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Impact of the COVID-19 pandemic on faculty at research-intensive United States schools/colleges of pharmacy

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ABSTRACT

Introduction: To describe the impact of the SARS-CoV-2 pandemic on teaching, research, practice, and work-life integration for pharmacy faculty at research-intensive institutions.

Methods: An online survey related to transition to remote work, impact on faculty responsibilities, demographics, and other elements was sent to nine research-intensive United States public schools/colleges of pharmacy. Respondents were asked to describe challenges in moving to remote instruction as a result of the pandemic. The 75-item survey asked respondents to rate the degree to which factors were challenging and levels of concern with the abrupt transition. Responses were analyzed using descriptive statistics and comparison of means using paired samples t-tests between spring and fall semesters, for the types of students taught, and for faculty discipline.

Results: Surveys were completed by 279 faculty (36% response rate), with 62% self-identifying as pharmacy practice faculty. The highest reported challenges were family/home responsibilities (41%), assisting children with schoolwork (28%), and availability of childcare (22%). Concerns most identified by respondents were increased workload, potential for academic dishonesty, and inability to effectively conduct hands-on activities. Practice faculty encountered barriers using telehealth and delivering virtual experiential education, while both practice and research faculty reported concerns with research progress.

Conclusions: The pandemic has led to substantial challenges and increased workload in many areas. As the pandemic persists, administration should consider reported barriers and concerns to inform expectations. Evaluation of novel instructional design, assessment methods, and best practices in the virtual learning environment is highly encouraged to ensure student competencies are met.

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Introduction

In mid-spring 2020, the escalating SARS-CoV-2 pandemic required academic institutions to suddenly implement a fully remote learning environment instead of traditional face-to-face instruction. Doctor of pharmacy (PharmD) faculty immediately redesigned courses and implemented new pedagogy and technology while maintaining rigorous academic standards to ensure students achieved program competencies.1-3 Additionally, most faculty moved to a fully remote work environment, including their clinical and research activities. In essence, this required a large-scale change to normal operating procedures at most universities in the United States (US). Change can be difficult in the best of circumstances. When change is not planned, such as the case during a world-wide pandemic, the effectiveness of an organization’s response often is influenced by its readiness for change.

Weiner4 outlined a theory of organizational readiness for change where the change efficacy of the organization’s members, faculty in this case, influences implementation effectiveness. Change efficacy is the “summary of judgment of perceived capability to perform at task,” or in this case the capability of moving to remote work, including teaching and precepting students using technology.5 Faculty members assessed the task demands, resource availability, and other situational factors to their capability.6 Early in the pandemic, faculty were asking themselves if they knew what it would take to effectively implement their work in a remote environment, if they had the resources necessary to undertake remote work, and if they could make the change in the face of a pandemic. Inherent in this model is the importance of organizational leaders’ responses to those questions in order to effectively implement change.

Beyond the organizational changes taking place in their work, faculty were facing challenges in their personal lives as a result of the pandemic. The SARS-CoV-2 pandemic impacted almost every aspect of life. Faculty were not only working from home but also actively providing care to family members and/or assisting in the education of their children. Their partners and spouses also were facing challenges, including the sudden loss of income due to unemployment. Faculty members were facing higher stress levels and fear as a result of the pandemic.5,6

As the SARS-CoV-2 pandemic persists and remote education and work are likely to continue in some capacity, evaluation of barriers and faculty members’ change efficacy is necessary.7-9 Limited commentary and a paucity of data exists for the impact on faculty and where resources are needed to improve faculty experiences.9 This goal of this study was to describe the concerns, challenges, and experiences of pharmacy faculty regarding the impact of the SARS-CoV-2 pandemic on teaching, research, clinical practice, and work-life integration at research-intensive schools/colleges of pharmacy (S/COP) in the US. Data from this study could inform institutional leaders as to their next steps in assisting faculty in their work. Further, change occurs regularly in organizations, including institutions of higher learning. Learning from the experiences of the pandemic can inform future practices as institutions are faced with change.

Methods

Thirteen research-intensive COP formed a team to develop a survey questionnaire to look at the impact of COVID-19 on students during the abrupt transition to remote learning in spring 2020. The institutions involved chose this purposive sample because they were all research-intensive institutions with similar student demographics, resources, curricula, and expectations around teaching, research, and service. As this team developed a student survey, members of the team felt it important to also explore the impact on faculty. Nine of the 13 institutions chose to participate in the faculty survey. The team identified core areas to explore and an appropriate scale for the survey based on discussion of lived experiences at each institution and discussions with the student research team. The survey was created and tested with members of the faculty research team and other members at the principal investigator’s institution. Due to time constraints and a desire to collect data closer to the abrupt transition to remote learning in spring 2020, a full pilot of the survey was not conducted.

The survey contained 14 sections and included 75 items related to the transition to remote work, the impact of this transition on faculty responsibilities, and demographic characteristics. Respondents were asked to select challenges they faced in teaching in the remote learning environment during spring 2020. The extent to which each factor was challenging was rated on a sliding scale of 0 to 10 (0 = not at all challenging; 10 = extremely challenging). Further, level of concern regarding impact on promotion, performance reviews, course evaluations, and student safety were also rated on a sliding scale of 0 to 10 (0 = not at all concerned; 10 = extremely concerned). A similar scale evaluated how the move to remote work in the spring semester impacted the following: workload, research productivity, teaching effectiveness, ability to balance work and personal life, and stress level. Faculty were asked to report changes made to instruction and assessment for undergraduate, PharmD, and graduate students. Survey participants were also asked to predict anticipated challenges for the fall 2020 semester.

Survey logic was utilized to best match survey items to faculty self-identified responsibilities. Whether faculty answered the remaining items were based on their responsibilities during the spring semester, including whether they (1) taught or coordinated a course (undergraduate, professional, or graduate), (2) precepted students, (3) provided patient care, (4) engaged in laboratory-based research, (5) engaged in non-laboratory research, and (6) served in an administrative role. All faculty were asked to indicate their perceptions of remote work and concerns regarding performance expectations. Demographic data included their affiliated institution, years in academia, academic discipline, and personal demographics such as age and self-described race and gender.

Data were collected using an online survey platform during June to July 2020. The survey was emailed by leadership at each institution to the non-adjunct faculty (full- or part-time) at nine research-intensive S/COP in the US. Recipients were asked to complete the survey if they were on faculty during a time when a shift was made to remote education delivery as a result of the SARS-CoV-2 pandemic, regardless of whether they were teaching during the spring 2020 semester. Two follow-up email requests were sent at 2- and 4-weeks. Participation was voluntary and no incentives were offered for survey completion. The project was reviewed and
approved by the institutional review board of the University of Georgia, and consent to participate in the research study was obtained from all respondents.

Statistical analysis was conducted using SPSS, version 25 (IBM, Corp.). Two-hundred seventy-nine responses were analyzed using descriptive statistics and comparison of means using paired samples t-tests between spring and fall semesters, the types of students taught, and different faculty disciplines. Statistical significance was set at $P < .05$. Since the survey utilized two types of scales, mean scores were calculated for numerical scale responses including the degree to which circumstances were challenging, level of concern, and the impact remote work had on different areas. Frequency data analysis was reported for items such as changes planned for the fall,

| Table 1 | Respondent demographics.\(^a\) |
|---------|-----------------------------|
| Demographic | n (%) |
| **Gender** |       |
| Male | 109 (39) |
| Female | 102 (37) |
| Prefer not to answer/did not respond | 68 (24) |
| **Race** |       |
| White | 161 (58) |
| Asian | 32 (11) |
| Black | 6 (2) |
| Latino | 3 (1) |
| Prefer not to answer/did not respond | 72 (26) |
| Other | 5 (2) |
| **Age (years)** |       |
| 20–29 | 11 (4) |
| 30–39 | 58 (21) |
| 40–49 | 53 (19) |
| 50–59 | 54 (19) |
| \(\geq 60\) | 42 (15) |
| Prefer not to answer/did not respond | 61 (22) |
| **Highest academic rank** |       |
| Professor | 69 (25) |
| Associate professor | 75 (27) |
| Assistant professor | 64 (23) |
| Instructor/lecturer/other title | 14 (5) |
| Did not respond | 57 (20) |
| **Academic discipline** |       |
| Pharmacy practice | 137 (49) |
| Social and administrative sciences | 20 (7) |
| Medicinal chemistry | 17 (6) |
| Pharmaceutics | 16 (6) |
| Pharmacology/toxicology | 16 (6) |
| Biological/biomedical sciences | 15 (5) |
| Did not respond | 58 (21) |
| **Position description** |       |
| Nontenure track\(^b\) | 137 (49) |
| Tenured | 68 (24) |
| Tenure track, not yet tenured | 18 (6) |
| Did not respond | 56 (20) |
| **Years worked in academia** |       |
| 0–3 | 26 (9) |
| 4–9 | 49 (18) |
| 10–19 | 72 (26) |
| \(\geq 20\) | 76 (27) |
| Prefer not to answer/did not respond | 56 (20) |
| **College/school of pharmacy** |       |
| Purdue University | 16 (6) |
| Rutgers University | 22 (8) |
| University of Buffalo | 17 (6) |
| University of Georgia | 34 (12) |
| University of Iowa | 19 (7) |
| University of Maryland | 27 (10) |
| University of Mississippi | 25 (9) |
| University of Southern California | 31 (11) |
| University of Tennessee | 28 (10) |
| Prefer not to answer/did not respond | 26 (9) |

\(^a\) Survey questions were not mandatory (i.e. respondents could skip items).

\(^b\) Option only selected if the respondent’s college/school had a tenure system.
challenges experiential preceptors encountered in the spring, and demographic information.

Results

Demographics

Of 279 survey respondents (overall response rate = approximately 36%; range = 19-59% for each S/COP), the majority identified as full-time faculty (n = 254, 91%). Overall, 49% of respondents were male, 73% were Caucasian, and 62% were pharmacy practice faculty (Table 1). Thirty-three percent (n = 92) reported having at least one administrative role, including program/center director (32%), associate dean (21%), assistant dean (10%), department head/chair (10%), associate/assistant/vice department head/chair (9%), dean (7%), and other (17%).

Remote work – challenges and concerns in spring 2020

Forty-nine percent of respondents began working remotely when required by their institution and continued to work remotely at the time of survey. Roughly 42% (n = 108/259) of respondents worked remotely, but were intermittently on-site, while 7% (n = 19/259) reported never working remotely (no response provided by n = 6). Of those who reported remote work was either intermittent or not applicable (n = 221), reasons for return to office or clinical location included ongoing direct patient care duties (27%, n = 59/221), physical need to be on-site (e.g., package pickup) (20%, n = 43/221), ongoing experiential education (18%, n = 39/221), personal preference (14%, n = 31/221), ongoing laboratory-based research (12%, n = 26/221), and lack of necessary technology in home (10%, n = 23/221).

One hundred two respondents (39%) stated they were intermittently or fully working on-site due to direct patient care. Specific reasons reported were fulfilling contract/obligations (37%, n = 38/102) as well as providing experiential education (30%, n = 31/102), pharmacy services due to no other pharmacist back-up (12%, n = 12/102), SARS-CoV-2 pandemic related patient care activities (11%, n = 11/102), and cross-coverage due to SARS-CoV-2 pandemic related illness/response of co-workers (3%, n = 3/102). Of those who reported intermittently working remote, the percentage of time on site was most frequently 10-25% of the time (28%, n = 31/111), followed by 25% to 50% of the time (27%, n = 30/111), and >50% of the time on site (23%, n = 26/111).

Regarding the spring 2020 semester, 65% (n = 176/271) taught or coordinated a class in the PharmD program, 24% (n = 64/271) in a graduate program, and/or 11% (n = 31/271) in an undergraduate program. Faculty reported numerous changes during the spring 2020 semester due to the SARS-CoV-2 pandemic for instruction and assessment in undergraduate, PharmD, and graduate curricula (Table 2). Numerous challenges were reported for the spring semester and anticipated for the fall (Table 3). When comparing these challenges by age <50 years or ≥50 years, only two areas, home responsibilities and assisting children, were statistically significant (P < .05). When comparing these challenges by discipline (pharmacy practice vs. all others), only assisting children and remote work/life balance were statistically significant (P < .05).

When asked the overall level of concern on specific items as a result of the SARS-CoV-2 pandemic during spring 2020, the highest rated item was “ensuring the safety of students and employees” (mean (M) = 7.1, SD = 2.51). All other items were of lower concern, as the next highest rated items were “impact of changes due to SARS-CoV-2 pandemic on course and instructor evaluations” (M = 4.6, SD = 3) and “my promotion/tenure and/or performance review” (M = 2.8, SD = 3.24). Level of concern for student-centric items by undergraduate, PharmD, and graduate training is reported in Table 4.

When comparing level of challenge during spring 2020 between the faculty self-report and administrator assessment of faculty, no statistically significant differences existed regarding stress level (7.2 vs. 7.4; P = .26), ability to balance work and personal life (5.3 vs. 4.8; P = .70), teaching effectiveness (4.6 vs. 4.5; P = .21), or research productivity (4.1 vs. 3.8; P = .49). However, faculty reported higher impact of workload/hours worked compared to administrators (7.97 vs. 7.39; P = .03).

Table 2

Changes implemented during spring 2020 semester.

| Change                                      | Undergraduate (n = 31), n (%) | PharmD (n = 176), n (%) | Graduate (n = 64), n (%) |
|---------------------------------------------|-------------------------------|-------------------------|--------------------------|
| Changed examination procedures              | 21 (68)                      | 96 (55)                 | 34 (53)                  |
| Changed type of assessment                  | 20 (65)                      | 79 (45)                 | 22 (34)                  |
| Changed research activities or coursework   | 14 (45)                      | 49 (28)                 | 34 (53)                  |
| Provided ASYNCHRONOUS pre-recorded lectures| 14 (45)                      | 105 (60)                | 18 (28)                  |
| Provided SYNCHRONOUS lectures              | 11 (35)                      | 76 (43)                 | 33 (52)                  |
| Cancelled research activities or coursework | 7 (23)                       | 25 (14)                 | 16 (25)                  |
| Provided recordings of SYNCHRONOUS lectures | 7 (23)                       | 49 (28)                 | 16 (25)                  |
| Changed laboratory sessions                 | 3 (10)                       | NA                      | NA                       |
| Changed skills/laboratory sessions          | NA                            | 34 (19)                 | NA                       |
| Cancelled skills/laboratory sessions        | 3 (10)                       | 31 (18)                 | NA                       |
| Gave “incompletes” for research activities for academic credit | 0 (0) | 6 (3) | 3 (5) |
| No changes made                            | 0 (0)                        | 10 (6)                  | 9 (14)                   |

NA = not applicable; PharmD = doctor of pharmacy.
Remote work – anticipated challenges and concerns

With regard to the anticipated fall 2020 semester, 88% (n = 227/259) reported plans to teach or coordinate a course. When asked areas of expected challenges for fall 2020, similar to spring 2020, faculty reported the reliability of technology when working from home, family/home responsibilities, and family members also working from home as the most common challenges (Table 3). No statistically significant differences were identified in faculty-reported level of concern for student-centric items between spring semester and anticipated for fall semester with respect to the PharmD program (all P > .05; Table 4). When asked the level of concern on additional items as a result of SARS-CoV-2 pandemic for the anticipated fall 2020 semester, the highest rated items were ensuring safety of students and employees (M = 7.1, SD = 2.6), meeting Centers for Disease Control and Prevention (CDC) social distancing guidelines in classroom spaces (M = 6.5, SD = 3.1), and impact of changes due to SARS-CoV-2 on course and instructor evaluations (M = 5.1, SD = 3.1). Regarding the perceived impact anticipated in fall 2020, the highest rated items were workload/hours worked (M = 7.6, SD = 1.9) and stress level (M = 7.3, SD = 2.0) followed by ability to balance work and personal life (M = 5.2, SD = 2.8), teaching effectiveness (M = 4.8, SD = 2.3), and research productivity (M = 4.1, SD = 2.6).

Pharmacy practice and precepting

Of the 115 respondents who precepted PharmD students during spring 2020, 66% provided patient care while 34% provided non-patient care experiences. Sixty-six percent of faculty preceptors (n = 65/99) reported assisting with displaced students, including adding student(s) to direct (38%) or indirect patient care (34%), academia (18%), or research (11%) experiences as well as creating new academic (15%) or research (9%) experiences. The majority of the 115 faculty preceptors (94%) reported at least one challenge

Table 3
Challenges reported by pharmacy faculty.

| Item                                                      | Reported incidence in spring 2020, n (% | Extent to which item was challenging in spring 2020\(^a\), Mean (SD) | Anticipated challenge for fall 2020, n (%) |
|-----------------------------------------------------------|-----------------------------------------|---------------------------------------------------------------------|------------------------------------------|
| Family members also working from home                     | 114 (41)                                | 6.15 (2.32)                                                        | 81 (29)                                  |
| Family/home responsibilities                              | 113 (41)                                | 7.13 (2.14)                                                        | 91 (33)                                  |
| Reliability of technology when working from home          | 101 (36)                                | 5.91 (2.15)                                                        | 102 (37)                                 |
| Lack of private home workstation/workspace               | 80 (29)                                 | 6.62 (2.29)                                                        | 60 (22)                                  |
| Assisting children with their schoolwork                 | 76 (28)                                 | 7.08 (2.35)                                                        | 61 (22)                                  |
| Availability of childcare                                | 61 (22)                                 | 8.24 (2.17)                                                        | 47 (17)                                  |
| Lack of/availability of administrative assistance         | 42 (15)                                 | 6.05 (1.83)                                                        | 44 (16)                                  |
| Lack of access to technology for home use                 | 41 (15)                                 | 5.70 (2.04)                                                        | 40 (14)                                  |
| Family health-related concern                            | 29 (10)                                 | 6.73 (2.05)                                                        | 24 (9)                                   |
| Personal health-related concern                          | 27 (10)                                 | 6.17 (2.21)                                                        | 22 (8)                                   |
| Elder care responsibilities                              | 18 (6)                                  | NR                                                                 | 16 (6)                                   |
| Other                                                     | 8 (3)                                   | 5.5 (1.96)                                                         | 39 (14)                                  |
| No challenges                                             | 45 (16)                                 | NA                                                                 | 36 (13)                                  |

NA = not applicable; NR = not reported.\(^a\) | Items were rated using a 0–10 point scale.

Table 4
Level of teaching-related concerns during spring 2020 semester.\(^b\)

| Concern                                                      | Undergraduate, Mean (SD) | PharmD\(^b\), Mean (SD) | Graduate, Mean (SD) |
|--------------------------------------------------------------|--------------------------|-------------------------|---------------------|
| Academic dishonesty                                           | 7.64 (2.56)              | 6.99 (2.6)              | 3.47 (2.98)         |
| Access to mental health services                             | 7.28 (1.79)              | 6.64 (2.68)             | 4.5 (3)             |
| Access to reliable internet                                  | 6.57 (2.63)              | 5.79 (2.78)             | 3.98 (2.75)         |
| Access to technology (computer, webcam, software, etc.)      | 6.55 (2.37)              | 5.05 (2.7)              | 3.62 (2.5)          |
| Integrity of laboratories                                    | 6.52 (2.38)              | NA                      | NA                  |
| Engagement with virtual advising                             | 6.10 (2.05)              | 5.92 (2.67)             | NA                  |
| Progression of research activities                           | NA                       | 5.97 (2.58)             | 6.22 (2.34)         |
| Development of research skills                                | NA                       | NA                      | 5.61 (2.53)         |
| Ability to complete interprofessional learning experiences    | NA                       | 6.98 (2.44)             | NA                  |
| Integrity of OSCEs and other simulation activities            | NA                       | 6.79 (2.38)             | NA                  |
| Development of sterile and non-sterile compounding skills     | NA                       | 6.76 (2.74)             | NA                  |

NA = not applicable; OSCE = objective structured clinical examination; PharmD = doctor of pharmacy.\(^a\) | Items were rated using a 0–10 point sliding scale where 0 = not at all concerned and 10 = extremely concerned.\(^b\) | There was no difference in level of concern for any item between spring 2020 and anticipated for fall 2020 (all P values > .05).
with precepting during the SARS-CoV-2 pandemic, including practice sites mandating no students on site (48%), lack of student access to charts remotely (29%), lack of student access to telehealth (23%), meeting competencies for teamwork (21%) or communication (19%) without face-to-face activities, and student expressed safety concerns (13%). The mean extent to which these items were challenging was 8.7, 8.6, 7.3, 8, 7.4, and 6.3, respectively.

The majority of pharmacy practice faculty (97%, \(n = 86/89\)) reported providing patient care during the SARS-CoV-2 pandemic in spring 2020, either in an ongoing/continuous (58%) or intermittent (38%) manner. Forty-four percent of respondents \(n = 43/98\) reported no challenges in providing patient care while 56% of respondents reported at least one challenge, including a lack of private home remote space (23%), telehealth resources at practice setting (23%), or remote access to patient charts (9%). The mean extent to which these items were challenging was 8.2, 7.7, and 7.2, respectively. Practice site workload was reportedly increased for 39% of the 88 respondents, remained the same in 28%, and decreased in 33%. Of those with an increase, the majority (70%) reported an increase in workload (i.e. same number of days but higher/additional workload) while 30% reported spending additional time at practice site (i.e. more days than usual/anticipated).

**Research**

No statistically significant differences existed between laboratory-and non-laboratory-based faculty with regard to level of concern for impact of SARS-CoV-2 pandemic on research or items related to trainees, supplies, or funding (Table 5).

**Discussion**

The SARS-CoV-2 pandemic had a substantial impact on faculty within US S/COP. Notably, despite the shut-down of institutions of higher education at the start of the pandemic, many pharmacy faculty members reported working on-site intermittently for a variety of reasons such as ongoing patient care, experiential education, and critical research activities. Practice-based pharmacy faculty are both health care providers and educators; therefore, their unique experiences, challenges, and concerns should be considered when supporting faculty during the ongoing pandemic.

Notably, few faculty (16%) reported no challenges at all in spring 2020, suggesting that most faculty experienced challenges. Pharmacy faculty reported numerous challenges, of which the most common and rated as highly impactful were family/home responsibilities and childcare-related issues. Other common areas included reliability of technology and lack of private home workspace/ others working in home space. These concerns were similarly anticipated to occur in the fall 2020 semester, suggesting these are ongoing issues which need to be systematically addressed. These concerns directly relate to faculty members’ change efficacy, including the need for resources to be effective when working from home. From an organizational level, supporting faculty with the technological resources for remote work is key for them to be effective in their teaching and research roles.

Academic dishonesty, inability to complete performance-based activities (interprofessional education objective structured clinical examinations, compounding), and student access to mental health resources were identified by faculty as areas of highest concern in regards to teaching and learning. Systems which address these concerns should be developed to maintain academic integrity in the curriculum, create performance-based activities while maintaining CDC guidelines, and ensure student access to and encourage the use of mental health services. To meet educational program expectations and maintain CDC guidelines, faculty anticipate an increased workload due to teaching of multiple small group sessions, added follow-up with students due to technology issues, and possibly practice site workload was reportedly increased for 39% of the 88 respondents, remained the same in 28%, and decreased in 33%. Of those with an increase, the majority (70%) reported an increase in workload (i.e. same number of days but higher/additional workload) while 30% reported spending additional time at practice site (i.e. more days than usual/anticipated).

**Table 5**

Research-related concerns during spring semester 2020.

| Concern | Non-laboratory-based faculty, Mean (SD) | Laboratory-based faculty, Mean (SD) | \(P\) value |
|---------|-----------------------------------------|-----------------------------------|-------------|
| The progress of my research efforts      | 6.3 (2.25)                           | 7.6 (2.23)                       | .59         |
| My trainee progress towards graduation or completion of post-graduate training | 6.1 (2.59)                           | 7.3 (2.44)                       | .59         |
| My ability to obtain future grant funding | 5 (3.23)                              | 7.7 (2.53)                       | .56         |
| My ability to utilize existing grant funds | 3.7 (3.26)                           | 6.3 (2.45)                       | .63         |
| Obtain necessary supplies to continue research activities | 3.3 (3.02)                           | 5.5 (2.85)                       | .08         |
| Meet CDC social distancing guidelines (six feet) for your research work/ labs | 3.3 (3.14)                           | 5.4 (3.01)                       | .35         |
| Obtain personal protective equipment to safely operate | NA                                   | 4.9 (3.02)                       | NA          |
| Obtain disinfecting agents to safely operate | NA                                   | 4.5 (2.87)                       | NA          |

CDC = Centers for Disease Control and Prevention; NA = not applicable.
become even more important. Childcare concerns are not likely to change in the future regardless of the status of the pandemic. Connecting faculty to or increasing the availability of childcare services in the community could impact organizational readiness and effectiveness now and in the future.

It is important to understand that environmental changes such as traffic flow, sneeze guards, face masks, and shared microphone solutions may need to be permanent fixtures in the classroom setting. Handbooks, manuals, and emergency action plans will need to be updated to foresee the next potential crisis. Programs with clinical rotations, practice experiences, and other externships may need to develop back-up plans that are efficient, effective, and nimble. This may require engaging in more definitive partnerships with organizations outside the university. The pandemic has elevated technology and put it under a microscope for everyone to see. Recognizing the gaps in access to and understanding of technology is now germane to all academic programs. Taking the time to evaluate what may hinder a program from continuing forward, what resources are needed to transition quickly, and what new collaborations and partnerships are necessary for success in the wake of crises are vital.

For practice faculty, challenges with precepting included virtual patient care settings (e.g., no access to facility or patient charts, lack of telehealth), which hopefully have been or are being resolved by health care institutions as the pandemic persists. Administrators should be aware of these challenges and assist faculty in implementing best practices for virtual experiential education as needed. Effective experiential models for student integration should be encouraged and rewarded within institutions. Pharmacy practice faculty also continued to provide patient care with some (approximately 40%) reporting increased workload, which should be accounted for by administration. Faculty who continued to precept students in patient care settings may need additional support and reallocation of responsibilities given the increased demands of providing patient care during a global pandemic. As administrative leadership becomes aware of the nuances and volume of challenges facing faculty members teaching in the PharmD program, they should see their role as an advocate. Many of the requirements and responsibilities of faculty members are driven by accreditation bodies. Administrative leadership can advocate for faculty and students when there is a conflict between what is traditionally expected of PharmD programs due to Accreditation Council for Pharmacy Education accreditation and what may not be feasible during the SARS-CoV-2 pandemic.

The pandemic impacted research for practice and research faculty equally. Concerns regarding research project and student progression, as well as grant funding, were commonly reported. Systematic adjustment of research expectations should be considered at the institution level to minimize negative impact on faculty for these areas beyond their control. Laboratory and patient access, slower processing of manuscripts submitted to peer-reviewed journals, and the time restraints described above have negatively impacted faculty productivity, particularly in the areas most common in metrics related to annual performance evaluations, promotion, and tenure. Notably, this impact may persist as pauses in laboratory projects, inability to enroll subjects, and reduced grant funding can slow research progress for years to come.

Limitations of this study included a convenience sample of a limited number of US S/COP, low response rate that may not be generalizable to all research-intensive schools or represent non-research-intensive schools, and lack of formal survey validation. However, the challenges and perceptions of faculty at these S/COP can inform all academic pharmacy leadership regarding areas of potential concern to investigate at their own institutions. Administrators should utilize results of studies such as this to determine strategies to assist faculty with the challenges, as well as to provide ample support for work-life integration and emotional well-being. Additionally, the analysis of impact on workload/hours as assessed by faculty vs. administrators was statistically significant; however, the magnitude of the numerical difference may not be practically relevant.

Conclusions

Pharmacy faculty at research-intensive S/COP encountered, and likely continue to face, numerous challenges due to the SARS-CoV-2 pandemic. Therefore, faculty should engage with leadership to focus efforts on working together to develop solutions to these identified barriers, including providing accessible administrative support in a virtual environment (e.g., electronic filing, accessibility to technology) and aiding faculty and staff with creating home workspaces (e.g., provide supplies/furniture/technology). Leadership, faculty, and staff should also be aware of family-related challenges, such as childcare, as this was one of the highest rated challenges for impact on faculty. Learning from the experiences from forced changes, such as the pandemic, can assist in organizations’ readiness for change in the future.

Disclosures

None.

Declaration of Competing Interest

None.

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