Research in Social and Administrative Pharmacy 16 (2020) 522–528

Contents lists available at ScienceDirect

Research in Social and Administrative Pharmacy

journal homepage: www.elsevier.com/locate/rsap

A retrospective analysis of patient care activities in a community pharmacy mental illness and addictions program

Lauren Haslam[a], David M. Gardner[b], Andrea Lynn Murphy[c,*]

[a] Dalhousie Medical School, Dalhousie University, Halifax, Nova Scotia, PO Box 15000, B3H 4R2, Canada
[b] Department of Psychiatry, Dalhousie University, QEII HSC, AJLB 7517, 5909 Veterans' Memorial Lane, Halifax, Nova Scotia, B3H 2E2, Canada
[c] College of Pharmacy, Dalhousie University, 5968 College St., PO Box 15000, Halifax, Nova Scotia, B3H 4R2, Canada

ARTICLE INFO

Keywords:
Pharmacists
Mental disorders
Addiction medicine
Professional-patient relations
Mental health services

ABSTRACT

Background: The Bloom Program, a community pharmacy-based mental health and addictions care program, was developed and implemented to optimize pharmacists' care of eligible patients. Characterizing pharmacists' activities in the Bloom Program can facilitate program quality improvement and contribute more broadly to the knowledge base regarding pharmacists' roles and contributions to patient care.
Objectives: To characterize the patient care activities of the pharmacists in the Bloom Program.
Methods: A retrospective analysis of patient charts for participants enrolled in the program for three months or longer was conducted. Using all available documentation, pharmacists' activities were coded into eight non-mutually exclusive categories: navigation/resource support, urgent triage, medication management, collaboration/communication, education, social support, self-care, and other.
Results: 2055 activities from 1144 patient care encounters were identified for 126 participants (48 ± 16 years of age, 61% female, 5 regular medications). Medication management was coded most often per encounter (73%). Each of social support, collaboration/communication, and education were coded in 20–25% of encounters. Frequency of navigation/resources, self-care, and urgent triage were 16.6%, 13.5%, and 2.8%, respectively. Non-medication management activities represented 59.4% of all pharmacist patient care services.
Conclusions: Medication management activities were coded in over 70% of patient encounters for pharmacists delivering a community pharmacy-based mental illness and addictions program. However, this accounted for 40.6% of activities with an average of 1.8 activities per encounter. Other activities were identified frequently (e.g., education, collaboration, social support, navigation and resource support) and help to characterize the nature of pharmacist-patient encounters and facilitates a better understanding of the role of the pharmacist in mental illness and addictions patient care.

Introduction

Capacity building across the health system is needed to improve the timely access to care and support of people living with mental health and addictions problems.[1,2] An important component of any capacity building strategy is to optimize and utilize the full scope of all health care professionals in the care and support of this patient group thereby improving the responsiveness of the health system for all individuals.[3–5] Pharmacists are health care professionals with increasingly recognized roles, responsibilities, and contributions to the health care of people living with mental health and addictions problems.

Pharmacists' main role in the care of people living with mental health and addictions problems has traditionally focused on medication management activities (e.g., medication selection and dosing, management of adverse effects, adherence, safe switching, and deprescribing). This includes using traditional services (e.g., medication reviews and education) to support pharmacotherapy optimization.[6–9] However, other roles of pharmacists represent an opportunity to improve access to mental health and addictions services and supports.[10] In 2015, the International Pharmaceutical Federation (FIP) released a comprehensive international review of mental health focused programs and services provided by community pharmacists and identified the following roles for pharmacists as within their scope of practice: health promotion; triage; early detection; optimizing medication-related treatment outcomes through detecting and addressing medication needs and problems, follow-up assessment of effectiveness and safety, and adherence support; education related to health and medications; collaborative patient care; policy development; and research.[10] The

* Corresponding author.
E-mail addresses: lr276354@dal.ca (L. Haslam), david.gardner@dal.ca (D.M. Gardner), andrea.murphy@dal.ca (A.L. Murphy).

https://doi.org/10.1016/j.sapharm.2019.07.003
Received 15 February 2019; Received in revised form 4 July 2019; Accepted 5 July 2019

roles that complement and extend beyond medication management, including navigation and resource support, screening, self-care promotion, and general support, have been increasingly recognized and investigated.[8,11–19]

Ease of access to pharmacists by patients, via in-person or telephone encounters, is highly valued.[20–23] Levesque et al.[24] defined access as the opportunity to have healthcare needs fulfilled. Its five dimensions include: approachability, acceptability, availability and accommodation, affordability, and appropriateness.[24] Community pharmacists can leverage their knowledge and training, location, capacity for direct patient care, and trust from the public in enhancing overall patient access through these dimensions.

The Bloom Program (https://bloomprogram.ca), also known more formally as the Mental Health and Addictions Community Pharmacy Partnership Program of Nova Scotia, was developed and implemented in Nova Scotia, a Canadian province of 923,598 people.[25] The Bloom Program was designed to enhance community pharmacists' capabilities, opportunities, and motivations in caring for people with lived experience of mental illness with or without substance use disorders.[11] Patients with one or more self-identified mental illnesses who present with one or more medication-related issues are eligible to enroll in the program at participating community pharmacies. Upon enrollment, a comprehensive patient assessment is completed by the pharmacist in a private consultation room in which health and medication issues are identified and prioritized. Over the following six months, pharmacists work closely with enrolled patients and their health team to address these and new or evolving health and medication issues before being discharged from the program. A preliminary analysis of Bloom Program data indicated that just over half of the patient care activities provided by pharmacists were outside of the traditional medication manager role.[11] The purpose of this study was to fully elucidate and enumerate the patient care activities of pharmacists in the Bloom program utilizing all pharmacist documentation of episodes of care.

Methods

Design

This was a retrospective analysis of prospectively collected community pharmacy chart data of patient participants of the Bloom Program. Anonymized chart data were collected for individuals that participated in the program from September 2014 to December 2016.

Participants

Twenty-three pharmacies participated in the demonstration project. Bloom Program participants met two criteria for enrollment into the Bloom Program: 1) one or more mental illnesses with or without a substance use disorder; and 2) one or more medication-related issues (unsatisfactory effectiveness, adverse effects, non-adherence, inappropriate polytherapy, and treatment withdrawal). For more details see Murphy et al., 2018.[11] Eligible for this analysis were data from participants enrolled for 90 days or longer with documentation of at least one follow-up encounter.

Pharmacist training

To become a Bloom Program pharmacy, a nominated lead Bloom Program pharmacist from a community pharmacy was required to complete a nine-step application process. The application process included, but was not limited to, activities such as community outreach (i.e., developing linkages and working with community mental health organizations, conducting an environmental scan of local mental health and addiction organization and supports in their community), creating an in-pharmacy mental health and addictions resource library, and preparing for and attending a live, face-to-face education and training day. The education and training day was structured to include information regarding operationalizing the Bloom Program in the pharmacy, which included a section on documentation. The day also included simulated patient cases that were acted, debriefed, and discussed. Present throughout the training day were people with lived experience of mental illness and addictions to ensure that first-voice perspectives were represented and heard. Following the education and training, pharmacists were then required to provide program-related training to pharmacy staff at their respective pharmacies in a train-the-trainer model.

Data sources

Bloom Program pharmacists documented the following upon enrollment and baseline assessment for each patient: demographics, personal supports and health team members, diagnoses, current and past medications and substance use, health behaviors, and health problems, priorities, and plans. Pharmacists were expected to record each patient encounter and collaboration with other health team members in the patient's Bloom Program chart using structured progress notes and communication forms. The progress notes form included three sections: 1) patient encounter information (who, where, how, date); 2) a checklist of activities involved; and 3) progress note. The pre-specified checklist of activities for pharmacists to use per direct patient encounter included the following categories: navigation/resource support; urgent triage; medication management; collaboration/communications with other team members; patient/family education; and other. The recommended structure for each written progress note included data (subjective, objective information), assessment, and plan. While the use of the program's progress notes form and documentation structure were strongly encouraged, pharmacists periodically used other documentation forms and inserted them into patients' charts. Charts also included a structured discharge form with a final assessment of outcomes as reported by the patient.

Each pharmacy in the Bloom Program provided anonymized copies of charts to the research team for each enrolled patient. Data from charts were compiled and transcribed into an Excel database. The database and anonymized copies of the paper charts were used together to evaluate and classify the patient care activities provided by pharmacists.

Coding of data

Activities originally identified by pharmacists using the checklist on the program's structured progress notes form were directly transposed to the database. The only exception was activities originally identified as "other", which were not included. Then, all written chart notes (i.e., structured progress notes using the program's form, unstructured progress notes not using the program's form, notes to health providers, discharge notes) were assessed for the purpose of identifying and coding pharmacists' patient care activities per encounter. In so doing, all patient care instances were re-assessed. Based on the pharmacist's documentation of the encounter, activities were added, as appropriate, when not originally included by the pharmacist on the progress note checklist.

Pharmacists were originally provided with discrete definitions of each activity category on the progress note's checklist in the Bloom Program's procedural manual. To establish the coding and related processes for this study, definitions of pharmacists' patient care activities were re-examined via a collective review and discussion of definitions and descriptions used by others.[10,26–41] No existing set of activity definitions or categories suited the purpose of this research. As such, definitions were refined and generated iteratively based on a collective and structured review of patient charts and review of the literature.[10,26–41] The following iterative process was established *a priori* to finalize the coding categories and their definitions: i)

collectively (LH, DMG, ALM) review and code all documented encounters available in ten randomly selected patient charts; ii) update the coding definitions and categories based on this collective review; iii) repeat steps i and ii two more times such that 30 charts were reviewed collectively to further update and ultimately finalize the coding definitions. Two new categories (i.e., self-care and social support) were identified through this process and added to the pharmacist activities coding categories resulting in a total of eight possible categories for which to code each patient care encounter. Following this scheme, all encounters from the remaining 96 charts were coded by one researcher (LH). These were coded after being read and re-read to ascertain the meaning of the documentation and the activities included. Activities that were considered ambiguous (n = 40) were reviewed collectively by all three researchers and the coding of the activity was reached through consensus. The final coding therefore included the pharmacists' original coding of each encounter and the reassessment of the activities that were documented by the research team based on available chart notes. The "other" category was only used when the documented activity did not fit any of the seven specific activity categories or when documentation details were inadequate for coding.

Researcher positionality

All authors engaged in finalizing the coding categories for the pharmacists' documentation have undergraduate pharmacy degrees. Two (AM, DG) have graduate degrees with 45 years collectively of clinical and academic experience in mental illness and addictions and work as health services and health outcomes researchers using mixed methods approaches. The lead author, at the time of writing, was in medical school.

Analyses

Data were analyzed using descriptive statistics, including proportions, means, standard deviations, medians, and interquartile ranges (IQR).

Ethical and privacy reviews

Supported by the Mental Health and Addictions Strategy of the Province of Nova Scotia,[1] the Bloom Program demonstration project proposal was sent to the Ethics Review Board of Dalhousie University, Halifax, Nova Scotia. The proposal was deemed to be program evaluation and ethics review was waived. The Bloom Program was subject to provincial privacy legislation. A privacy assessment process was completed and approved with the government.

Results

There were 126 patients enrolled in the Bloom program for three months or longer with at least one follow-up visit (Table 1). Patients averaged 48.2 years of age and 61.1% were female. The leading diagnoses included anxiety, depressive, and sleep-wake disorders. There was a wide range of other disorders recorded less frequently. The average number of current medications per patient was 5.1, 1.9 of which were psychotropics.

Coding of pharmacist and patient activities

In total, there were 1144 encounters documented in which one or more patient care activities were provided by the pharmacist (Table 2) (mean 9.1 encounters/patient, median 7.5, IQR 6-11). Pharmacists originally recorded 1009 activities using the checklist boxes on the progress notes form, 886 in the original five categories and 123 classified as "other". There were 281 written encounters using the structured progress notes form in which the pharmacists had not completed the activity checklist. The independent assessment of pharmacists' activities when using all written documentation per patient chart added 1169 newly coded activities, including 56 categorized as "other". Together, pharmacists and the research team identified 2055 patient care activities in association with the 1144 encounters (mean 1.8, median 2, IQR 1-2).

Table 1
Characteristics of patients (n = 126) in the Bloom Program for ≥3 months.

Characteristic		
Mean age (years, SD)	48.2	15.9
Gender (n, % female)	77	61.1
Marital status (n, %)		
Married/common law	54	42.9
Single	31	40.5
Separated/divorced	13	10.3
Unspecified	8	6.3
Education (n, %)		
College/university or higher	46	36.5
High school graduate	22	17.5
High school not completed	17	13.5
Unspecified	41	32.5
Employment (n, %)		
Employed	46	36.5
Unemployed	59	46.8
Attending school	8	6.3
Unspecified	13	10.3
Average number of medications (n)		5.1
Average number of psychotropics (n)		1.9
Patients on ≥2 psychotropic medications (n, %)	82	65.0
Psychiatric diagnoses (n, %)		
Psychosis	8	6.3
Bipolar	16	12.7
Depressive disorders	75	59.5
Anxiety disorders	85	67.5
Obsessive compulsive disorders	13	10.3
Trauma and stress related disorders	24	19.0
Feeding and eating disorders	5	4.0
Sleep-wake disorders	43	34.1
Personality disorder	7	5.6
Neurodevelopmental disorders	11	8.7
Disruptive, impulse control, & conduct disorders	4	3.2
Substance-related and addictive disorders	22	17.5

We identified seven specific categories of activities that encompassed the patient care services that pharmacists provided to patients in the Bloom Program (Table 2). Medication management was coded in 72.9% of encounters and comprised 40.6% of the total activities coded. Each of collaboration/communications, patient/family education, and social support occurred in every four to five encounters. Navigation/resource support and self-care guidance were services pharmacists provided with every six to eight patient encounters (Table 3). Patient assessment and triage to more urgent care was documented in 32 (2.8%) encounters.

Discussion

This study characterizes the longitudinal care provided by community pharmacists to patients with lived experience of mental illness and addictions in the Bloom Program. Expectedly, medication management activities were a central component of most interactions with Bloom patients and with health care professionals in the patient's circle of care. Medication management interventions by pharmacists for those with mental illness and addictions have been shown to improve patient outcomes related to adherence, adverse reactions and toxicities, and optimize treatment through regimen changes (e.g., dose adjustments, switches).[9] In this study, the focus on medication management activities aligns directly with the scope of practice of the pharmacist, the expectations of patients, and the inclusion criteria for the Bloom Program that require patients to have at least one medication-related issue.

Our findings reveal that patient care activities provided by

Table 2
Follow-up patient care activities of Bloom Program pharmacists.

Activity	Pharmacist coded	Researcher coded	Total coded activities	Proportion of total activities (%)	Proportion of encounters (%)
Medication management	469	365	834	40.6	72.9
Collaboration/communications	113	175	288	14.0	25.1
Patient/family education	149	103	252	12.3	22.0
Social support*	n/a	248	248	12.1	21.7
Navigation/resource support	126	64	190	9.2	16.6
Self-care*	n/a	155	155	7.5	13.5
Urgent triage	27	5	32	1.6	2.8
Other	123	56	56	2.7	4.9
Totals	1009	1169	2055	100	

*Social support and self-care were new categories not available to pharmacists using the progress notes form.

pharmacists to patients in the Bloom Program consistently include non-medication management components. In this longitudinal patient care program, just over one in four encounters (27.1%) involved patient care services provided by pharmacists that were not inclusive of medication management. The average encounter involved nearly two patient care activities, approximately 60% of which were services other than medication management. These activities are less well recognized by the public, other health providers, and health service planners and decision makers who often have limited awareness or expectations of the patient care services provided by pharmacists.[42–47] There is also limited research on pharmacists' patient care activities outside of medication management to draw upon and mapping of practice patterns and activities currently remains largely linked to medication management duties.[48–50] Time and number of visits are important variables for pharmacists given their limited time and flexibility in daily routines.[51,52] As previously reported,[11] Bloom pharmacists spent a median of 142 min with a mean of 176 (SD 128) min per patient with a median follow-up encounter duration of 15 min. Individual pharmacists and pharmacies chose how to schedule (e.g., appointment-based, on-demand care) their Bloom patient interactions. However, understanding their other practice patterns and activities in patient care is important for informing health service decision makers and public and private pharmacist service planners. Pharmacists in the Bloom Program provided care to patients through social support, patient and family education, collaboration/communication, navigation and resource support, and self-care guidance. This is important to recognize and to explore in future research as improvements within the mental healthcare system will require leveraging scopes and capabilities of all health care providers as a mechanism to improve timely access to appropriate care.

Collaboration and communications were frequently coded in encounters by pharmacists. As reported by Kelly et al.,[53] collaboration with pharmacists and physicians is valued by both disciplines with a desire for more collaboration towards facilitating better patient health outcomes. Physicians have also reported that enhanced collaboration with pharmacists may be especially beneficial for those patients with chronic diseases.[54] This aligns well with the results in the Bloom Program in which patients desire more collaboration between their pharmacist and other health professionals regarding their mental health and addictions care.[23]

Trials of physician-pharmacist collaboration for chronic diseases, including hypertension,[49,50,55–57] metabolic syndrome,[58] diabetes,[59] opioid dependence,[60] asthma,[61] and for patients with multiple chronic conditions,[62] have demonstrated the benefits of a more structured and efficient collaboration. However, directly applying the findings of these studies of interprofessional collaboration to the kind of collaboration identified in the Bloom Program may not be appropriate. Most collaborative model studies use co-location as part of their model structure in which pharmacists are working within a physician's practice, multidisciplinary clinic, or health centre setting. In the Bloom Program, pharmacists are located within community pharmacies that are typically not directly adjacent to prescribers or other health providers. Further work is needed to explicate the advantages and disadvantages of different models of mental health care involving pharmacists.[63]

Another important result from this study is that pharmacists engaged in urgent triage to care. This was coded in 2.8% of encounters. In the definition of urgent triage, the patient needed referral to emergent or same-day care. Chapman et al. defined triage as, "The provision of advice about how best to manage health issues – whether with a medical product or device or with non-drug measures, whether to seek assistance from a doctor or other health professional, and with what sense of urgency…."[32] Combining our results for urgent triage and navigation and resource support (20%) would mirror the findings of Chapman et al. in their more general definition of triage. Curley et al. concluded that pharmacists are often accurate in triaging when identifying presenting conditions, especially when guidelines and protocols are used.[64] Research in depression screening has also shown that pharmacists can successfully use screening tools (e.g., PHQ 2, PHQ 9) following training to identify and triage those requiring more urgent assistance for mental illness related crises.[65–67] Community pharmacists have also been involved in "identification and ongoing management of women at risk for perinatal depression" based on the findings of Elkholdr et al.[12] Fuller et al.[8] also found pharmacists are capable of screening, counseling, providing follow-up, and referring appropriately to physicians for people with insomnia. They also showed positive results on patients' smoking status, caffeine intake, alcohol intake, and sleep environment.[8] In a recent study on pharmacists' experiences with patients presenting with suicidal thoughts, plans, and attempts, pharmacists engaged in a variety of triaging activities and worked with a range of health care professionals and others (e.g., clergy, law enforcement) to address suicide risk.[68] Other public health promotion and wellness areas for triaging and referral have also been explored generally and from an addictions' perspective (e.g., alcohol screening, tobacco reduction).[69,70] Stakeholders, including members of the public, may be supportive of pharmacists' screening programs and triage activities and these programs have the potential for improving timely access to care.[14,69] For patients who experience these services from pharmacists, they are typically satisfied and value the service.[70] Based on our results and the existing literature, a coherent analysis of pharmacists' roles in screening and triage for mental illness and addictions is warranted to determine how to best integrate pharmacists' roles in these areas in the mental health system.

There are several differences between this analysis and our original report on pharmacists' patient care activities in the Bloom Program.[11] The most notable difference was the identification of two new categories – social support and self-care – that were identified from pharmacists' patient progress notes and other chart notes and were not included in the original pre-specified activity checklist. Together, they represent 20% of all pharmacist patient care follow-up activities, which accounts in large part for the decrease in activities categorized as "other" (2.7% vs. 12.3%). Pharmacists provided these activities once in

Table 3
Definitions and examples for each category of activity.

Term and definition	Examples
Medication Management Medication management included documentation of routine dispensing of medications (refills, monitoring, follow-up) and/or evidence of discussion with patient or physician regarding the development, modification, or application of a pharmacotherapy management plan.[31]	1. "Not taking anything right now. Mirtazapine caused nightmares + sertraline caused tremors in past. Doesn't want to feel more tired. Will try citalopram again since he didn't want to try antipsychotic and he didn't give citalopram long enough to work. If ineffective or not tolerated refer to psychiatrist (made note to Dr.) Monitor sexual side effects." 2. "Patient ran out of citalopram & could not see her family Dr. in time. Provided her with a CCP for citalopram until she could see her physician for new prescription."
Collaboration/communications with other team members The pharmacist worked jointly, via direct or written communications, with other health care providers on the patient's behalf to address health and medication problems or in response to requests by the patient.	1. "D (data): Updated [doctor] on positive results of changing to Cymbalta® and no longer requiring mirtazapine. [Doctor] happy with results but expressed concern that mirtazapine may be required again (nightmares/vivid dreams seem to be a recurring issue for [patient]). A (assessment): Continue our collaboration and monitor sleep/mood changes as time goes on. P (plan): As above; continue to monitor. [Pharmacist] left voicemail." 2. "Attention: [Psychiatrist]. [Patient] tried Abilify® 1 mg for 10 days and discontinued because she was experiencing return of hypomanic feelings. She saw [Family doctor] in [town] who started Risperdal® 0.25 mg at bedtime for 2 weeks with a plan to increase to 0.5 mg thereafter. I will keep you posted on her progress/successes/failures every two weeks starting when I meet with her next."
Patient/family education The pharmacist shared and reviewed information with the patient and/or family related to pharmacological and non-pharmacological topics. Often done in support of informed decision making.	1. "1) Reviewed options for CBT and group therapy with patients: [Program] in mental health and [town] group/individual therapy. 2) Provided 2 books: anxiety and phobia workbook and living with mental illness. 3) Gave website for smoothie recipes to help increase fruit and vegetable intake. 4) Reviewed options for anxiety/depression, antidepressants, and sweating." 2. "Researched and prepared handout reviewing therapy options for PTSD, pain, and insomnia for patient."
Social support Evidence of providing the patient with general, non-specific psychosocial support typically in the context of conversations regarding relationships, employment, finances, and perceptions of self.	1. "[Patient name] was concerned about stress at work as she is still learning, but responsibilities have gone up and her mentor is away for 2 weeks. We discussed coping strategies and her adaptability and how well and easily she has learned on the job so far." 2. "We have filled out the discharge papers. Although she would like to continue the Bloom program (wishes it was longer). She feels she is okay with a discharge. She knows that she can still contact me anytime."
Navigation and resource support: Navigation included non-urgent referral to physicians and other professionals and directing the patient to community resources and support groups. Resource support involved providing or directing the patient to a print, audio, or web-based resource for independent review by the patient.	1. "Trouble sleeping at night. Gave her the Sink Into Sleep CBTi book last visit. She hasn't had a chance to read it all yet but will try it after the holidays... Advised patient to make an appointment with the doctor to discuss this further. She may require a referral to a neurologist for such a diagnosis…Printed off lab values (normal) for patient to pick up at next appointment." 2. "Patient says that her medication has significantly helped her over the holidays and she found the holidays quite tough due to a family situation but her venlafaxine got her through it despite the added stressors. Her [relative] requires a lot of financial assistance and is struggling with addiction. I recommended the [organization] and [organization] and the food bank. Also offered to speak with [relative] if [relative] would be open to it."
Self-care Discuss, promote, or support patient self-care activities for preventing or managing health problems (e.g., stress management, exercise, diet, sleep, alcohol or tobacco use).	1. "D [data]: No physical activity, overweight and concerned about weight, does not eat 3 meals per day. Has 4 XL coffees daily with 2 creams and sugar. Also drinks [carbonated soft drink] daily if in house. A [assessment]: Sedentary lifestyle, poor diet. P [plan]: Provided calendar to mark days she eats 3 meals a day. Suggested healthy choices, increased activity (2 flights of stairs, 1 loop at track or 5 min on treadmill)." 2. "Patient depressed, discussed what motivates her, patient unsure. Spoke about love for dogs and discussed ways to keep them healthy and how to love them. She stated exercise importance, as well as herself for both depression and CV disease. Decided she would walk each dog 2 x this week around the block for about 1 km. Also promised she would eat 3 meals per day. Patient seems happy to have plan and said it complemented her family doctor."
Urgent triage: The pharmacist assessed the patient and referred them to emergent or same-day care, or facilitated contact with a mental health crisis service.	1. "Today [patient name] and I met because she has been experiencing increased suicidal thoughts…Gave her a crisis hotline #, reassured her that her thoughts can be attributed to her condition and are temporary and if she is ever considering taking action to seek help - she's not alone. Provided her with resource on understanding suicidal thinking ... Will follow up." 2. "Called [patient] to discuss yesterday. He had an argument with his parents and is packing to leave. Wants to use [substance]. I suggested Mental Health Mobile Crisis Unit …"
Other There was insufficient information to characterize the interaction or the nature of the interaction did not fit with any of the available categories.	1. "[Patient name] brought in his mom for me to meet." 2. "Spoke to [patient] to book appointment. Knee surgery planned for [month]. Will be away for recovery. [Patient] will contact me when she returns."

CBT: cognitive behavioural therapy; CBTi: cognitive behavioural therapy for insomnia; CCP: continuing care prescription; CV: cardiovascular disease; PTSD: post-traumatic stress disorder; XL: extra-large.

every 4 and 8 patient encounters, respectively. These findings align with our previous research and the findings of others as well as our tacit knowledge regarding the general support and health promotion guidance routinely offered by community pharmacists.[10,11,23,46,68,71,72]

Limitations

Documentation was incomplete for some patient encounters. Through Bloom Program review sessions and interviews with Bloom Program pharmacists (data not shown), pharmacists reported that not

all patient encounters were recorded and for those that were, not all activities were fully elucidated consistently. Some progress notes were also ambiguous. Consequently, not all patient care activities provided by pharmacists are included in this analysis if they were not recorded adequately. An in depth, free-text analysis was also not conducted with an aim to create further sub-categories as documentation style was not prescriptive and strictly standardized *a priori* to capture this information in the data. As a result, for example, medication management represents a broad term and was not further subcategorized (e.g., adverse events, adherence, etc.). There were no statistical analyses conducted to determine if there were differences in activities of pharmacists based on the characteristics of patients (e.g., those with serious mental illness, comorbid substance use, etc.) or other factors (e.g., length of time in the program). The documentation was not sufficiently detailed for this and pharmacists' documentation styles were varied. Additionally, the categories and definitions created through this research have not been independently tested or validated.

The outcomes of the patient care activities performed by pharmacists were not recorded in this analysis and only the frequency of each type of activity is reported. However, overall outcome data from the Bloom Program indicates that the majority of patients achieved their desired goals of therapy and were satisfied with their participation in the program.[11]

Conclusions

Pharmacists working with patients in a community pharmacy-based mental illness and addictions program most often reported engaging in medication management activities with patients. However, encounters with patients included an average of 1.8 activities per encounter with other activities identified frequently (e.g., education, collaboration, social support, navigation and resource support). Other research has shown that patients are often highly satisfied with pharmacists' services and value both pharmacological and non-pharmacological interventions, including health promotion programs, triage, and referral services. This research longitudinally characterizing pharmacist-patient encounters allows for a more comprehensive understanding of the role of the pharmacist in mental illness and addictions patient care.

Funding sources

The Bloom Program demonstration project was funded by the Nova Scotia Department of Health and Wellness, Mental Health and Addictions Strategy. Mrs. Haslam was supported by the Research in Medicine program at Dalhousie University.

Acknowledgements

We would like to acknowledge the members of the Bloom Program Steering Committee and the Bloom Program Evaluation Sub-committee. Thank you to all the Nova Scotia pharmacists who participated in the Bloom Program and to the patients who joined the program.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.sapharm.2019.07.003.

References

1. Together We Can: The Plan to Improve Mental Health and Addictions Care for Nova Scotians. Nova Scotia, Department of Health and Wellness. https://novascotia.ca/dhw/mental-health/mental-health-addiction-strategy.asp ; Accessed 18.08.2018.
2. World Health Organization. *Mental Health Action Plan 2013-2020.* Geneva, Switzerland: World Health Organization; 2013https://www.who.int/mental_health/publications/action_plan/en/.
3. Institute of Medicine (US). *Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders.* 2006; 2006https://www.ncbi.nlm.nih.gov/books/NBK19822/, Accessed date: 20 November 2018.
4. Kilbourne AM, Beck K, Spaeth-Rublee B, et al. Measuring and improving the quality of mental health care: a global perspective. *World Psychiatr.* 2018;17:30–38.
5. Knickman J, Krishnan R, Pincus H. Improving access to effective care for people with mental health and substance use disorders. *JAMA.* 2016;316:1647–1648.
6. Rubio-Valera M, Chen TF, O'Reilly CL. New roles for pharmacists in community mental health care: a narrative review. *Int J Environ Res Public Health.* 2014;11:10967–10990.
7. McMillan SS, Kelly F, Hattingh HL, et al. The impact of a person-centred community pharmacy mental health medication support service on consumer outcomes. *J Ment Health.* 2018;27:164–173.
8. Fuller JM, Wong KK, Krass I, et al. Sleep disorders screening, sleep health awareness, and patient follow-up by community pharmacists in Australia. *Patient Educ Couns.* 2011;83:325–335.
9. Rubio-Valera M, Serrano-Blanco A, Magdalena-Belio J, et al. Effectiveness of pharmacist care in the improvement of adherence to antidepressants: a systematic review and meta-analysis. *Ann Pharmacother.* 2011;45:39–48.
10. *International Pharmaceutical Federation (FIP): Focus on Mental Health: The Contribution of the Pharmacist. The Hague.* The International Pharmaceutical Federation; 2015https://fip.org/files/Focus_on_mental_health_-final.pdf, Accessed date: 18 August 2018.
11. Murphy AL, Gardner DM, Jacobs LM. Patient care activities by community pharmacists in a capitation funding model mental health and addictions program. *BMC Psychiatry.* 2018;18:192.
12. Elkhodr S, Saba M, O'Reilly C, et al. The role of community pharmacists in the identification and ongoing management of women at risk for perinatal depression: a qualitative study. *Int J Soc Psychiatry.* 2018;64:37–48.
13. Agomo CO. The role of community pharmacists in public health: a scoping review of the literature. *J Pharm Health Serv Res.* 2012;3:25–33.
14. Brown TJ, Todd A, O'Malley C, et al. Community pharmacy-delivered interventions for public health priorities: a systematic review of interventions for alcohol reduction, smoking cessation and weight management, including meta-analysis for smoking cessation. *BMJ Open.* 2016;6:e009828.
15. Scott DM, Strand M, Undem T, et al. Assessment of pharmacists' delivery of public health services in rural and urban areas in Iowa and North Dakota. *Pharm Pract.* 2016;14:836.
16. Mey A, Knox K, Kelly F, et al. Trust and safe spaces: mental health consumers' and carers' relationships with community pharmacy staff. *The Patient.* 2013;6:281–289.
17. Bungay KM, Adler DA, Rogers WH, et al. Description of a clinical pharmacist intervention administered to primary care patients with depression. *Gen Hosp Psychiatry.* 2004;26:210–218.
18. Criswell TJ, Weber CA, Xu Y, et al. Effect of self-efficacy and social support on adherence to antihypertensive drugs. *Pharmacotherapy.* 2019;30:432–441.
19. Johnson VR, Jacobson KL, Gazmararian JA, et al. Does social support help limited-literacy patients with medication adherence? A mixed methods study of patients in the Pharmacy Intervention for Limited Literacy (PILL) study. *Patient Educ Couns.* 2010;79:14–24.
20. Bissell P, Anderson C, Bacon L, et al. Supplying emergency contraception via community pharmacies in the UK: reflections on the experiences of users and providers. *Soc Sci Med.* 2003;57:2367–2378.
21. Anderson C, Thornley T. "It's easier in pharmacy": why some patients prefer to pay for flu jabs rather than use the National Health Service. *BMC Health Serv Res.* 2014;14:35.
22. Lindsey L, Husband A, Steed L, et al. Helpful advice and hidden expertize: pharmacy users' experiences of community pharmacy accessibility. *J Public Health.* 2017;39:609–615.
23. Murphy A, Gardner D, Jacobs L. The patient experience in a community pharmacy mental illness and addictions program. In press. *Can Pharm J.* 2019;152(3):186–192.
24. Levesque JF, Harris MF, Russell G. Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *Int J Equity Health.* 2013;12:18.
25. Statistics Canada. *Nova Scotia [Province] and Canada [Country] (Table).* Census Profile; 2016 (Census).
26. Broeckaert L, Challacombe L. *Health Navigation: A Review of the Evidence.* 2014; 2014https://www.hrhresourcecenter.org/node/6015.html, Accessed date: 22 October 2018.
27. Hensher M, Price M, Adomakoh S. Referral hospitals. In: Jamison DT, Breman JG, Measham AR, eds. *Disease Control Priorities in Developing Countries. Washington, DC.* New York: International Bank for Reconstruction and Development/The World Bank Oxford University Press, Co-published by Oxford University Press; 2006.
28. Curran V, Ungar T, Pauzé E. *Strengthening Collaboration through Interprofessional Education: A Resource for Collaborative Mental Health Care Educators. Mississauga, ON, Canadian Collaborative Mental Health Initiative.* 2006; 2006http://www.shared-care.ca/files/EN_Strengtheningcollaborationthroughinterprofessionaleducation.pdf, Accessed date: 20 November 2018.
29. Gagné MA. *What Is Collaborative Mental Health Care? an Introduction to the Collaborative Mental Health Care Framework. Mississauga, ON, Canadian Collaborative Mental Health Initiative.* 2005; 2005http://www.shared-care.ca/files/02-Framework-EN.pdf, Accessed date: 20 November 2018.
30. Canadian Pharmacists Association. *Medication Management. Ottawa, ON.* 2018; 2018https://www.pharmacists.ca/education-practice-resources/professional-development/medication-management/, Accessed date: 20 November 2018.
31. *Patient-Centered Primary Care Collaborative: The Patient-Centered Medical Home: Integrating Comprehensive Medication Management to Optimize Patient Outcomes Resource Guide.* American College of Clinical Pharmacy; 2012.

32. Chapman C, Marriott J, van den Bosch D: The Nature, Extent and Impact of Triage provided by Community Pharmacy in Victoria. The Pharmacy Guild of Australia & the Australian Government, Department of Health and Ageing. http://6cpa.com.au/wp-content/uploads/The-Nature-Extent-and-Impact-of-Triage-Provided-By-Community-Pharmacy-in-Victoria-Full-Final-Report-.pdf ; Accessed 22.10.2018.
33. American Pharmacists Association. Medication therapy management in pharmacy practice core elements of an MTM service model (version 2.0). *J Am Pharm Assoc.* 2008;48:341–353.
34. Nature.com: Patient Education. https://www.nature.com/subjects/patient-education, Accessed date: 7 August 2018.
35. World Health Organization. *The Role of the Pharmacist in Self-Care and Self-Medication.* Department of Essential Drugs and Other Medicines World Health Organization; 1998http://apps.who.int/medicinedocs/en/d/Jwhozip32e/, Accessed date: 22 September 2018.
36. Bhuyan KK. Health promotion through self-care and community participation: elements of a proposed programme in the developing countries. *BMC Public Health.* 2004;4:11.
37. Leavy RL. Social support and psychological disorder: a review. *J Community Psychol.* 1983;11:3–21.
38. Moullin JC, Sabater-Hernandez D, Fernandez-Llimos F, et al. Defining professional pharmacy services in community pharmacy. *Res Social Adm Pharm.* 2013;9:989–995.
39. Association of Faculties of Pharmacy of Canada. AFPC Educational Outcomes for First Professional Degree Programs in Pharmacy in Canada 2017. www.afpc.info/content/2017-educational-outcomes, Accessed date: 22 September 2018.
40. Kong SX, Wertheimer AI. Social support: concepts, theories, and implications for pharmacy research. *J Pharm Mark Manage.* 1994;9:63–90.
41. Joseph M. *Patient Navigation Guidelines: Cancer Screening. Diagnosis and Treatment.* Maryland: Primary Care Coalition of Montgomery County; 2012.
42. Hindi AMK, Schafheutle EI, Jacobs S. Patient and public perspectives of community pharmacies in the United Kingdom: a systematic review. *Health Expect.* 2018;21:409–428.
43. Wilbur K, Beniles A, Hammuda A. Physician perceptions of pharmacist roles in a primary care setting in Qatar. *Glob Health.* 2012;8:12.
44. Tarn DM, Paterniti DA, Wenger NS, et al. Older patient, physician and pharmacist perspectives about community pharmacists' roles. *Int J Pharm Pract.* 2012;20:285–293.
45. Donald M, King-Shier K, Tsuyuki RT, et al. Patient, family physician and community pharmacist perspectives on expanded pharmacy scope of practice: a qualitative study. *CMAJ Open.* 2017;5:e205–212.
46. Murphy AL, Martin-Misener R, Kutcher SP, et al. From personal crisis care to convenience shopping: an interpretive description of the experiences of people with mental illness and addictions in community pharmacies. *BMC Health Serv Res.* 2016;16:569.
47. Black E, Murphy AL, Gardner DM. Community pharmacist services for people with mental illnesses: preferences, satisfaction, and stigma. *Psychiatr Serv.* 2009;60:1123–1127.
48. van de Pol JM, Geljon JG, Belitser SV, et al. Pharmacy in transition: a work sampling study of community pharmacists using smartphone technology. *Res Social Adm Pharm.* 2019;15:70–76.
49. Isetts BJ, Buffington DE, Carter BL, et al. Evaluation of pharmacists' work in a physician-pharmacist collaborative model for the management of hypertension. *Pharmacotherapy.* 2016;36:374–384.
50. Gums TH, Uribe L, Vander Weg MW, et al. Pharmacist intervention for blood pressure control: medication intensification and adherence. *J Am Soc Hypertens.* 2015;9:569–578.
51. Latif A, Boardman H. Community pharmacists' attitudes towards medicines use reviews and factors affecting the numbers performed. *Pharm World Sci.* 2008;30:536–543.
52. Ensing HT, Koster ES, Sontoredjo TAA, et al. Pharmacists' barriers and facilitators on implementing a post-discharge home visit. *Res Social Adm Pharm.* 2017;13:811–821.
53. Kelly DV, Bishop L, Young S, et al. Pharmacist and physician views on collaborative practice: findings from the community pharmaceutical care project. *Can Pharm J (Ott).* 2013;146:218–226.
54. Cote L, Normandeau M, Maheux B, et al. Collaboration between family physicians and community pharmacists: opinions of graduates in family medicine. *Can Fam Physician.* 2013;59:e413–e420.
55. Hirsch JD, Steers N, Adler DS, et al. Primary care-based, pharmacist-physician collaborative medication-therapy management of hypertension: a randomized, pragmatic trial. *Clin Ther.* 2014;36:1244–1254.
56. Borenstein JE, Graber G, Saltiel E, et al. Physician-pharmacist comanagement of hypertension: a randomized, comparative trial. *Pharmacotherapy.* 2003;23:209–216.
57. Smith SM, Carris NW, Dietrich E, et al. Physician-pharmacist collaboration versus usual care for treatment-resistant hypertension. *J Am Soc Hypertens.* 2016;10:307–317.
58. Hammad EA, Yasein N, Tahaineh L, et al. A randomized controlled trial to assess pharmacist- physician collaborative practice in the management of metabolic syndrome in a university medical clinic in Jordan. *J Manag Care Pharm.* 2011;17:295–303.
59. Morello CM, Christopher ML, Ortega L, et al. Clinical outcomes associated with a collaborative pharmacist-endocrinologist diabetes intense medical management "Tune Up" clinic in complex patients. *Ann Pharmacother.* 2016;50:8–16.
60. DiPaula BA, Menachery E. Physician-pharmacist collaborative care model for buprenorphine-maintained opioid-dependent patients. *J Am Pharm Assoc.* 2015;55:187–192.
61. Gums TH, Carter BL, Milavetz G, et al. Physician-pharmacist collaborative management of asthma in primary care. *Pharmacotherapy.* 2014;34:1033–1042.
62. Matzke GR, Moczygemba LR, Williams KJ, et al. Impact of a pharmacist-physician collaborative care model on patient outcomes and health services utilization. *Am J Health Syst Pharm.* 2018;75:1039–1047.
63. Finley PR, Rens HR, Pont JT, et al. Impact of a collaborative pharmacy practice model on the treatment of depression in primary care. *Am J Health Syst Pharm.* 2002;59:1518–1526.
64. Curley LE, Moody J, Gobarani R, et al. Is there potential for the future provision of triage services in community pharmacy? *J Pharm Policy Pract.* 2016;9:29.
65. Hare SK, Kraenow K. Depression screenings: developing a model for use in a community pharmacy. *J Am Pharm Assoc.* 2008;48:46–51.
66. O'Reilly CL, Wong E, Chen TF. A feasibility study of community pharmacists performing depression screening services. *Res Social Adm Pharm.* 2015;11:364–381.
67. Rosser S, Frede S, Conrad WF, et al. Development, implementation, and evaluation of a pharmacist-conducted screening program for depression. *J Am Pharm Assoc.* 2013;53:22–29.
68. Murphy AL, Ataya R, Himmelman D, et al. Community pharmacists' experiences and people at risk of suicide in Canada and Australia: a thematic analysis. *Soc Psychiatr Psychiatr Epidemiol.* 2018;53:1173–1184.
69. Krska J, Mackridge AJ. Involving the public and other stakeholders in development and evaluation of a community pharmacy alcohol screening and brief advice service. *Publ Health.* 2014;128:309–316.
70. Eades CE, Ferguson JS, O'Carroll RE. Public health in community pharmacy: a systematic review of pharmacist and consumer views. *BMC Public Health.* 2011;11:582.
71. Murphy AL, Phelan H, Haslam S, Martin-Misener R, Kutcher S, Gardner DM. Community pharmacists' experiences in mental illness and addictions care: a qualitative study. *Subst Abuse Treat Prev Pol.* 2016;11:6. https://doi.org/10.1186/s13011-016-0050-9.
72. Murphy AL, Gardner DM. A simulated patient evaluation of pharmacist's performance in a men's mental health program. *BMC Res Notes.* 2018;11:765.