cannot take for granted mundane activities, like going to the grocery store or getting coffee." Educators uniquely identified relief, being content, and lacking sufficient support, whereas learners shared that they were indifferent, proud, and felt supported as well as uncertain and hopeless in some situations.

Lessons learned and future predictions for the profession

Participants shared that the most important lessons learned focused on adaptability, gratitude, and empathy (Figure 3). One participant recognized, "As much as this has been difficult, this was a unique experience and I feel it has made me a stronger person getting through this pandemic and residency at the same time." Moreover, an educator reflected, "It has created a constant state of adaptability in terms of workflow, patient care, and interdisciplinary communication." Another important lesson from the experience of the shared discussions through the conference was the commonality of experiences; for example, "It felt good to see [that] what each of us [has felt during the COVID-19 pandemic] is what everyone [has been]

feeling,” and “It was comforting for us to hear that other residents are experiencing [similar challenges].”

Regarding what participants wish they would have known earlier, individuals indicated that they could have benefitted from foreknowledge of the true duration, extent of workflow changes, and significance that technology was going to play in their daily lives. Individuals reflected that they underestimated or took for granted the expected duration; one wrote, “I wish I would have known how long the COVID-19 [pandemic] and its implications were going to last . . . I would have set my expectations differently, and this would have helped with burnout.” Other participants acknowledged that technological and workflow shifts were delayed; as one commented, “I wish our site was generally more technologically focused, would have made some transitions smoother” or “would have had [their] children teach [them].”

Participants predicted several short-term (ie, within 1-2 years) and long-term (ie, 5 or more years) implications for pharmacy practice. These changes included more permanent workflow modifications with an emphasis on flexibility, a shift in training expectations, the pharmacist’s role in public health, and general organizational changes with a focus on efficiency. Participants predicted technology for remote patient care would become more ingrained to allow for increased flexibility, such that “telemedicine will explode . . . and will not go away.” In addition, organizational changes may occur as leaders “foresee more areas being able to work remotely . . . now that we have seen it works and may be more effective in some cases.” Training programs were predicted to need more creative engagement, optimized learning opportunities, and a greater focus on well-being, including “residents may need to learn how to push out information quickly (possibly faster than we’re comfortable with) rather than mulling information over in depth.” Several noted that the pharmacist role will need to evolve alongside technology and an expanded scope of practice to manage or prevent pandemics and other public health concerns.

Discussion

The results of the study describe the significant impact COVID-19 has had on learners and educators in pharmacy practice. Overall, the findings suggest individuals experienced a mixture of positive and negative impacts in their professional and personal lives. One particularly notable impact was on individual well-being and adaptability. Many participants shared that workflow and learning disruptions as well as physical and social isolation have contributed to feelings of anxiety, stress, frustration, and uncertainty. As ASHP and the pharmacy profession acknowledge emerging wellness and resiliency needs, it is important to recognize how COVID-19 may exacerbate these concerns⁶; the results from this exploratory study showcase the importance of preparing for and supporting our workforce to minimize negative personal and professional experiences.

Implications and recommendations. The implications of this research are important for consideration in health-systems pharmacy as the COVID-19 pandemic continues.¹²⁻¹⁴ Participant predictions noted that greater flexibility, training expectations, scope of practice, and structural shifts to support greater efficiency should be considered and anticipated by organizations. Moreover, participants shared that they wish they would have known about the anticipated duration, workflow changes, and technology requirements. Organizations should consider greater and consistent transparency, which may include developing responsive communication systems to share knowledge and organizational responses as they emerge.¹⁵ Participants, for example, noted variability in the level of organizational support during the COVID-19 pandemic. In addition, a notable finding was the impact on overall well-being—a strong indicator that organizations should continue to develop and support well-being and resiliency initiatives.^{16,17} It may be beneficial to conduct more frequent check-ins with the workforce and allow greater flexibility in work arrangements to manage challenges like childcare or personal wellness to prevent burnout.¹⁶⁻¹⁸

Residency and training programs can use this information in several ways to improve their learner and educator experiences in response to significant interruptions caused by the

COVID-19 crisis. Programs can improve flexibility and transparency by creating a disaster preparedness plan for their residency programs.¹⁵ Early prioritization and planning for time-sensitive program requirements like research and conference presentations, patient care requirements, and teaching and precepting responsibilities can clarify training expectations for residents and preceptors. Programs should keep track of which learners and preceptors are cross trained to work in specific areas like emergency medicine, critical care, general operations, sterile compounding, and supply chain management in order to confidently and effectively shift workflows within an appropriate scope of practice.^{5,7} Programs can further improve confidence during structural shifts by incorporating telemedicine procedures into residency orientation materials and provide resources on best practices in remote patient care and teamwork.^{3,7} Given the additional expectations of residents and preceptors, specific considerations for well-being and resiliency should be accounted for, beyond considerations afforded to healthcare workers at baseline.^{1,8} Programs can support the community aspect of a residency program by scheduling social or well-being check-ins, provide preceptor support through mentoring sessions, and celebrate accomplishments by planning virtual graduations, all via video conferencing technologies such as Zoom.^{17,19}

Limitations and future research. While our study provided numerous insights into the experience of pharmacy learners and educators, there were several limitations. Due to the voluntary participation, bias may have been introduced: Individuals with extreme experiences (either positive or negative) may have been more likely to contribute. Survey responses and data were assumed to be honest reflections of participants' beliefs due to the anonymity of the survey; however, small-group discussions may have been limited, and shared experiences may not be as accurate. Of note, the sample did not include substantial racial or gender diversity and did not have a substantial number of PGY2 residents; therefore, these results should not be generalized to broader populations.

Most importantly, the participant sample was drawn from one regional residency conference; therefore, the experiences recounted may not be representative of experiences

across the United States or internationally. It is also critical to realize that the COVID-19 pandemic has impacted various regions of the country differently at distinct times. For example, the US west coast (ie, California and Washington State) and parts of the northeastern United States (ie, Massachusetts and New York) were the first regions impacted by COVID-19 in January and February 2020, followed shortly by the southeastern United States (ie, Florida, Georgia, and North Carolina) in March and April 2020. Since the sample included individuals predominantly from the southeastern United States and the REPS occurred in May 2020, this could have influenced perceived impact, which may have differed from those in other regions such as the Midwest or West coast based on varying levels of cases and preparations. This limitation was considered acceptable, as the intent of the study was to explore workforce experiences to inform future research and considerations as the pandemic continues. For example, the relationship of regional trends in learner and educator changes could be compared to perceived experiences. In some institutions, learners were more restricted than others, and the relationship of limitations to experience among those learners compared to those who were less restricted was not documented here.

Additional research should explore the impact of COVID-19 on patient outcomes to determine if there is an appreciable relationship in workforce experiences and clinical services offered. For example, have there been increases in medication errors due to greater stress or shifting of pharmacy residents to staff intensive care units? The long-term impact of pandemics also remains a significant concern. Will stress induced by COVID-19 lead to increased incidences of burnout, decreased job satisfaction, or premature shifts to careers outside of healthcare? Or will there be positive impacts from COVID-19, such as residents exploring alternative career paths in infectious diseases, critical care, emergency medicine, or research? Additional investigations should explore COVID-19 experiences of other key workforce personnel, including clinical and operational pharmacists, administrators, technicians, and support staff.

Conclusion

COVID-19 has positively and negatively impacted the professional and personal lives of pharmacy learners and educators, with the most notable impacts being in the areas of well-being and adaptability. Future research should explore the experiences of other workforce personnel and evaluate the long-term impact on pharmacy practice, patient outcomes, and workforce well-being and resiliency.

Disclosures

The authors have declared no potential conflicts of interest.

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Figure 1. Study participants and process.

Figure 2. Positive and negative aspects of experiences during coronavirus disease 2019 pandemic, as identified by conference participants.

Figure 3. Lessons learned during coronavirus disease 2019 pandemic and areas in which foreknowledge would have been beneficial, as identified by conference participants.

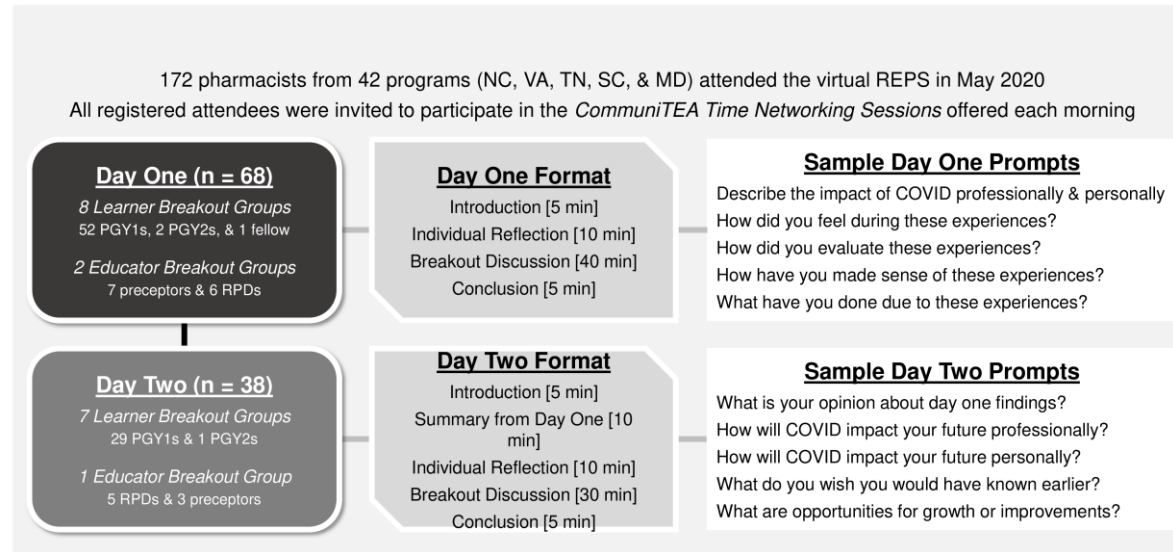
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Key Points

- Learners and educators surveyed during a virtual conference in the early weeks of the coronavirus disease 2019 (COVID-19) pandemic indicated that they benefited during the initial phase of the pandemic response from unexpected learning experiences, greater adaptability, improved focus on well-being, and enhanced professional relationships.
- Conference participants noted that workflow and learning interruptions, physical and social isolation, changes in travel plans, and exacerbated stress often negatively impacted their overall well-being.
- Predicted short- and long-term practice impacts of the COVID-19 pandemic include changes in workflow flexibility, training expectations, the pharmacist's role, and organizational modifications.

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Figure 1



NC = North Carolina, VA = Virginia, TN = Tennessee, SC = South Carolina, MD = Maryland, REPS = Research in Education and Practice Symposium
PGY1 = Post-Graduate Year 1, PGY2 = Post-Graduate Year 2, RPD = Residency Program Director, min = minutes

Figure 2

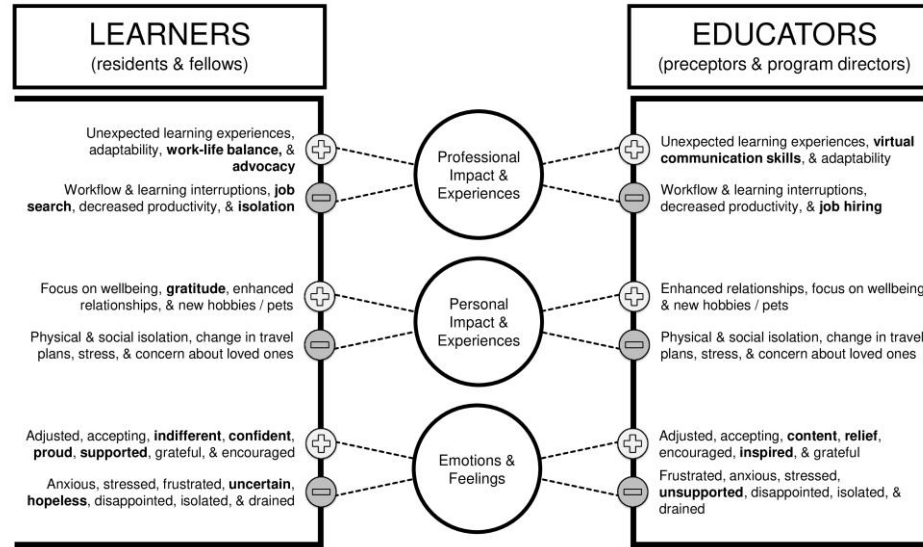


Figure 3

