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Evaluation of workload among Board-Certified Psychiatric Pharmacists in the United States

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Abstract

Introduction: Board-Certified Psychiatric Pharmacists (BCPPs) are highly trained mental health providers. The workload of clinical pharmacists has been inconsistently reported in the literature. The goals of this study were to quantify the typical and ideal workloads of BCPPs and characterize their practice settings and clinical activities.

Methods: This was a cross-sectional survey study of BCPP members of the American Association of Psychiatric Pharmacists. The survey included demographic, practice-related, and burnout questions. The primary outcome was the self-reported typical and ideal workloads of BCPPs in inpatient, outpatient, and transition-of-care settings. Secondary outcomes included practice settings and types of activities.

Results: Of 571 invitees, 173 respondents were included in the analysis. The mean typical number of patients per day for inpatient and outpatient BCPPs were 35.6 (±22.8) and 9.29 (±10.9), respectively. The mean ideal number of patients per day for inpatient and outpatient BCPPs were 23.6 (±10.4) and 9.96 (±10.6), respectively. Inpatient pharmacists reported spending 15.4 (±12.2) hours on direct patient care and consults during a typical workweek compared with outpatient pharmacists (25.4 ± 15.1, $p \leq .001$). A greater number of outpatient pharmacists reported that electronic health record documentation contributed to a significant portion of their workflow compared with inpatient pharmacists (96.2% versus 71.9%, respectively, $p \leq .001$).

Discussion: This was the first study to quantify BCPPs self-reported typical and ideal workload in different practice settings. Future research is needed to identify the factors that determine ideal workloads for BCPPs at specific practice sites.

Keywords: psychiatric pharmacist, workload, inpatient, outpatient

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Introduction

Psychiatric pharmacists specialize in treating patients with psychiatric and substance use disorders; they have extensive training and expertise in medication management of these conditions.[1] Board-Certified Psychiatric Pharmacists

TABLE 1: Studies reporting practice ratios or panel sizes of pharmacists

Setting	Study Description	Practice Ratio/Panel Size
Inpatient, intensive care unit	A cross-sectional survey of critical care pharmacists to determine their perceptions of pharmacist-to-patient ratios within the intensive care unit[15]	16 to 20 patients per pharmacist (n = 47, 27%) >30 patients per pharmacist (n = 43, 25%) 10 to 15 patients per pharmacist (n = 39, 23%)
Inpatient, psychiatry	Quantitative and economic analysis of clinical pharmacist interventions in an inpatient psychiatric facility (pediatric, adolescent, adult, and geriatric patient populations)[17]	50 beds per pharmacist
Outpatient, clinic	Observational study of 10 clinical pharmacists to measure time spent on daily activities for ambulatory care clinical pharmacists[18]	7.46 visits scheduled per day, 0.62 consults per day
Outpatient, primary care	Narrative review of pharmacist-to-physician ratios for addressing primary care physician shortages by incorporating clinical pharmacists on primary care teams[19]	1 to 4 physicians per pharmacist
Outpatient, specialty clinic	Narrative review of implementing 3.2 ambulatory care pharmacist FTEs into specialty clinics[20]	200 patients per pharmacist (550 individuals having 1237 visits over 11 months)

FTE = full-time equivalent.

(BCPPs) are doctorate-level, board-certified experts who assess the complexities of psychiatric disorders and response to treatment in context of social determinants of health (SDOH), psychosocial factors, and biological factors.[1,2] The American Association of Psychiatric Pharmacists (AAPP) considers BCPPs the gold standard credential that all psychiatric pharmacists should attain to demonstrate their advanced clinical skills and knowledge in psychiatric pharmacy.

Previous literature shows that involvement of psychiatric pharmacists can improve patient-level outcomes and increase patient satisfaction with their care. Examples of patient-level outcomes psychiatric pharmacists can improve include fewer emergency department visits and hospitalizations, improved medication adherence, and an increase in meeting therapeutic disease outcomes.[2,3]

The workload of clinical pharmacists has been inconsistently reported in the literature, and the numbers and units of measure vary significantly. One measurement of workload is patient panel size, which is the number of individual patients under the care of a specific provider during a specified period.[4] Table 1 includes a literature review of studies reporting on panel size and other practice ratios for pharmacists. A recent white paper indicated that inpatient mental health pharmacists should have 1.0 full-time equivalent (FTE) to 30 beds with a weak strength of recommendation and very low level of evidence.[5] This very low level of evidence was due to no specific ratios identified in the literature.[5,6] There is currently no standardized method to determine panel size and workloads among health care professionals although organizations should "prioritize patient safety, quality of care, and pharmacy workforce well-being when setting workload expectations."[6]

Determining an ideal panel size for providers is important as it leads to patient satisfaction, predicts patient demand, defines workload, and improves clinical and monetary outcomes.[4,7,8] An appropriate panel size is affected by many factors, including patient population and practice model.[9,10] It is affected by the number and type of health care professionals at the practice site that each patient sees as well as SDOH (income, education, housing, food insecurity, etc) affecting the patients.[7] It is also affected by patient complexity, especially because patients with psychiatric disorders often have multiple co-occurring illnesses and medication regimens that may increase the number of visits per patient.[11] Finally, the ancillary support a provider receives from the care team and the skill level of support staff, including but not limited to social workers, care managers, dieticians, and administrative staff, can also significantly influence patient panel size by leveraging multiple professions to enhance team-based care.[7,10,12]

The goals of this study were to quantify the typical and ideal workload of BCPPs through their panel size, which was defined as number of patients/beds/patient encounter assigned per day, and characterize their practice settings and clinical activities.

Methods

This was a cross-sectional survey study of BCPP members of AAPP. Inclusion criteria included any adult subjects 18

to 85 years old who were nontrainee pharmacist members of AAPP for at least 5 years and who were BCPPs. Inclusion criteria were selected to ensure that respondents would have sufficient knowledge and stability in their job and/or workload for the purposes of the study. Exclusion criteria included subjects who did not consent to the survey, did not complete the survey in its entirety, did not practice in inpatient, outpatient, or transition-of-care settings, and did not practice in the United States. The survey did not specify the minimum percentage of practice in psychiatry required for participation.

Research participants received an email with an invitation to participate in the survey study. Participants who did not respond to the initial email invitation were sent a reminder after 2 weeks. After the reminder, individuals who did not respond were contacted by a member of the research team via email/phone to determine their interest in participating in the research study. Contact information was obtained using the membership information within AAPP. If they requested another link to the survey, they were sent an individual link to the survey. The survey was available January 8, 2024, through February 27, 2024.

The survey included demographic (14 questions) and practice-related questions (7 questions) for all respondents; specific questions for inpatient (4 questions), outpatient (3 questions), and transition-of-care pharmacists (7 questions) were also included. The survey also included a validated scale to measure burnout (Maslach Burnout Inventory-Human Services Survey for Medical Personnel)[13] that contained 22 items and a custom scale question about sense of belonging. The results of these 2 scales are reported elsewhere.[14]

The survey was voluntary and anonymous, and completion of the survey served as consent. The electronic survey data were collected using Qualtrics[XM]. Participants who completed the survey and disclosed their email addresses at the end of the survey were entered into a drawing for an opportunity to be awarded 1 of 10 $100 vouchers toward a continuing education product or conference registration fee from AAPP. Email addresses were collected upon survey closure through a separate survey link not connected with survey responses. Winners were selected using a random number generator that was linked to the email addresses and contacted by email. This study was approved by the University of California San Diego institutional review board (project #809530).

The primary outcome of this study was to evaluate the self-reported typical and ideal workloads of BCPPs in inpatient, outpatient, and transition-of-care settings. Secondary outcomes included comparison of practice settings and types of activities reported by BCPPs (inpatient versus outpatient).

The primary outcomes were analyzed using descriptive statistics (mean total number of patients/beds/patient encounters assigned per day versus mean ideal number of patients/beds/patient encounters that should be assigned to a BCPP per 8-hour workday) for inpatient, outpatient, and transition-of-care pharmacists. Secondary outcomes were analyzed using descriptive statistics (numbers, percentages, means). Continuous variables were analyzed using *t*-tests, and categorical variables were analyzed using chi-square/Fisher exact tests as appropriate. All analyses were conducted using IBM SPSS, Version 28 (Armonk, NY).

Results

The electronic survey was sent to 573 AAPP BCPP members who have been practicing for at least 5 years. Two members were removed from the sample due to either email bounce backs or known factors (retired, practicing outside of the United States). Of 571 invitees, 225 consented to participate in the study (39.4% response rate). Of the 225 consented individuals, 52 were excluded due to missing data, indication they did not provide direct patient care (inpatient, outpatient, transition-of-care), or report that they practiced outside of the United States. Data from 173 respondents are presented here. Of the 173 respondents, there were similar proportions of individuals who indicated that they practice in inpatient (n = 93, 53.8%) or outpatient (n = 80, 46.2%) settings (Table 2). There were no respondents who indicated that they practice in transition-of-care settings.

Most respondents (69%) were female, White, and married (Table 2). There were slightly more than half (58%) of the respondents who reported being caregivers of adults or children. The majority (81%) reported having a hobby that they engage in weekly, but 23% reported that they did not have a mentor with whom they meet regularly. Most respondents reported having completed a PGY1 residency (66%) with 64% of respondents having completed a PGY2 psychiatric pharmacy residency; all respondents had at least 1 board certification. The mean total years in psychiatric practice was 12.8 (±7.32) with slightly longer duration for inpatient pharmacists. There were no significant differences in demographic characteristics between inpatient and outpatient BCPPs except for mentoring. More outpatient BCPPs reported having a mentor compared with inpatient BCPPs (31.3% versus 16.1%, respectively, $p = .015$).

The mean typical number (standard deviation) of patients/beds/patient encounters per day for inpatient and outpatient BCPPs were 35.6 (±22.8) and 9.29 (±10.9), respectively. The reported mean ideal number of patients/beds/patient encounters for an 8-hour workday for inpatient and outpatient BCPPs were 23.6 (±10.4) and 9.96 (±10.6), respectively. There were no significant differences when the

TABLE 2: Demographics

	Total (n = 173) n (%)	Inpatient (n = 93) n (%)	Outpatient (n = 80) n (%)	*P* Value
Gender identity				.643
Female	120 (69.4)	65 (69.9)	55 (68.8)	
Male	49 (28.3)	25 (26.9)	24 (30.0)	
Nonbinary, transgender female, transgender male, other	0			
Prefer not to answer	4 (2.3)	3 (3.2)	1 (1.3)	
Race/ethnicity				.315
African American/Black	4 (2.3)	2 (2.1)	2 (2.5)	
Asian or South Asian	11 (6.4)	4 (4.3)	7 (8.8)	
Caucasian/White	140 (80.9)	75 (80.9)	65 (81.3)	
Hispanic/Latino/LatinX	5 (2.9)	4 (4.3)	1 (1.3)	
Middle Eastern or North African	3 (1.7)	3 (3.2)	0	
Native American or Alaska Native/Native Hawaiian or Other Pacific Islander	0	0	0	
Two or More Races	6 (3.4)	2 (2.2)	4 (5.0)	
Other	0	0	0	
Prefer not to answer	4 (2.3)	3 (3.2)	1 (1.3)	
Marital status				.391
Married	133 (76.9)	68 (73.1)	65 (81.3)	
Not married	36 (20.8)	22 (23.7)	14 (17.5)	
Prefer not to answer	4 (2.3)	3 (3.2)	1 (1.3)	
Caregiver of adults or children	100 (57.8)	52 (55.9)	48 (60.0)	.644
Have a hobby that you engage in every week	140 (80.9)	75 (80.6)	65 (81.3)	1.00
Have a mentor with whom you meet on a regular basis	40 (23.1)	15 (16.1)	25 (31.3)	.029
Residencies/fellowships completed[a]				—
Pharmacy Pract. Res. (PGY1)	114 (65.9)	55 (59.1)	59 (73.8)	
Psych. Pract. Res. (PGY1 pre-2007)	20 (11.6)	9 (9.68)	11 (13.8)	
Neuro. Pharmacy Pract. Res. (PGY2)	0	0	0	
Psych. Pharm. Pract. Res. (PGY2)	111 (64.2)	53 (57.0)	58 (72.5)	
Other PGY2	4 (2.31)	1 (1.08)	3 (3.75)	
Fellowship	13 (7.51)	4 (4.30)	9 (11.3)	
None	25 (14.5)	22 (23.7)	3 (3.75)	
BPS board certifications[a]				—
BCPP	173 (100)	93 (100)	80 (100)	
BCPS	37 (21.4)	18 (19.4)	19 (23.8)	
BCACP	5 (2.90)	0	5 (6.30)	
BCPPS	0	0	0	
BCGP	7 (4.00)	6 (6.50)	1 (1.30)	
Other	1 (0.60)	0	1 (1.30)	

BCACP = ambulatory care pharmacy specialty certification; BCGP = geriatric pharmacy specialty certification; BCPP = psychiatric pharmacy specialty certification; BCPPS = pediatric pharmacy specialty certification; BCPS = pharmacotherapy specialty certification; BPS = board of pharmacy specialties; PGY1 = postgraduate year 1; PGY2 = postgraduate year 2.
[a]Percentage may exceed 100% as respondents could have selected more than one option.

typical and ideal number of patients/beds/patient encounters were compared by gender, hobby, mentor, state, and primary practice setting in which BCPPs practice.

There was a fairly equal distribution of respondents across the United States with slightly fewer respondents in the North (Table 3). More outpatient BCPPs practiced under prescriptive authority (eg, collaborative practice agreement, Veterans Affairs [VA] scope of practice, others). One-third of all respondents reported practicing within a VA hospital with the next largest group practicing at an academic medical center (19.1%). A greater number of inpatient BCPPs reported that a significant number (30% or more) of their patients had serious and persistent mental illness (SPMI) compared with outpatient BCPPs (93.5% versus 66.3%, respectively, $p \leq .001$). The majority of BCPPs reported general adult psychiatry as their primary clinical practice population and working in a city (defined as 50 000±people).

Nearly two-thirds (62.7%) of inpatient BCPPs reported working at a small (fewer than 200 beds) primary clinical site (Table 4); the typical number of beds assigned per day was significantly more for large (200 or more beds) sites than for small sites ($p = .003$). There was no significant difference, however, in the ideal number of beds assigned per day for those who reported working at large sites. Over a third of respondents practicing in the inpatient setting reported verifying 1 to 49 orders per day, whereas the same

TABLE 3: Practice characteristics

	Total (n = 173) n (%)	Inpatient (n = 93) n (%)	Outpatient (n = 80) n (%)	*P* Value[a]
Region of primary clinical practice				.765
West	46 (26.6)	23 (24.7)	23 (28.8)	
Midwest	50 (28.9)	28 (30.1)	22 (27.5)	
South	42 (24.3)	21 (22.6)	21 (26.3)	
North	35 (20.2)	21 (22.6)	14 (17.5)	
Prescriptive authority (eg, CPA, VA scope of practice, others)	99 (57.2)	28 (30.1)	71 (88.8)	<.001
Primary setting of clinical practice				<.001[c]
Academic medical center	33 (19.1)	26 (28.0)	7 (8.8)	
Behavioral health clinic	14 (8.1)	1 (1.08)	13 (16.3)	
Community hospital	22 (12.7)	22 (23.7)	0	
Correctional facility	2 (1.2)	2 (2.15)	0	
Government hospital – state	24 (13.9)	24 (25.8)	0	
Government hospital – VA	54 (31.2)	13 (14.0)	41 (51.2)	
Government – other	3 (1.73)	0	3 (3.8)	
Home health/hospice/LTC	1 (0.57)	0	1 (1.3)	
Managed care	3 (1.73)	0	3 (3.8)	
Pharmaceutical industry	1 (0.57)	1 (1.08)	0	
Primary care clinic	9 (5.20)	0	9 (11.3)	
Other and other nongovernment[b]	7 (4.05)	4 (4.30)	3 (3.75)	
Population for primary clinical practice				<.001[d]
Child and adolescent psychiatry	10 (5.78)	9 (9.68)	1 (1.25)	
Forensic psychiatry	14 (8.09)	13 (14.0)	1 (1.25)	
General adult psychiatry	121 (69.9)	64 (68.8)	57 (71.3)	
Geriatric psychiatry	5 (2.89)	1 (1.08)	4 (5.00)	
Reproductive psychiatry	0	0	0	
Substance use disorder psychiatry	12 (6.94)	3 (3.23)	9 (11.3)	
Other	11 (6.36)	3 (3.23)	8 (10.0)	
Conditions for a significant number (30% or more) of patients				
Serious and persistent mental illness	140 (80.9)	87 (93.5)	53 (66.3)	<.001
Multiple psychiatric diagnoses	161 (93.1)	88 (94.6)	73 (91.3)	.550
Medical comorbidities	152 (87.9)	83 (89.2)	69 (86.3)	.643
Polypharmacy	146 (84.4)	79 (84.9)	67 (83.8)	.837
None of the above	2 (1.2)	1 (1.10)	1 (1.30)	1.00
Location of primary practice				.066
City (50000+ people)	140 (80.9)	75 (80.6)	65 (81.3)	
Town (2500 to 49999 people)	25 (14.4)	16 (17.2)	9 (11.3)	
Rural area (>10% work in a town/city)	7 (4.05)	1 (1.08)	6 (7.50)	
Highly rural area (<10% work in a town or city	0	0	0	
No response	1 (0.57)	1 (1.08)	0	

CPA = collaborative practice agreement; VA = Veterans Affairs; LTC = long-term care.
[a]Comparisons were conducted between inpatient and outpatient pharmacists.
[b]Other: Acute inpatient rehabilitation, community psychiatric hospital, hospital-affiliated outpatient clinic, nonprofit psychiatric facility, private practice, remote.
[c]Significant post hoc differences between inpatient and outpatient respondents for practice setting were found for academic medical center, behavioral health clinic, community hospital, government hospital, government hospital VA, and primary care clinic for which p-value ≤ 0.002 was considered significant.
[d]Significant post hoc difference between inpatient and outpatient respondents for population for primary clinical practice was found for forensic psychiatry for which p-value ≤ 0.004 was considered significant.

number of pharmacists did not verify any orders per day. About 98% of outpatient BCPPs reported participating in comprehensive medication management as a significant responsibility of their position, followed by precepting trainees (67.5%) and consultation and drug information requests (62.5%).

A greater number of outpatient BCPPs reported that electronic health record documentation contributed to a significant portion of their workflow compared with inpatient pharmacists (96.2% versus 71.9%, respectively, $p \leq .001$) (Table 4). Refill requests were typically delegated to other team members among inpatient BCPPs (78.9%), whereas order verification/medication dispensing was typically delegated by outpatient BCPPs (92.6%). There were no significant differences in the number of trainees supervised between inpatient and outpatient BCPPs although inpatient BCPPs reported supervising more pharmacy students and other health care (nonpharmacist) trainees compared with outpatient BCPPs.

TABLE 4: Workload characteristics for inpatient and outpatient Board-Certified Psychiatric Pharmacists

	n (%)
Inpatient (n = 93)	
Total number of beds at hospital of primary clinical site	
Less than 50	13 (14.0)
50-99	18 (19.4)
100-199	27 (29.0)
200-299	11 (11.8)
300-399	14 (15.1)
≥400	10 (10.8)
Number of orders verified per day	
0 (not applicable)	33 (35.5)
1-49	36 (38.7)
50-100	15 (16.1)
Over 100	9 (9.7)
Participate in treatment rounds as part of clinical responsibilities	
Yes	85 (91.4)
No	8 (8.6)
Activities that contribute to significant portion of workflow	
Electronic health record documentation	64 (71.9)
Prior authorizations/appeals	20 (24.7)
Scheduling/rescheduling patients	6 (8.0)
Reporting requirements from payers and regulatory bodies	5 (6.3)
Medication reconciliation	65 (72.2)
Refill requests	16 (21.1)
Order verification/medication dispensing	49 (55.7)
Outpatient (n = 80)	
Activities that represent significant responsibilities for position (all that apply)[a]	
Comprehensive medication management	78 (97.5)
Vaccine/injection administration	4 (5.00)
Medication education groups	10 (12.5)
Precepting trainees	54 (67.5)
Research/investigational drug activities	6 (7.5)
Educating trainees or health care professionals in formal setting	30 (37.5)
Refill assistance/prior authorization/access	23 (28.8)
Consultation or drug information requests	50 (62.5)
Activities that contribute to significant portion of workflow	
Electronic health record documentation	76 (96.2)
Prior authorizations/appeals	21 (28.8)
Scheduling/rescheduling patients	24 (30.4)
Reporting requirements from payers and regulatory bodies	6 (8.6)
Medication reconciliation	63 (84.0)
Refill requests	41 (53.9)
Order verification/medication dispensing	5 (7.4)

[a]Percentage may exceed 100% as respondents could have selected more than one option.

Inpatient and outpatient BCPPs reported different working conditions. Approximately 75% of inpatient BCPPs reported working onsite, whereas only a third of the outpatient BCPPs reported working onsite versus remotely ($p \leq .001$). Fewer outpatient BCPPs reported having on-call duties than inpatient BCPPs (11.3% and 31.2%, respectively, $p = .001$). There were no significant differences in unscheduled hours worked on weekends between inpatient and outpatient BCPPs (30.1% and 31.3%, respectively, $p = .870$). More inpatient BCPPs reported being scheduled to work on the weekends (26.9%) compared with outpatient BCPPs (3.80%, $p \leq .001$).

Inpatient BCPPs reported spending an average of 15.4 (±12.2) hours on direct patient care and consults during a typical workweek compared with outpatient BCPPs (25.4 ± 15.1, $p \leq .001$) (Table 5). Mean hours spent on dispensing and order verification were higher for inpatient BCPPs compared with outpatient BCPPs (5.67 ± 9.93 versus 0.656 ± 2.90, respectively, $p \leq .001$). There were 36% of inpatient BCPPs who reported not verifying any orders. The number of physicians and advanced practice providers for 1 FTE BCPP was not significantly different between inpatient and outpatient BCPPs; however, there was a significantly greater number of nonprovider support staff reported by inpatient BCPPs ($p \leq .001$).

Discussion

This is the first report of estimated typical and ideal workload of inpatient and outpatient BCPPs in the United States along with their practice characteristics and clinical activities. In the current study, inpatient BCPPs reported that their ideal number of patients assigned per day should be lower than their typical number of patients assigned per day. A recent publication by Martello et al recommended a pharmacist-to-patient ratio of 1 FTE to 30 patients for inpatient mental health pharmacists, which is lower than the ratio of 1 FTE to 36 patients found in this study.[5] The study by Martello et al provides valuable information about the pharmacist-to-patient ratio for inpatient psychiatric pharmacists and may provide stronger evidence in favor of a lower ratio.[5]

There is very little published evidence describing the ideal and typical workloads among pharmacists. The difference in ideal and typical workload for inpatient pharmacists was highlighted in a previous survey among critical care pharmacists, which found that the most common pharmacist-to-patient ratio was 1:16 to 20 (27%) followed by 1:>30 (25%).[15] That study also reported that ratios of 1:<10 and 1:10 to 15 optimized patient safety. Based on that information, the ideal pharmacist-to-patient ratio may be lower in the critical care population versus psychiatry, which could be attributed to differences in clinical responsibilities between critical care and BCPPs. Although most respondents in both this survey and the critical care pharmacist survey attended rounds (90.8% of BCPPs and 97% of critical care pharmacists) and verified orders (63.3% of BCPPs and 65% of critical care pharmacists),[15] psychiatric and critical care patient populations and treatments differ in many ways. For example, critical care pharmacists may spend more time responding to medical

TABLE 5: Activities of Board-Certified Psychiatric Pharmacists

	Total (n = 173) Mean (SD, Range)	Inpatient (n = 93) Mean (SD, Range)	Outpatient (n = 80) Mean (SD, Range)	*P* Value
During a typical workweek, number of hours spent on the following activities:				
Direct patient care and consults	20.0 (14.4, 0-80)	15.4 (12.2, 0-70)	25.4 (15.1, 2-80)	<.001
TOC/DC planning/ medication history	3.52 (4.86, 0-30)	4.77 (4.74, 0-25)	2.04 (4.59, 0-30)	<.001
Precepting trainees	6.41 (6.66, 0-40)	7.62 (6.37, 0-35)	5.00 (6.76, 0-40)	.009
Didactic teaching in classroom	1.54 (3.30, 0-25)	1.79 (3.14, 0-20)	1.25 (3.47, 0-25)	.289
Education	2.51 (3.76, 0-25)	2.84 (3.73, 0-25)	2.14 (3.79, 0-25)	.223
Dispensing and order verification	3.35 (7.93, 0-75)	5.67 (9.93, 0-75)	0.656 (2.90, 0-20)	<.001
Administrative	7.53 (8.92, 0-50)	5.96 (8.54, 0-50)	9.35 (9.06, 0-40)	.012
Research/scholarship	1.88 (3.52, 0-24)	1.77 (2.47, 0-10)	2.00 (4.46, 0-24)	.688
Other	0.635 (2.98, 0-30)	0.72 (3.57, 0-30)	0.538 (2.13, 0-24)	.691
Total	47.4 (17.4, 32-120)	46.5 (16.4, 32-100)	48.4 (18.5, 37.5-120)	.485
Number of clinical consultations provided per week				
Informal (<15 minutes)	9.73 (6.82, 0-25)	12.1 (6.62, 2-25)	6.96 (5.97, 0-25)	<.001
Informal (>15 minutes)	4.44 (4.30, 0-25)	5.26 (4.34, 0-20)	3.49 (4.07, 0-25)	.007
Formal (<15 minutes)	3.35 (4.73, 0-25)	3.68 (5.07, 0-25)	2.98 (4.30, 0-25)	.331
Formal (>15 minutes)	4.09 (5.40, 0-25)	3.90 (5.34, 0-25)	4.31 (5.50, 0-25)	.621
Number of physicians and advanced practice providers per FTE pharmacist	9.04 (10.5, 0-50)	8.68 (10.7, 1-50)	9.46 (10.3, 0-50)	.625[a]
Number of nonprovider support staff [b]	19.8 (15.5, 0-50)	26.0 (15.0, 0-50)	12.6 (12.9, 0-50)	<.001[a]

FTE = full-time equivalent; DC = discharge; SD = standard deviation; TOC = transition of care.
[a]Equality of variance for nonnormally distributed data were checked using the Levene test.
[b]Nurses, social workers, pharmacy technicians, psychologists, or behavioral health technicians who provide direct patient care.

emergencies such as cardiac or respiratory arrests and completing pharmacokinetic consultations and antibiotic dosing, whereas BCPPs often conduct patient assessments and tend to spend more time providing medication counseling and education. The differences among pharmacy specialties highlight why each specialty needs an individualized pharmacist-to-patient ratio for optimal patient outcomes.

Outpatient BCPPs reported that their ideal number of patient encounters for an 8-hour workday was 10, which is slightly higher than the typical number of 9 patient encounters. In the recent publication by Martello et al, the ambulatory care pharmacist-to-patient ratio was 1 FTE to 3600 patients (or approximately 13 patients per day).[5] However, this ratio recommendation was for ambulatory care pharmacists and did not specify specialty areas. Specialty areas are important as an ambulatory care visit for a BCPP may be more extensive compared with an anticoagulation clinic visit due to the greater complexity and/or acuity of the psychiatric patient population. Additionally, some BCPPs with prescriptive authority may be responsible for managing nonpsychiatric disease states in addition to psychiatric diagnoses.[1,16] These factors may contribute to the ideal number of patient encounters being lower in this study compared with the recently recommended practice ratio.

Compared with outpatient BCPPs, inpatient BCPPs may be able to manage more patients in a day for various reasons, including spending less time on documentation and activities requiring prescriptive authority, and having more nonprovider support staff that increase efficiency. Whereas inpatient BCPPs manage more patients with SPMI, the higher level of care may translate to caring for the same patients each day, which may lead to efficiency gains.[7]

As previously mentioned by Dopheide et al, the BCPP credential signifies skill in collaborating with interprofessional teams as it allows other professions to understand the value of having BCPP expertise on their team.[1] On average, there is 1 BCPP for about 9 physicians and/or advanced practice providers. The pharmacist-to-provider practice ratio is similar across inpatient and outpatient practice settings. BCPPs can serve as collaborative care providers, particularly in the outpatient setting. Overall, in the current study, 57.2% of respondents reported having prescriptive authority. However, more BCPPs in the outpatient setting (88.8%) practice under prescriptive authority compared with inpatient settings (30.1%). This rate was similar but has increased compared with a 2019 survey describing the current practice of psychiatric pharmacists.[16] Overall, 46% of respondents practiced under a prescriptive authority with rates of 70% of outpatient BCPPs and 22% of inpatient BCPPs. This may be due to BCPPs being utilized more frequently as collaborative care providers or may be due to the 2019 survey being open to non-BCPP pharmacists.[16]

There are several limitations to this study. First, there were no respondents practicing in transition-of-care, so the typical

and ideal workload in this setting remains unknown. Only including active AAPP members may have affected the survey response rate. It is unclear whether the results of this study can be applied to pharmacists practicing in a psychiatric setting who are not board-certified in psychiatric pharmacy. Included participants of this study must have been members of AAPP for at least 5 years, which excludes new practicing pharmacists and may skew results. BCPPs providing direct patient care are included in this study; however, some respondents practice in both direct and nondirect patient care roles. Those who practice in both direct and nondirect patient care may have a limited bandwidth for a patient panel as compared with pharmacists who mainly provide direct patient care. This may have affected ideal versus typical patient ratios. Additionally, these ratios represent the opinions of the respondents and have not been validated with patient outcomes. Last, this ideal workload is not appropriate for all facilities as local conditions affect optimal pharmacist-to-patient ratios.

This is the first study that attempted to quantify BCPPs' typical and ideal workload in different practice settings. As expected, the typical and ideal workloads for inpatient BCPPs were higher compared to outpatient BCPPs. Future research is needed to identify specific patient and practice characteristics that determine ideal workloads for pharmacists. As institutions optimize pharmacist workload, additional areas of research could focus on the impact of pharmacist well-being on clinical and patient outcomes.

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