
2022

National Pharmacist Workforce

Study

Executive Summary

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EXECUTIVE SUMMARY: SECTIONS 1-10

I. BACKGROUND

In 2020 and 2021, COVID-19 and subsequent federal and state policies changed pharmacy practice, pharmacy work systems, and the quality of work life of pharmacists in many ways. Changes in practice activities likely differed across practice settings as pharmacists were utilized in different ways to meet short term needs and achieve longer term goals of employers. Pharmacy work systems (i.e., practice setting characteristics) changed due to COVID-19 to ensure pharmacists remained critical access points for patient care. A significant change in pharmacy work systems throughout the pandemic was a shortage of pharmacy technical personnel to accomplish tasks designed to free pharmacists' time to accomplish clinical tasks in pharmacy work systems. Pervasive and repetitive racial injustice during the pandemic resulted in more employees reporting anger, stress, and fear. Organizations acted and looked inward to assess and develop policies and activities to improve diversity, equity, and inclusion in their work systems. The quality of work life of pharmacists was affected by COVID-19. Like other health professionals, pharmacists experienced high levels of burnout, stress, and fatigue while providing care to patients during the pandemic.

By March 2022, approximately two years into the pandemic, pharmacists proved to be vital health care providers whose quality of work and health had to be sustained to improve public health. Our central hypothesis is that COVID-19 affected pharmacists and their work systems and that it is important to understand how and the degree to which the pandemic influenced pharmacists and pharmacy work systems.

II. STUDY OBJECTIVES

By documenting changes related to the pandemic, we anticipated being able to add insight into preparing pharmacists and pharmacy work systems for future pandemics, developing strategies to sustain positive pharmacist practice change, and reducing the negative impacts of the pandemic on pharmacists' work life. Accordingly, the study aims were:

Aim 1: To describe current pharmacist work activities and assess the prevalence and degree of changes in work activities since March 2020.

Aim 2: To describe a set of work system characteristics that have been barriers or facilitators to changing pharmacist activities and the degree to which the work system characteristics were associated with changing pharmacist roles during the pandemic and how the work system characteristics will allow for activities to be sustainable or not in the future.

Aim 3: To determine the prevalence of licensed pharmacists changing their employment status (i.e., leaving the workforce, leaving an employer, changing job positions) since March 2020, to explore motivations for and characteristics of changes in employment status, and to assess perceived costs and benefits to pharmacists of changes in employment status.

Aim 4: To assess pharmacist work life issues including burnout, job stress, work-home conflict, job satisfaction, and job and career turnover intention.

Aim 5: To assess issues related to the pharmacy technician shortage.

Aim 6: To explore pharmacists' assessment of diversity/equity/inclusion efforts implemented in their practice settings.

III. METHODS

Study Design: To meet the aims of the project, a mixed-methods design was used that consisted of: (1) pharmacist stakeholder focus groups and (2) an online cross-sectional descriptive survey. The stakeholder focus groups were conducted to elicit comments that would inform development of sections and items for the survey.

Conceptual Framework: The Systems Engineering Initiative for Patient Safety 2.0 (SEIPS) conceptual framework provided a basis for domains of the survey content. The SEIPS 2.0 Model is structured to determine the characteristics of components in a work system that influence work system processes and outcomes. Within the model, the five key components of the work system are: (1) people, (2) tools and technology, (3) tasks that are performed, (4) organization, and (5) both the internal and external work environments. These components were used to organize the content for focus groups and the survey.

Stakeholder Focus Groups: A series of four semi-structured focus groups were conducted with practicing pharmacists, each group representing one of four pharmacy practice settings: (1) clinic/ambulatory care pharmacies, (2) inpatient (or hospital) pharmacies, (3) independent community pharmacies, and (4) retail chain pharmacies. Each focus group lasted about one-and-a-half hours and had 4 to 7 participants. The goals of the focus groups were to identify concepts related to and examples of work system characteristics and practice activities, information about causes and consequences of the pharmacy technician shortage, and the status of diversity, equity and inclusion (DEI) initiatives planned and/or implemented in work systems. The focus groups were audio-recorded and transcribed verbatim. The transcripts were examined to identify concepts to serve as the basis for survey questions.

Survey Questionnaire: Building on the initial SEIPS model components and results from the focus groups, a survey questionnaire was created to illustrate the work issues that practicing pharmacists encountered since the onset of the COVID-19 pandemic. The survey was designed to address the study aims listed above.

The survey included six broad topic areas: (1) Current employment status, including changes in status, (2) diversity, equity, and inclusion, (3) demographics, and (4) work activities and work system characteristics related to the pharmacist's primary work setting (including time spent on and satisfaction with the activities, how time in work activities changed since March 2020, the presence of work system characteristics, how work system characteristics changed since March 2020, and how work system characteristics have affected patient medication safety), (5) the technician shortage situation, and (6) pharmacist work life issues. When available, previously used survey items were utilized, while new items were developed as needed. The survey questionnaire underwent usability testing to change item wording and add or delete items.

Sampling Strategy: The National Association of Boards of Pharmacy Foundation (NABPF) drew a systematic random sample of 93,990 persons from its unduplicated list of licensed pharmacists across all states, territories, and the District of Columbia. The survey sample represents 22.6% of licensed U.S. pharmacists.

Survey Administration: Data collection for the main survey distribution included sending sample members four emails (one initial and three follow-ups, that contained a link to the Qualtrics online survey. The email waves were sent out on November 17, 2022, November 22, 2022, December 7, 2022, and December 20, 2022. All emails were sent by NABPF. Sample

members were asked to click on the survey link to access the survey. The questionnaire was piloted tested with a national sample of 2,000 licensed pharmacists prior to the main survey distribution to determine the feasibility of the proposed methods.

Data Analysis. Surveys were available to researchers at the University of Wisconsin through their Qualtrics account. On January 2, 2023, data were downloaded from Qualtrics. Data are presented in this report in a manner that allows comparison to the 2019 NPWS whenever possible.

IV. RESULTS

About one-half of sample members opened the email for the first, second, third, and fourth email waves, with a mean open rate of 46.8% across the four email waves. The average rate for clicking on the survey link once the email was opened was 4.0%. There were very few unsubscribe requests and complaints resulting from NABPF sending the emails.

A total of 4,947 usable responses was received, which meant they contained responses for the current employment status variable. The maximum number of emails delivered was 93,990. This resulted in a traditional usable response rate of 5.3%. A total of 6,545 pharmacists clicked on the survey link. Using that number as a denominator, 75.6% of pharmacists who clicked on the survey link provided a usable response.

Work Participation

Overall, 78.5% of responding pharmacists in 2022 were working and practicing as a pharmacist, compared to 79.8% in 2019. The proportion of responding pharmacists who were working, but not practicing as a pharmacist was 6.8%, slightly higher than estimates from National Workforce Surveys (NPWS) from 2009, 2014, and 2019. Of note is that 2.9% of respondents were unemployed in 2022 compared to 4.9% in 2019. In 2022, 35.1% of unemployed pharmacists were not seeking employment (i.e., dropped out of the labor market) compared to 15.7% in 2019. In 2022, 65.7% of unemployed respondents stated their unemployment was voluntary, compared to 38.9% in 2019.

By gender in 2022, 59.7% of responding pharmacists identified as female, 39.9% identified as male and 0.2% identified as non-binary. In 2019, 61.8% of responding pharmacists were female. Also, 68.9% of male and 81.2% of female responding pharmacists were practicing pharmacy in 2022. This compares to 72.7% of males and 84.1% of females in 2019. In 2022, the proportions of licensed male and female respondents that were retired was 22.8% and 7.8%, respectively. This compares to 16.8% and 5.5% of male and female respondents, respectively, that were retired in 2019.

In 2022, approximately, 37.0% of respondents working as pharmacists were 40 years old or younger, which is lower than 2019 (41.2%). In 2022, 78.8% of respondents were white, slightly higher than the respondents in the 2019 NPWS (78.2%). In contrast, there were fewer Asian respondents in 2022 (9.6%) compared to 2019 (11.1%). The proportion of black respondents in 2022 was 3.9%, compared to 4.9% in 2019. The racial diversity of licensed pharmacists continues to underrepresent the racial diversity of the general population in the United States.

In terms of practice setting for respondents practicing pharmacy, in 2022, a greater percentage of pharmacists in all practice settings was female pharmacists. The proportion of licensed

respondents practicing pharmacy and working part-time (≤ 30 /week) was 16.3% in 2022, compared to 14.6% in 2019.

Employment Status Change

The definition of an employment status change (ESC) used in the survey included 1) any change in your primary employer, 2) remaining with your primary employer but changing your job position, 3) dropping out of the workforce temporarily due to personal reasons then reentering the workforce, 4) dropping out of the workforce permanently due to personal reasons or retirement since March 2020 (i.e., the beginning of the COVID-19 pandemic). Overall, 37.3% of responding pharmacists reported experiencing an ESC since March 2020. Among female respondents, 40.3% experienced an ESC since March 2020 compared to 34.0% of male respondents. Younger respondents were more likely to experience an ESC since March 2020 compared to older respondents.

Of the respondents that reported experiencing an ESC, two-thirds reported experiencing one change, 26.9% reported two changes, and 6.5% reported three or more changes. Younger respondents were more likely to report experiencing more than one ESC. Changing position was the most common (59.9%) type of ESC, followed by changing employer (51.0%). The primary reasons for an ESC focused on characteristics of the pharmacy and the work that respondents were doing prior to the ESC.

Overall, 39.9% of respondents who reported experiencing an ESC stopped working because of the ESC. The average number of months out of the workforce due to an ESC was 9.39 months. Over 60% of respondents who stopped working because of an ESC re-entered the workforce. Common benefits for respondents from an ESC was a better work environment, better work responsibilities, or better work conditions. Respondents reported that their quality of work life was improved because of an ESC.

Across practice settings in which respondents were practicing pharmacy in March 2020, the proportion of respondents in each setting that reported experiencing an employment status change ranged widely (0 – 67.1%). The top three practice settings in terms of proportion of respondents who reported experiencing an employment status change were Home Health/Infusion (45.0%), Nursing Home/Long Term Care (42.1%), and Community Pharmacy (36.4%).

Current Work

Pharmacist burnout consisted of work exhaustion and personal disengagement. Overall, responding pharmacists reported moderate levels of work exhaustion, but less interpersonal disengagement. Respondents practicing in small chain and independent pharmacies had the highest level of professional engagement and lowest levels of work exhaustion and interpersonal disengagement. The opposite was reported for respondents working in large chain, mass merchandiser, and supermarket pharmacies. Respondents working in hospital inpatient pharmacies reported levels of work exhaustion and interpersonal disengagement that were in between responding pharmacists working in independent and large chain pharmacies.

Respondents practicing in independent and small chain pharmacies were less likely to report that they would leave their job in the next year or leave pharmacy practice altogether in the next 3 years. Responding pharmacists working in non-community practice settings reported

intentions to leave current work and pharmacy practice at similar levels to independent and small chain pharmacists. Also, responding independent and small chain pharmacists rated their stress lower than responding pharmacists working at large chain, mass merchandiser, and supermarket pharmacies. Responding pharmacists working in large chain, mass merchandiser and supermarket pharmacies reported the lowest levels of job control and the lowest levels of job satisfaction. Responding managers reported greater fulfillment and job control, and comparable burnout and job stress compared to respondents working in staff positions.

Overall, responding pharmacists reported their physical and overall health higher (better) than their emotional and mental health. Across settings, responding pharmacists working in large chain, mass merchandise and supermarket pharmacies reported lower physical, emotional, mental, and overall health than respondents working in small chain, independent community, inpatient hospital, and other patient care settings. Respondents working in large chain, mass merchandiser, and supermarket pharmacies reported the highest levels of work home conflict and the lowest levels of organizational commitment.

Community Practice Settings: Work Activities and Work Setting Characteristics

Of the responding licensed pharmacists that reported practicing at an independent pharmacy and reported their gender and age, 50% were female. Conversely, 62% of responding pharmacists who reported practicing at a chain pharmacy and reported their gender and age were female. Chain community pharmacies included small and large chain, mass merchandiser, and supermarket pharmacies. Independent pharmacies have an older cohort of responding pharmacists: 70% were at least 46 years of age compared to chain pharmacies in which 52% were at least 46 years of age. More diversity in ethnicity/race was seen in chain pharmacies with 74.9% of respondents being White compared to independent pharmacies having 81.5% of respondents being White.

Responding pharmacists practicing at independent community pharmacies reported spending about 72% of their time each week on patient care services associated with medication dispensing and about 13% of time on patient care services not associated with medication dispensing. Over 50% of responding pharmacists practicing in independent community pharmacies reported spending 1-10 hours per week on administering vaccines, documenting information about services provided, consulting with patients about coordination and use of prescription drug coverage, providing medication synchronization services, providing patient medication assistance, and providing medication therapy management (MTM) services. Approximately 60% of responding pharmacists practicing in independent community pharmacies were satisfied with the amount of time spent on work activities.

Respondents practicing in chain community pharmacies reported spending about 76% of their time each week on patient care services associated with medication dispensing and about 10% of time on patient care services not associated with medication dispensing. Documenting information about services provided, consulting with patients about coordination and use of prescription drug coverage, providing medication synchronization services, providing patient medication assistance, providing medication therapy management (MTM) services, and dispensing naloxone each were reported to consume between 1-10 hours per week by more than 50% of respondents practicing in chain pharmacies. Approximately 51% of respondents reported spending more than 11 hours per week administering vaccines and 24.6% of respondents reported spending >20 hours per week administering vaccines. Just over one-

quarter (27%) of respondents practicing in chain community pharmacies reported being satisfied with the amount of time spent in work activities.

In terms of changes in time spent in work activities for respondents practicing in independent community pharmacies, the largest proportion of respondents reporting increases in time spent in administering vaccines (50.0%), documenting information about services provided (39.5%), consulting with patients about coordination and use of prescription drug coverage (35.6%) and providing medication synchronization services (32.3%). The greatest proportion of respondents reported a decrease in time spent since March 2020 in the following work activities: providing medication therapy management (MTM) services (13.4%), providing point-of-care testing (COVID and non-COVID testing) (9.7%), and administering vaccines (9.2%).

For chain settings, the largest proportion of respondents reported no change in time spent for all the work activities, except administering vaccines. Administering vaccines (86.5%), documenting information about services provided (48.8%), providing patient medication assistance (e. g. locating coupons, discounts, etc.) (46.6%), providing point-of-care COVID testing (36.1%), and consulting with patients about coordination and use of prescription drug coverage (35.6%) were work activities that the largest proportion of respondents reported an increase in time spent since March 2020. The greatest proportion of respondents practicing in chain community pharmacies reported a decrease in time spent since March 2020 in the following work activities: providing medication therapy management (MTM) services (29.3%), providing medication synchronization services (21.4%), and providing point-of-care COVID testing (10.0%).

Respondents practicing in community settings, regardless of independent or chain designation, were asked about work characteristics. The largest proportion of responding independent pharmacists at least somewhat agreed that they had a high level of autonomy (85.1%), compared to 52.4% of responding chain pharmacists. Over 85% of responding chain pharmacists at least somewhat agreed that the number of work activities performed at their job extends beyond what they were originally hired to do, compared to 62.9% of responding independent pharmacists.

For work setting characteristics asked only of respondents practicing in independent community pharmacies, having a strong focus on public health and the community (89.9%) and an attitude of “let’s make this work” (83.2%) were the two work setting characteristics with the largest proportion of respondents agreeing at least somewhat.

For work setting characteristics asked only of respondents practicing in chain community pharmacies, 65.9% of responding chain pharmacists strongly agreed that their work setting would benefit from regulations limiting pharmacist workload.

The largest proportion of responding independent pharmacists (25.7%) reported that the level of autonomy to accomplish their work activities significantly improves patient medication safety. Comparatively, 5.9% of responding chain pharmacists reported that the level of autonomy significantly improves patient medication safety. In terms of reducing patient medication safety, a total of 40.6% of responding pharmacists practicing in chain pharmacies reported that the number of activities that they perform in their job significantly reduces patient medication safety, compared to 8.0% of responding independent pharmacists.

Ambulatory Care & Inpatient Hospital Settings: Work Activities and Work Setting Characteristics

Of the responding licensed pharmacists that reported practicing in ambulatory care settings and reported their gender, 75.3% were female. A somewhat lower percentage (69.1%) of responding licensed pharmacists that reported practicing in inpatient hospital settings were female. In terms of age, 45% and 41% of respondents practicing in ambulatory care and inpatient hospital settings, respectively, were 40 years old or younger. The largest percentage of respondents in ambulatory care and inpatient hospital practice settings was White (75.4% and 77.3%, respectively), and the second largest percentage was Asian (11.5% and 10.9%, respectively).

Responding pharmacists practicing in ambulatory care reported spending almost one-half (48.2%) of their time each week on patient care services not associated with medication dispensing and slightly over one-quarter of their time (28.4%) on patient care services associated with medication dispensing. Over one-quarter of respondents spent more than 20 hours each week in five work activities: providing primary care to patients (35.2%), dispensing medications (26.6%), starting, modifying, or stopping drug therapy independent from a patient-specific order (30.3%), providing comprehensive medication management (30.3%), and providing disease state management (34.9%). About 70% of respondents practicing in ambulatory care were at least satisfied with time spent on work activities and 20% reported being very satisfied.

Responding pharmacists practicing in inpatient hospital pharmacies reported, on average, spending almost equal percentages of their time each week on patient care services not associated with medication dispensing (37.3%) and on patient care services associated with medication dispensing (35.7%). At least one-quarter of respondents reported spending at least 11 hours each week providing direct patient care to inpatients on a unit (26.2%), engaging in hands-on drug preparation (26.3%), engaging in hands-on drug distribution (26.2%), drug level monitoring (30.7%), comprehensive medication management (36.5%), and management activities (25.3%). About 41% of responding inpatient hospital pharmacists reported they were “more than satisfied” or “very satisfied” with the amount of time spent in work activities. However, 35% reported they were “not at all” or “partially satisfied” with the amount of time spent in work activities.

The majority of responding pharmacists practicing in ambulatory care reported no change in time spent weekly on most activities since March 2020. Work activities with the greatest percentage of responding pharmacists in ambulatory care reporting increased time spent included coordinating patient access to medications (38.1%), discussing mental health needs with patients (28.8%), and performing activities typically performed by pharmacy technicians or medical assistants (28.6%).

Like respondents in ambulatory care, the majority of responding inpatient hospital pharmacists reported no change in time spent since March 2020 for all but one of the listed work activities. The greatest percentage of responding inpatient hospital pharmacists reported a decrease in time spent since March 2020 in the following work activities: rounding with a health care team on a unit (13.9%) and providing direct patient care to inpatients on a unit (12.1%).

Respondents practicing in ambulatory care and inpatient hospital pharmacies were asked about the same 9 work characteristics. The largest proportion of responding ambulatory care pharmacists strongly agreed that they had a high level of autonomy (59.6%), compared to

42.2% of responding inpatient hospital pharmacists. The largest proportion of responding inpatient hospital pharmacists strongly agreed that their organization was not doing enough to deal with the actual causes of employee stress and burnout (44.6%), compared to 33.6% of responding ambulatory care pharmacists.

For work setting characteristics specific to ambulatory care, the largest percentage of ambulatory care pharmacists reported they strongly agreed that they had a high level of collaboration with health care providers with whom they work (56.8%).

For work setting characteristics specific to inpatient hospital pharmacists, the largest percentage of respondents reported they strongly agreed that pharmacists are consistently overlooked and underappreciated at their organization (31.8%)

Nearly 90% (87.3%) of responding ambulatory care pharmacists reported that the level of autonomy they had in how they accomplished their work activities improves or significantly improves patient medication safety. At least one-fifth of responding inpatient hospital pharmacists reported that the number of work activities and the level of autonomy significantly improve patient medication safety.

Pharmacists' Work Life & Intention to Leave

Less than 19% of responding pharmacists reported a lot of job control, with Latinos/a/x reporting the least control in their ability to take time away during the workday. Twenty-eight percent of responding Blacks and American Indians reported having a lot of control in time spent in various work activities. On average, 26% of responding pharmacists reported that it was true (i.e., very true or completely true) that they felt happy at work. Less than 14% and 17% of American Indians and Latinos/a/x, respectively, reported it was true that they felt happy at work. In terms of burnout, more than 40% of responding pharmacists who reported being American Indians, Asians or Latinos/a/x, felt a sense of dread "a lot or totally" over the past two weeks when they think about the work they have to do. Almost 60% of responding American Indians and Latinos/a/x, felt physically exhausted at work.

In general, any employment status change (ESC) since March 2020 tended to have a positive effect on responding pharmacists' evaluation of the work life items. A greater proportion of responding pharmacists who did not experience an ESC since March 2020 rated each of the job stress items except "possessing inadequate information regarding a patient's medical condition" and "fearing a patient would be harmed by a medication error" as highly stressful compared to respondents that did experience an ESC since March 2020. A greater proportion of respondents who experienced an ESC since March 2020 responded more positively to job control items and job satisfaction items. A greater proportion of responding pharmacists that experienced an ESC since March 2020 reported that they felt happy and worthwhile at work and that their work was more satisfying compared to respondents that did not experience an ESC since March 2020.

For most of the job stress items, a greater proportion of responding female pharmacists rated items as highly stressful compared to male or non-binary responding pharmacists. For each of the job control items, a greater proportion of responding male pharmacists rated that they had a lot of job control compared to responding female pharmacists. A greater proportion of responding male and non-binary pharmacists reported being satisfied with their jobs compared to responding female pharmacists. Almost one-half of responding female pharmacists felt

physically (45%) and emotionally (47%) exhausted at work. These were larger percentages compared to male pharmacists.

Overall, 36% of respondents reported that they likely (i.e., likely or very likely) would search for a different job in the next year and 25% reported that they likely would leave their job within the next year. Approximately 43% of responding Latino/a/x pharmacists and 39.4% of responding Blacks compared to 23% of responding Whites reported that they were likely to leave their current employer within the next year. In terms of leaving pharmacy within the next 3 years, less than 20% of all respondents reported that they were likely to engage in any of the items describing leaving pharmacy practice.

There was very little difference in the percentage of respondents who reported that they likely would leave their job by whether they experienced an ESC since March 2020. A greater percentage of respondents who experienced an ESC since March 2020 reported that they likely would stop practicing pharmacy to take time off (17.6%), pursue a different career in a health care field (15.5%), or pursue a career outside of health care (17.5%) within the next 3 years compared to respondents who did not experience an ESC since March 2020.

A greater percentage of responding female pharmacists (38.3%) reported that they were likely to search for other employment within the next year compared to responding male (33.4%) and non-binary pharmacists (25.0%). There was very little difference across gender in terms of leaving the pharmacy profession to pursue a different career in a health care field.

Diversity, Equity & Inclusion

In terms of items related to diversity, less than 46% of responding pharmacists agreed (i.e., somewhat or strongly agreed) that the process for career advancement/promotion is transparent to all employees and that they felt supported in their careers. Less than 50% agreed that people from all backgrounds and identities have equitable opportunities to advance in their careers and have access to appropriate benefits and representation. Over 70% of respondents agreed that they felt respected by their employer. Overall, 34% and 40% of respondents were neutral in their response that leadership was prioritizing DEI and that the culture at their primary employer, as it relates to DEI, needs improvement, respectively.

Generally, Black respondents were less likely to agree with the items related to diversity compared to the other racial/ethnic groups. Black respondents (42.9%) and Latinos/a/x respondents (39.6%) were less likely to agree that people from all backgrounds and ranges of identities have equitable opportunities to advance their careers. Similar percentages (51%-60%) of all racial/ethnic groups except for those who identified as "Other" agreed that they felt a sense of belonging at their primary employer. Less than 35% of Whites, Others, and those whose race/ethnicity was missing agreed that the culture at their primary employer as it relates to DEI needs improvement, while greater than 55% of Black and American Indian respondents agreed that the culture needs improvement.

Only 39.1% of responding pharmacists between 24-35 years old agreed that the process for career advancement/promotions is transparent to all employees. A smaller percentage of responding pharmacists 46-55 years old agreed that their unique background and identity are valued by their employer (45.8%) relative to younger respondents. A greater percentage of younger responding pharmacists (41%) agreed that the culture at their primary employer needs improvement compared to other age groups. Only 33% of responding pharmacists 24-35 years

old agreed that their employer was conducting employee focus groups to learn what is needed in terms of DEI. Also, a smaller percentage of responding pharmacists' 24-35 years old agreed that their employer was successful in hiring a more diverse provider population (55.9%) compared to other age groups.

A relatively smaller percentage of respondents working in community pharmacies (49.3%) agreed that their employer invests time and energy into building a diverse work staff. Approximately 37% of respondents working at hospital inpatient pharmacies agreed that the process for career promotion was transparent compared to 62% of respondents working in non-patient care settings. In terms of inclusion items, 40% of responding community pharmacists agreed that their unique background was valued by their employer and 49.8% agreed that they felt a sense of belonging at their primary employer compared to respondents working in other settings. A greater percentage of respondents working in ambulatory care (44.1%), non-patient care settings (44.9%) and other settings (40.0%) agreed that the culture, in terms of DEI, at their primary employer needs improvement.

Pharmacy Technician Shortage

Approximately one in 10 respondents reported that they perceived no shortage of technicians and nearly two-thirds of respondents who perceived a shortage rated the degree of technician shortage as severe or very severe. In the most common practice settings (community and hospital/health system), the highest proportion of respondents reporting "no shortage" were in independent and small chain settings and the smallest proportion reporting "no shortage" were in chain pharmacies.

Nearly 80% of respondents practicing in chain pharmacies considered the technician shortage as severe or very severe. Respondents in hospital inpatient settings also tended towards higher proportions of such severe shortage ratings with nearly 70% of staff and managers giving those ratings. Across employment positions, there was a tendency overall for staff pharmacists to have higher proportions of severe and very severe shortage ratings compared to managers.

Overall, most respondents disagreed that providing technicians flexibility to work from home was a way for their workplace to deal with the technician shortage or a reason why they did not perceive a shortage. Flexibility in scheduling was the item most respondents agreed with as an approach to deal with or a mechanism to avoid a technician shortage in their workplaces. Nearly 70% of respondents reporting no technician shortage agreed with schedule flexibility as a reason for not having a technician shortage. Respondents in independent/small chain pharmacies most often agreed that flexible scheduling and increased pay were strategies to deal with the shortage followed by respondents in chain settings. For respondents reporting they were not experiencing a shortage, those in community settings had higher proportions agreeing that flexible scheduling and pay were effective strategies.

More than 80% of respondents that reported a technician shortage agreed that technicians were unhappy due to being overworked, that pharmacists were unhappy with their jobs, and that pharmacists were spending too much time in dispensing activities. However, at least 25% of respondents disagreed that patient safety or quality of care is significantly compromised by a technician shortage. Respondents practicing in chain settings had the highest proportions of strongly agree perceptions across the technician shortage impact items and all the items had 90 percent or more of chain pharmacists agreeing with all the statements except for medication safety being compromised significantly.

V. LIMITATIONS

The findings of this study should be considered considering its limitations. The results are based on respondents' self-reports, which could be influenced by intent to make socially desirable responses or simple misinterpretations of questions. We tried to limit misreading by having practice setting experts review and modify, where necessary, questionnaire items. Additionally, we pilot tested the questionnaire prior to the main questionnaire distribution. We used an online survey mode like the approach used in the 2019 NPWS. As such, comparisons of the current findings with those previous results could be valid, however, comparisons with results from NPWSs prior to 2019 should be done with caution.

The low response rate raises concerns about non-response bias. Our analyses of survey responses showed some differences in the respondents compared to the random sample pulled by the NABPF from their population of licensed pharmacists. As a group, NPWS 2022 respondents had a high percentage of older pharmacists and had a lower percentage from the West and higher from the Midwest. Whether and how these differences cause bias in the interpretation of the findings is unknown and consideration of bias resulting from response differences should be considered.

VI. CONCLUSIONS

Although the purpose of the current NPWS was not to study the characteristics of the pharmacist workforce as was the case with the NPWS in 2000, 2004, 2009, 2014 & 2019, the data provide an update about the workforce approximately 33 months after the start of the COVID-19 pandemic in March 2020. A notable difference in terms of current employment status is that a smaller proportion of respondents were unemployed in 2022. This result is meaningful as it suggests that a significant proportion of respondents are not still unemployed after the pandemic. However, a greater proportion of unemployed respondents reported being permanently out of the workforce in 2022 relative to 2019. One explanation for this is the effect of COVID, but more research is needed about this topic. Also, the proportion of respondents working part-time as a pharmacist was higher in 2022 compared to 2019. The reasons for part-time work and the implications of part-time work for pharmacists could be examined in the 2024 NPWS.

Overall, the results suggest that approximately 14.9% of licensed pharmacists in 2022 experienced an employment status change at some time since March 2020 that resulted in pharmacists being unemployed. Given estimates from NABPF about the number of licensed pharmacists in the US in 2022 (416,044), the results suggest that 61,990 licensed pharmacists were unemployed at some time after March 2020. Fortunately, the results suggest that most pharmacists returned to the workforce after their time unemployed and many reported returning to a work situation that was better than their work situation prior to March 2020.

Future research could explore, in more detail, why pharmacists experienced an employment status change and their motivations and their search process for different employment. Additionally, it is important to learn why pharmacists did not leave an employment situation even if an opportunity was presented to them. Employment status changes could be very important to improve work life for pharmacists in the future. Focusing this area of study on younger pharmacists is particularly important, given the percentage of pharmacists that are age 40 or less.

A strength of this study is that we identified work activities and work setting characteristics unique to individual work settings. Data from respondents about changes in work activities since March 2020 show that generally, time spent in work activities in December 2022 returned to pre-COVID levels. We did not collect information about how time spent in work activities changed immediately after March 2020 and the length of time that it took for time spent in activities to return to pre-COVID levels. Unfortunately, the results suggest that in many practice settings, a large percentage of pharmacists have reduced the time that they spent in work activities that require them to work directly with patients to potentially improve patient care. Identifying current and future pharmacist work activities that are unique to specific work settings and documenting time spent in specific work activities is important for future study.

A primary goal of the 2022 NPWS was to collect information about work characteristics across individual pharmacy work settings and work life variables for pharmacists practicing in different work settings. Broadly, the results showed a connection between work setting characteristics and work life outcomes. Future research could associate work characteristics with work life variables to better understand whether and how individual work setting characteristics improve pharmacists' work life. Pharmacy organizations and other stakeholders could continue to work together to identify the sources of work setting problems and identify ways to improve work environments for pharmacists.

The results showed variation across work settings in terms of work setting characteristics. A benefit of the results is that many pharmacists are working in very positive work settings, they are engaged in work activities that impact patient outcomes, and their work life outcomes are better. Given the decrease in individual applicants to schools of pharmacy in the US, information about the positive impacts on pharmacists of work setting characteristics and their work activities could be communicated to young people and their parents thinking about pursuing pharmacy as a career to counter negative perceptions of pharmacy as a career.

Pharmacists and researchers can work together to study and learn from work settings that are more positive for pharmacists and share best practices across all work settings. Pharmacy organizations have developed workplace reporting portals that allow pharmacists to share how characteristics of their work setting, both positive and negative, are impacting them and their work. By identifying and prioritizing specific best practices, pharmacists and researchers can work together to design, implement, and evaluate modifications to work settings to improve pharmacist performance, work life, and ultimately patient outcomes, such as medication safety, in work settings that are not as beneficial for pharmacists or patients. Purposeful modification of leadership, management, access to and use of technology are examples of work setting characteristics that could be considered in the future. We feel this is an important area for future study.

More active and creative strategies are needed to address the lack of diversity, equity and inclusion activities implemented in pharmacy. The 2022 NPWS collected baseline information on pharmacists' perceptions regarding this topic. It is our hope that with this information, we, along with others can delve more deeply in this area to provide greater insight into what is needed to make a significant impact in the diversity of our profession and improve pharmacists' perceptions of equity and inclusion.

Given the impact of COVID on pharmacists, it is important that studies of the pharmacist workforce continue to document information about pharmacists and their work. We think it is

important for pharmacy organizations and researchers to identify events external to pharmacy work settings that are impacting pharmacy practice and pharmacists. Workforce studies could gather information about how the external events are impacting pharmacists, their work, and their work life. Studying such events could allow the profession to develop strategies to help pharmacists thrive as the health care landscape continues to change.