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RESEARCH

Remote Work in Pharmacy Academia and Implications for the New Normal

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Objective. To determine the extent to which pharmacy faculty engaged in remote work during the first two years of the COVID-19 pandemic and, secondarily, to characterize pharmacy faculty and administrator perceptions of remote work.

Methods. A 28-question online survey was sent to 6548 members of the American Association of Colleges of Pharmacy (AACP). Questions centered on the extent of remote work and perceptions of its impact on productivity, effectiveness, and work-life balance. Focus groups were held to provide additional insight, and data were analyzed statistically.

Results. In total, 6322 AACP members met inclusion criteria, of whom 1293 responded to the survey (21% response rate). At least one faculty member responded from 139 schools (99% response rate), and at least one administrator responded from 126 schools (89% response rate). During the pandemic, 97% of faculty were permitted to work remotely, 94% of whom did so at least some of the time. Most faculty indicated no change or an improvement in productivity (85%) and effectiveness (80%). Similarly, most administrators indicated no change or an increase in their unit's productivity (81%) and effectiveness (85%). More than half of respondents indicated better work-life balance while working remotely.

Conclusion. Nearly all respondents were permitted to work remotely at least some of the time during the pandemic. Considering that most faculty and administrators believe productivity and effectiveness were not compromised and that there appear to be benefits to work-life balance, schools of pharmacy in the United States should consider permitting faculty to work remotely some of the time as we navigate the pandemic and thereafter.

Keywords: pharmacy, remote work, productivity, effectiveness, work-life balance

INTRODUCTION

The coronavirus pandemic of 2019 (COVID 19) transformed the way we work and live. While incredibly tragic, the pandemic presents an opportunity to change the way we as faculty engage in the triad of academia. As Brazeau and colleagues mentioned, "it is vital that the Academy learn from this situation and adapt so we can achieve our mission, vision, and goals."[1]

It is estimated that just over half of the workforce in the United States holds a job that is compatible with remote work.[2] Before the COVID-19 pandemic, data from Gallup indicated that 40% of employees worked at home at least some of the time, but less than 5% did so half of the time or more. The pandemic changed this: In 2021, it was estimated that 70% of employees worked from home,[2] with more than half of US employees expressing an interest in working remotely all or most of the time and one-third indicating the desire to do so some of the time after the pandemic abates.[3] Global Workplace Analytics projects that following the pandemic, there will be a significant upswing in adoption of remote work among entities that had not yet ventured into this arena; this could include academia, seeing as there are aspects of an academic's job that do not entirely need to be done on campus.[2] As Brazeau and colleagues noted, "the COVID-19 pandemic has shaken the key assumptions and beliefs that serve as the foundation of higher education."[1]

The primary objective of this study was to determine the extent to which faculty in Doctor of Pharmacy (PharmD)

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programs engaged in remote work during the 2019-2020 and 2020-2021 academic years (ie, during the first two years of the COVID-19 pandemic). The secondary objectives were to characterize faculty and faculty administrators' (hereafter referred to as *administrators*) perceptions of remote work in pharmacy academia, including perceptions on the impact of remote work on productivity, effectiveness, and work-life balance, and to gauge administrators' perspectives regarding the implications of remote work for the future.

METHODS

A total of 6548 faculty and professional staff from 141 US colleges and schools of pharmacy (hereafter referred to as *schools*) holding membership in the American Association of Colleges of Pharmacy (AACP) were identified through the AACP member database. Each school was assigned to one of four regions of the United States.[4] Each school's status as a private or public institution was obtained from the Pharmacy College Application Service website.[5] Faculty and administrators from schools located outside the United States (including US territories) and those without faculty representation in AACP were excluded.

A 28-question survey instrument was developed and piloted at four schools of pharmacy: Four faculty members and four administrators assessed question clarity, overall flow, length of the survey instrument, and whether the survey adequately addressed the study's primary and secondary objectives. Responses from these individuals were reviewed and the survey instrument was revised. The study was deemed exempt by the University at Buffalo institutional review board on May 25, 2021. The survey instrument inquired about demographics; whether the faculty member was permitted to work remotely during the 2019-2020 and 2020-2021 academic years (hereafter referred to as the *pandemic*) and, if so, to what extent (using a five-point Likert scale ranging from "never" to "always"); faculty members' perceptions regarding remote work and its impact on productivity and effectiveness (using a five-point Likert scale ranging from "significantly declined" to "significantly improved") and work-life balance (using a five-point Likert scale ranging from "significantly worse" to "significantly better"); administrators' perceptions regarding the impact remote work had on their unit's productivity and effectiveness (using the abovementioned Likert scale); and administrator plans for remote work at their school in the future (ie, after the pandemic). Faculty and administrators were asked to answer questions on their own behalf. The survey was administered via SurveyMonkey (Momentive Global, Inc), and skip logic was used to mitigate survey fatigue by directing the respondent down appropriate paths depending on their previous responses.

Email addresses for AACP members were obtained through purchase of the AACP full roster email list. An electronic hyperlink to the survey instrument was emailed on May 27, 2021, and reminders were sent three and six weeks later to the same email list. The survey remained open for a total of 10 weeks. The survey response rate and the distribution of responses were determined to generalize the findings.

Six focus groups were held to provide additional insight (four faculty groups and two administrator groups). Each focus group included a facilitator (the primary investigator), a scribe (a coinvestigator), and three to four faculty members or administrators. The facilitator and scribe took notes independently and compared their notes following each session. Each investigator independently identified themed categories, and investigators came to a consensus to identify coinciding themes. Faculty were asked what they liked best/least about remote work and whether/how they remained productive and maintained work-life balance while working remotely. Administrators were asked what they liked best/least about remote work, strategies they used to encourage productivity and work-life balance among faculty in their unit, and how they envision the new normal in terms of remote work once the pandemic abates.

Data were analyzed using Microsoft Excel, GraphPad (GraphPad Software LLC), and the Online Web Statistical Calculators website (https://astatsa.com/). Frequency and descriptive statistics were used to characterize the data. Overall productivity and effectiveness were determined by calculating the mean Likert score for each respondent based on their ratings in didactic teaching, experiential teaching, research, clinical practice, college/school service, professional service, and administration. The chi-square and Fisher exact tests were used to analyze categorical data, the paired *t* test and Wilcoxon signed-rank test were used to analyze paired data, the unpaired *t* test and analysis of variance (ANOVA) were used to analyze unpaired continuous data, and the Wilcoxon rank sum and Kruskal-Wallis tests were used to analyze ordinal data. The a priori level of significance was set to $p<.05$.

RESULTS

Of the 6548 AACP members, 226 were excluded; namely, 29 did not meet inclusion criteria and 197 were not reachable via email. From the remaining 6322 AACP members, a total of 1293 responses were received (21% member response rate). Demographics are provided in Appendix 1. At least one faculty response was received

from 139/141 schools (99% response rate) and at least one administrator response was received from 126/141 schools (89% response rate). The mean (SD) and median number of faculty responses per school were 9.3 (5.1) and 9 (IQR 6-12), respectively (range 1-32). The mean (SD) and median number of administrator responses per school were 2.7 (1.5) and 2 (IQR 2-4), respectively (range 1-7).

Prior to the pandemic, less than 20% of faculty worked remotely at least some of the time. Approximately 85% of respondents indicated that at least a moderate portion of their job can be done remotely: This ranged from 81% for faculty having a primary focus of clinical practice ($p<.005$ vs foci in teaching, research, and service/administration) to 94% for service/administration ($p<.0001$ vs foci in teaching and clinical practice). During the pandemic, 97% of faculty were permitted to work remotely, 94% of whom responded they did so at least "some of the time" and 66% of whom responded that they did so "most of the time" or "always." Whether or not a faculty member was permitted to work remotely during the pandemic, and the extent to which they did, was not affected by the type of their position (ie, faculty vs administration), track, or rank. Faculty in social/administrative sciences were more likely to work remotely than faculty in other academic areas ($p<.005$), while faculty in medicinal/pharmaceutical chemistry were less likely to do so ($p<.05$). Faculty whose primary role was clinical practice were less likely to work remotely than faculty whose primary role was either teaching, research, or service/administration ($p<.05$). Responses to survey questions about remote work by respondent demographics are summarized in Table 1. More than 80% of respondents indicated a desire to work remotely at least some of the time after the pandemic abates.

Faculty members' perceptions about productivity and effectiveness are shown in Table 2. More than half of respondents indicated experiencing no change in overall productivity (62%) or effectiveness (59%) while working remotely during the pandemic, and an increase was noted

Table 1. Remote Work Among Pharmacy Faculty During the COVID-19 Pandemic

Demographic	Remote work permitted, No. (%)	Extent of remote work,[a] mean (SD)	Extent of remote work,[a] median (IQR)
All respondents (n=1293)	1250 (96.7)	3.8 (0.90)	4.0 (3-5)
Type of position (n=1234)			
Faculty	325 (96.4)	3.8 (0.9)	4.0 (3-5)
Faculty administrator	909 (96.7)	3.8 (0.9)	4.0 (3-4)
Track (n=1240)			
Nontenure	685 (96.5)	3.9 (0.9)	4.0 (3-5)
Tenure-track/tenured	555 (97.0)	3.8 (0.9)	4.0 (3-4)
Academic rank (n=1208)			
Assistant Professor	348 (95.6)	3.9 (0.9)	4.0 (3-5)
Associate Professor	461 (97.5)	3.8 (0.8)	4.0 (3-4)
Professor/Distinguished Professor	399 (96.8)	3.8 (0.8)	4.0 (3-4)
Academic area (n=1242)			
Medicinal/Pharmaceutical Chemistry	80 (97.6)	3.6 (0.9)[b]	4.0 (3-4)[c]
Pharmaceutics	68 (95.8)	3.9 (0.8)	4.0 (3-4.25)
Pharmacology/Biological Sciences	144 (96.0)	3.8 (0.9)	4.0 (3-4)
Pharmacy Practice	818 (96.9)	3.8 (0.9)	4.0 (3-4)
Social/Administrative Sciences	132 (96.4)	4.3 (0.9)[d]	4.0 (4-5)[d]
Primary role (n=1239)			
Clinical practice	183 (97.3)	3.7 (0.9)[e]	4.0 (3-4)[e]
Research	190 (96.4)	4.0 (0.9)	4.0 (3-5)
Service/Administration	247 (96.9)	3.9 (0.9)	4.0 (3-5)
Teaching	619 (96.7)	3.8 (0.9)	4.0 (3-4)

[a] Five-point Likert scale: 1=never, 2=rarely, 3=some, 4=most, and 5=always.
[b] $p<.05$ vs pharmaceutics, pharmacy practice, and social/administrative sciences.
[c] $p<.05$ vs all academic areas.
[d] $p<.005$ vs all academic areas.
[e] $p<.05$ vs all other roles.

Table 2. Perceived Productivity and Effectiveness Among Pharmacy Faculty Who Reported Working Remotely During the COVID-19 Pandemic

Demographic	No perceived change, No. (%)	Perceived improvement, No. (%)	Faculty who worked remotely at least some of the time,[a] Mean (SD)	Faculty who worked remotely at least some of the time,[a] Median (IQR)	Faculty who never/rarely worked remotely,[a] Mean (SD)	Faculty who never/rarely worked remotely,[a] Median (IQR)
Overall productivity (n=1241)[b]			3.1 (0.7)[c]	3.0 (3-3)[c]	2.8 (0.6)	2.8 (2-3)
Teaching, didactic (n=1218)	591 (48.5)	383 (31.4)	3.2 (0.9)[c]	3.0 (3-4)[c]	2.7 (0.8)	3.0 (2-3)
Teaching, experiential (n=817)	372 (45.5)	150 (18.4)	2.8 (1.0)	3.0 (2-3)	2.7 (0.6)	3.0 (2-3)
Research (n=1190)	338 (28.4)	364 (30.6)	2.9 (1.2)[d]	3.0 (2-4)[d]	2.5 (1.0)	3.0 (2-3)
Service, college (n=1230)	623 (50.7)	383 (31.1)	3.2 (0.9)[d]	3.0 (3-4)[f]	2.9 (0.8)	3.0 (2-3)
Service, profession (n=1200)	596 (49.7)	355 (29.6)	3.2 (1.0)[e]	3.0 (3-4)[e]	2.8 (0.9)	3.0 (2-3)
Administration (n=832)	455 (54.7)	269 (32.3)	3.3 (0.9)[e]	3.0 (3-4)[e]	2.9 (0.7)	3.0 (3-3)
Clinical practice (n=647)	322 (49.8)	100 (15.5)	2.8 (0.9)	3.0 (2-3)	2.8 (0.7)	3.0 (2-3)
Overall effectiveness (n=1238)[b]			3.0 (0.7)[e]	3.0 (3-3)[e]	2.8 (0.5)	2.8 (2-3)
Teaching, didactic (n=1218)	378 (31.0)	309 (25.4)	2.8 (1.0)[d]	3.0 (2-4)[d]	2.6 (0.9)	2.0 (2-3)
Teaching, experiential (n=814)	342 (42.0)	134 (16.5)	2.7 (1.0)	3.0 (2-3)	2.6 (0.7)	3.0 (2-3)
Research (n=1186)	406 (34.2)	340 (28.7)	2.9 (1.2)[d]	3.0 (2-4)[d]	2.6 (1.0)	3.0 (2-3)
Service, college (n=1224)	645 (52.7)	359 (29.3)	3.2 (0.9)[e]	3.0 (3-4)[d]	3.0 (0.7)	3.0 (3-3)
Service, profession (n=1192)	638 (53.5)	314 (26.3)	3.1 (0.9)[f]	3.0 (3-4)[e]	2.8 (0.8)	3.0 (2-3)
Administration (n=832)	454 (54.6)	235 (28.2)	3.2 (0.9)[e]	3.0 (3-4)[e]	2.8 (0.8)	3.0 (2.3-3)
Clinical practice (n=653)	337 (51.6)	110 (16.8)	2.8 (0.9)	3.0 (2-3)	3.0 (0.7)	3.0 (3-3)

[a] Five-point Likert scale: 1=significantly declined to 5=significantly improved.
[b] Calculated based on respondent means for each category.
[c] $p<.0001$
[d] $p<.05$
[e] $p<.005$
[f] $p<.01$

by 23% and 21% of respondents, respectively. Although more than half of respondents indicated either no change or an improvement in their productivity and effectiveness in each academic pillar (Table 2), more than one-third perceived declines in clinical practice productivity (35%), didactic teaching effectiveness (44%), and both productivity and effectiveness in experiential teaching (36% and 42%) and research (41% and 37%). Faculty who replied that they worked remotely "at least some of the time" perceived that they were more productive ($p<.0001$) and effective ($p<.005$) than those who replied that they "never" or "rarely" did so. Similarly, faculty who worked remotely "most of the time" or "always" perceived that they were more productive ($p<.0001$) and effective ($p<.0001$) than those who reported working remotely less frequently, with significant differences noted in the areas of didactic teaching, research, college/school service, professional service, and administration. Perceived overall productivity (median Likert score of 3.0 in both groups, $p=.86$) and effectiveness (median Likert score of 3.0 in both groups, $p=.86$) among pharmacy practice faculty who ranked clinical practice as their primary focus (n=169) was similar to that of faculty in any department whose primary duty was other than clinical practice. In contrast, faculty who ranked research as their primary focus (n=188) perceived their overall productivity (median Likert score of 3.0 in both groups, $p<.05$) and effectiveness (median Likert score of 2.8 vs 3.0, $p<.005$) to be slightly lower than that of faculty in any department whose primary duty was other than research. Female faculty reported slightly higher overall productivity (median Likert score 3.0 vs 2.9, $p<.005$) and effectiveness (median Likert score 2.9 vs 2.8, $p<.05$) than their male counterparts. Our study included 620 respondents (48%) with a dependent under the age of 18 years in the home; overall productivity and effectiveness did not vary between faculty with and without dependents.

A total of 337 administrators from 126 schools responded. Of administrators, 63% indicated no change in their unit's overall productivity while faculty worked remotely during the pandemic, while 19% perceived a

decrease and 18% perceived an increase in productivity. Similarly, 61% of administrators indicated no change in their unit's overall effectiveness, while 25% perceived a decrease and 14% perceived an increase in effectiveness. Of concern, more than one-third of respondents indicated their unit experienced a decline in didactic teaching effectiveness (47%) and a decline in both productivity and effectiveness in experiential teaching (38% and 47%), research (47% and 46%), and clinical practice (41% and 41%). Nearly 90% of administrators believed faculty should be permitted to work remotely at least some of the time after the pandemic abates.

Faculty members' perceptions regarding the impact remote work had on work-life balance are shown in Table 3. As compared to before the pandemic, a lower percentage of respondents indicated being moderately, very, or extremely satisfied with their job while working remotely (76.1% vs 90.6%) ($p<.0001$). However, 75% and 57% of respondents indicated having better flexibility in their workday and better work-life balance while working remotely, respectively. Faculty who worked remotely "at least some of the time" during the pandemic perceived that they had better work-life balance than those who said they "never" or "rarely" worked remotely ($p<.0001$). When asked to rate their productivity, level of personal interaction with colleagues, and level of emotional exhaustion *before* the pandemic, more than 95% of respondents indicated having at least moderate levels of productivity and personal interaction with colleagues, while 27% expressed high levels of emotional exhaustion. During the pandemic, the percentage of respondents reporting at least moderate levels of productivity decreased to 86%, the percentage of respondents reporting at least moderate levels of personal interaction with colleagues decreased to 36%, and the percentage of respondents reporting high levels of emotional exhaustion nearly doubled to 51% (all $p<.0001$). Compared to faculty who worked remotely less often, faculty who worked remotely "most" or "all the time" reported having higher productivity and personal interaction and lower emotional exhaustion ($p<.05$). Pharmacy practice faculty who ranked clinical practice as their primary focus reported similar work-life balance (median Likert score of 4.0 in both

Table 3. Work-Life Balance Among Pharmacy Faculty Who Reported Working Remotely During the COVID-19 Pandemic

	Work-life balance among faculty who worked remotely at least some of the time,[a]	
Demographic	**Mean (SD)**	**Median (IQR)**
Type of position		
Faculty (n=906)	3.5 (1.3)	4.0 (2-5)[b]
Faculty administrator (n=325)	3.4 (1.2)	4.0 (2-4)
Sex		
Female (n=686)	3.6 (1.3)[c]	4.0 (2-5)[c]
Male (n=451)	3.3 (1.2)	4.0 (2-4)
Marital status		
Married or domestic partnership (n=931)	3.5 (1.3)	4.0 (2-5)
Single (n=197)	3.3 (1.3)	4.0 (2-4)
Respondents with ≥1 dependent (n=774)	3.5 (1.3)	4.0 (2-5)
Respondents with ≥1 dependent <18 years (n=600)[d]	3.5 (1.3)	4.0 (2-5)
Infants aged <1 year (n=87)	3.8 (1.2)	4.0 (3-5)
Children aged 1-5 years (n=236)	3.7 (1.3)	4.0 (2-5)
Children aged 6-12 years (n=302)	3.5 (1.4)	4.0 (2-5)
Adolescents aged 13-17 years (n=216)	3.4 (1.2)	4.0 (2-4)
Frequency at which faculty worked remotely		
At least some of the time	3.5 (1.3)[e]	4.0 (2-5)[e]
Never/rarely	2.7 (1.3)	3.0 (2-3)

[a] Five-point Likert scale: 1=significantly declined to 5=significantly improved.
[b] $p<.05$ vs faculty administrator.
[c] $p<.0005$ vs male.
[d] $p<.05$ vs faculty with no dependent children/adolescents.
[e] $p<.0001$ vs never/rarely.

groups, $p = .54$) and similar levels of emotional exhaustion (median Likert score of 4.0 in both groups, $p = .08$) during the pandemic as reported by faculty in any department whose primary duty was other than clinical practice. Better work-life balance was noted for female faculty, those without an administrative role, and those with at least one dependent under the age of 18 years (Table 3).

Six focus groups were held during August 2021; these included two groups of three administrators and four groups of four faculty members. The participants were evenly distributed by sex (10 female, 10 male), institution type (10 R1, 10 non-R1), track (nine nontenure, 11 tenured/tenure-track faculty), and rank (six assistant professors, 10 associate professors, and four professors). Themes from the focus groups were consistent with the quantitative findings and offer additional insight as to what faculty and administrators liked best/least about remote work (Table 4). Faculty generally perceived they were productive in the remote work environment. Strategies used by faculty to optimize productivity included realigning the workday to accommodate home responsibilities and, thereby, minimize distractions and staying focused through structure (eg, establishing routine working hours, setting goals, prioritizing tasks, creating checklists, and setting deadlines). Faculty generally felt they were able to maintain work-life balance while working remotely. Strategies used by faculty to achieve balance included living in the moment (ie, avoiding email when not working), reevaluating household processes to share workloads, setting reasonable boundaries between work and home, being flexible with deadlines, blocking time to work on important projects, and embracing the advantages of working from home (eg, casual dress, working outside, completing chores during natural work breaks). Strategies administrators used to encourage productivity and work-life balance among faculty in their unit included focusing on high-priority issues, optimizing the role of support staff to protect faculty time, revising performance expectations, promoting flexible work schedules, modeling appropriate work hours, scheduling regular meetings and check-ins with colleagues, creating time for informal conversations among colleagues, advocating exercise, and encouraging faculty to take breaks and use vacation time. When administrators were asked how they envision the new normal in terms of remote work once the pandemic abates, they noted the advantages of hybrid meetings (if attendees are engaged in group discussions), flexible work schedules, remote work, and virtual learning to complement in-person didactic and experiential teaching.

Table 4. Thematic Comments From Faculty and Administrator Focus Groups on Remote Work

Topic	Domain	Themes
What faculty liked best about remote work/perceived advantages	General	Improved flexibility in where/when work; reduced commute time; improved time management; ease of collaborating with colleagues
	Communication	Ease of virtual connectivity with colleagues and students
	Research/scholarship	Dedicated time for scholarly activities
	Education	Integration of technology to teach online
What faculty liked least about remote work/perceived challenges	General	Difficult balancing family responsibilities; lack of/inadequate remote workspace (eg, home office, unreliable internet); "Zoom fatigue"; distractions/interruptions
	Communication	Less interaction/sense of community with colleagues and students; fewer spontaneous interactions
	Research/scholarship	Delays in publication process
	Education	Difficulty engaging students through online learning; increased workload (eg, converting in-person classes online); reduced academic performance among students engaged in online learning; impersonal virtual classroom setting; difficulty in assessing student learning; concerns about student mental health
What administrators liked best about remote work	General	Reduced commute time; improved time management
	Communication	Improved faculty/staff attendance at virtual meetings (eg, off-site faculty, at distance campuses)
What administrators liked least about remote work	General	Distractions at home; increased workload due to pandemic-related challenges
	Communication	Less interaction among colleagues; difficult maintaining a sense of community within unit

DISCUSSION

The primary objective of this study was to determine the extent to which pharmacy faculty engaged in remote work during the pandemic. Not surprisingly, the percentage of responding faculty who worked remotely at least some of the time increased from less than 20% before the pandemic to 94% during the pandemic. The extent to which a faculty member worked remotely varied by discipline, with medicinal/pharmaceutical chemists working remotely less often than social/administrative scientists, likely due to differences in the portability of their research and scholarship. Similarly, the amount that a faculty member worked from home varied by the nature of their position, where faculty having a clinical practice focus were the least likely to work remotely, probably owing to the need to be on site for patient care and experiential education duties.

The pandemic prompted schools of pharmacy to change the way they do business. Romanelli and colleagues equated these changes to "crossing the Rubicon," suggesting it will be nearly impossible to go back to the old way of doing things.[6] Our data support this perspective: four in five pharmacy faculty members and administrators expressed a desire to continue working remotely at least some of the time after the pandemic abates, which aligns with national data outside academia.[2,7] In support, nearly 90% of administrators believe faculty should be permitted to do so. Why might this be the case? First, most respondents perceived no change or an increase in their effectiveness or productivity while working remotely. Second, most respondents appreciated the flexibility in their workday. Third, respondents who worked remotely at least some of the time perceived benefits to work-life balance.

Productivity and effectiveness should be at the forefront of decisions that affect workplace dynamics. Four in five respondents perceived either no change or an increase in their effectiveness and productivity while working remotely. In line with this, 80% and 75% of administrators perceived either no change or an increase in their unit's productivity and effectiveness, respectively. This aligns with data across the United States: a fall 2020 survey conducted by FlexJobs indicated that 95% of respondents felt their productivity was higher or the same while working remotely.[8] That said, approximately one-third of administrators perceived that during the pandemic their unit experienced a decline in didactic teaching effectiveness and a decline in both productivity and effectiveness in experiential teaching, research, and clinical practice; whether this related specifically to remote work, was a consequence of pandemic-related challenges, or a combination of the two is undetermined. Considering this, a hybrid approach that permits or encourages some aspects of academic work to be done remotely while expecting other aspects (eg, teaching and laboratory/benchtop research) to be done mostly in person seems justified.

A previous study, conducted in 2012, indicated that 64% of pharmacy faculty were satisfied with their job and 37% were satisfied with their work-life balance.[9] In our study, 76% of faculty remained satisfied with their job, and most faculty also realized improved work-life balance and flexibility while working remotely. This is increasingly important to workers and can impact recruitment and retention. Data from the 2020 FlexJobs annual survey indicated that nearly three-quarters of employees view work-life balance as a primary factor when seeking employment, while 80% indicated that loyalty to their employer is related to flexible work schedules.[7] All that said, 24% and 28% of faculty reported worsening job satisfaction and work-life balance during the pandemic, respectively. This is likely multifactorial, but feedback collected through the focus groups suggests that noteworthy challenges include difficulty balancing work and family responsibilities and reduced interaction with colleagues and students, the latter of which appears to be more related to remote work than the former.

The risk of burnout, which is the culmination of three factors, namely emotional exhaustion, depersonalization, and decreased personal accomplishment, [9-11] was heightened during the pandemic. In a 2014 study of US pharmacy practice faculty, 41% and 11% of respondents reported high levels of emotional exhaustion and depersonalization, respectively, while 24% of respondents reported low levels of personal accomplishment. Our study, which extended beyond pharmacy practice faculty, slightly differed, with 27% and 5% of respondents reporting high levels of emotional exhaustion and depersonalization, respectively, while 2% of respondents reported low levels of personal accomplishment. Pharmacy practice faculty with clinical practice responsibilities may have been at heightened risk for burnout during the pandemic, the degree to which was likely influenced by how their school and practice site managed faculty engagement in patient care duties. For example, some sites may have dismissed faculty (and students) to lessen physical presence in their facilities, others may have expected faculty to shift patient care duties to telehealth, while others may have maintained business as usual. Given the differing impact each approach could have on burnout risk, it is not surprising that our data did not reveal higher degrees of perceived burnout among pharmacy practice faculty having a primary role of clinical practice. Darbishire and colleagues published a commentary in 2020 in which they stated, "the Academy must proactively evaluate, develop, and implement strategies to minimize faculty

burnout."[12] Remote work may be one such strategy because respondents who worked remotely most or all the time indicated having higher levels of productivity and personal interaction and lower levels of emotional exhaustion compared to those who more frequently worked on site.

Adoption of remote work among industries that have not yet ventured into this arena is expected.[2] Our study indicates there is a desire among pharmacy faculty and administrators to follow suit. The question that remains to be answered is, Should academia pivot to remote work and, if so, to what extent? Academia may desire to hold on to its brick-and-mortar roots, which run deep; however, change is inevitable. Considering that a strong majority of respondents felt that working remotely did not negatively affect their productivity and effectiveness and may have improved it, permitting faculty to work remotely, to some extent, should not compromise the ability of institutions to meet their mission. Furthermore, the benefits of remote work on flexibility and work-life balance may improve recruitment and retention of talented faculty while also positively impacting individual and organizational productivity and effectiveness.[13] Yet, we would be remiss to ignore the flip side of the coin, that one-third of faculty reported their effectiveness and/or productivity was compromised in clinical practice, research, and most notably teaching. Evidence-based approaches to remote learning in pharmacy academia (and other health professions) are needed, but pending that, maintaining in-person instruction for the majority of the PharmD curriculum seems wise. A singular model may not work for all, and administrators should work with their faculty to determine what academic duties are best done in person and what can be done remotely.

There are several limitations of this study. Although the response rate for US schools and colleges of pharmacy was 99%, the faculty response rate was only 21%. A response rate less than 60% increases the risk of nonresponse bias, making it difficult to generalize findings to all US pharmacy faculty. However, as the respondents represented nearly all pharmacy schools for faculty and roughly 90% for administrators, we believe we have a representative sample of the Academy. Another limitation is that the survey was only sent to faculty listed on the AACP roster, potentially contributing to bias, as members of the AACP may have a higher level of enthusiasm for academia compared to nonmembers. Traditional qualitative methods such as recording and transcribing focus group sessions were not used, which introduces subjectivity and limits the validity of the focus groups. Furthermore, neither productivity nor effectiveness were explicitly defined, and the data collected through both the survey and focus groups centered on perceptions. Therefore, it is plausible that our results differ from actual productivity and effectiveness; though, if that were the case, we would have expected a difference between faculty and administrator responses. Lastly, we cannot distinguish the impact of the pandemic from the impact of working remotely on productivity, effectiveness, and work-life balance since the two factors occurred simultaneously.

CONCLUSION

Nearly all responding faculty were permitted to work remotely during the COVID-19 pandemic, approximately 95% of whom did so at least some of the time. Most faculty and administrators perceived there was no change in their own or their unit's overall productivity or effectiveness while working remotely and permitting faculty to work remotely appears to have encouraged better work-life balance. Considering that nearly all faculty feel at least a moderate portion of their job can be done remotely, that productivity and effectiveness do not appear to be compromised, and that there appear to be benefits to work-life balance, US schools of pharmacy should consider permitting faculty to work remotely at least some of the time as we continue to navigate the pandemic and thereafter.

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Appendix 1. Demographics of Faculty From US PharmD Programs Participating in a Remote Work Survey

Demographic	Respondents (N=1293), No. (%)
Geographic region of faculty member's program	
Midwest	370 (28.6)
Northeast	229 (17.7)
South	491 (38.0)
West	203 (15.7)
Type of institution where faculty member is employed	
Private	717 (55.5)
Public	576 (44.5)
Type of position	
Faculty	940 (72.7)
Faculty administrator[a]	337 (44.2)
NR	11 (0.9)
Track	
Nontenure	710 (54.9)
Tenure-track/tenured	572 (44.2)
NR	11 (0.9)
Academic rank	
Assistant professor	365 (28.2)
Associate professor	476 (36.8)
Professor	401 (31.0)
Distinguished professor	14 (1.1)
Other[b]	28 (2.2)
NR	9 (0.7)
Academic area	
Medicinal/pharmaceutical chemistry	82 (6.3)
Pharmaceutics	71 (5.5)
Pharmacology/biological sciences	150 (11.6)
Pharmacy Practice	844 (65.3)
Social/Administrative Sciences	137 (10.6)
NR	9 (0.7)
FTE	
1.0	1231 (95.2)
0.5 to <1.0	44 (3.4)
<0.5	10 (0.8)
NR	8 (0.6)
Sex	
Female	710 (54.9)
Male	471 (36.4)
Prefer not to answer/NR	112 (8.7)
Race/ethnicity	
Asian	113 (8.7)
Black	49 (3.8)
Hispanic/Latino	33 (2.6)
White or Caucasian	947 (73.2)
Other	17 (1.3)
Prefer not to answer/NR	134 (10.4)
Marital status	
Married or domestic partnership	963 (74.5)
Single	206 (15.9)
Prefer not to answer/NR	124 (9.6)
Respondents with dependents	
Infants aged <1 year	88 (6.8)
Children aged 1-5 years	246 (19.0)
Children aged 6-12 years	310 (24.0)
Adolescents aged 13-17 years	226 (17.5)
Dependent adults aged ≥18 years able to care for self	268 (20.7)
Dependent adults aged ≥18 years with special needs impeding ability to care for self	59 (4.6)
NR	175 (13.5)

(*Continued*)

Appendix 1. (*Continued*)

Abbreviations: PharmD=Doctor of Pharmacy; NR=not reported; FTE=full time equivalent.

[a] Associate/assistant dean (n=129), department chair (n=81), division head (n=61), department vice-chair (n=42), dean (n=24).

[b] Instructor/lecturer (n=18), endowed professor (n=4), academic professional (n=4), director/assistant director/coordinator experiential education (n=1), department chair (n=1).