

Impact of a pharmacist-led migraine group appointment program

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Abstract

Background: Migraine is a common and debilitating neurological disorder. While healthcare provider-led group appointments have been shown to support treatment management for a variety of medical conditions, this is the first study to describe pharmacist-led group appointments for people with migraine.

Methods: Adults with any migraine diagnosis were eligible to participate and recruited through posters and e-mail newsletters. Group appointments were facilitated by a clinical pharmacist in-person or virtually and included three sessions spanning three months. Topics covered included general migraine education, non-pharmacologic management, medications for acute and preventative treatment, and natural health products. Surveys were deployed to assess migraine attack frequency and severity and participant experience at baseline, program conclusion, and three months post-program completion. Results were analysed using quantitative and qualitative methods.

Results: Twelve participants enrolled in migraine group appointments. Upon program completion, 75% of participants felt they were better able to self-manage migraine. While migraine frequency and severity and days of missed work were numerically lower post-program completion, outcomes were not statistically significant. Participants reported high-satisfaction overall with pharmacist-led group appointments and ascribed benefits to both the education provided and support from peers with shared lived experiences.

Conclusion: Pharmacist-led group appointments were highly valued by people living with migraine and hold promise for reducing disease burden. Additional studies are required to further characterize impact on clinically relevant outcomes such as migraine attack frequency.

Keywords: migraine, pharmacist, group appointments, group medical visits, group education

Introduction

Migraine is a multifactorial neurological disorder characterized by recurrent episodes of moderate to severe headache.¹ These headaches are most commonly unilateral in presentation and frequently accompanied by associated symptoms, including nausea, photophobia, and phonophobia.¹ An estimated 2.7 million Canadians live with migraine, representing 8.3% of the population.² Migraine is recognized as a major cause of disability and is associated with reduced quality of life and productivity, increased absenteeism from school and work, and increased healthcare costs.² Approximately one-quarter of people with migraine report activities of daily living are negatively impacted by migraine pain and three-quarters experience reduced sleep quality.² While pharmacotherapy remains the cornerstone of treatment, in isolation it may be insufficient to effectively manage migraine and its associated sequelae.³

Group appointments, also termed group medical visits, involve multiple patients with a shared health condition receiving care as a group from a healthcare provider.⁴ These sessions often involve both education and opportunities for participants to interact with the healthcare provider and each other in a supportive environment. Group appointments provided by healthcare professionals have been shown to improve patient knowledge and confidence in managing chronic medical conditions.⁵ Research indicates participants' sense of self-efficacy is increased and loneliness associated with processing and handling their condition is reduced through sharing progress and discussing practical aspects of chronic disease management.^{6,7} Improvement in surrogate endpoints in a variety of chronic medical conditions have been observed and are often sustained beyond program completion.⁶⁻⁸

Group appointments led by healthcare professionals focusing on migraine education have been shown to improve clinical outcomes and a reduction in both clinic visits for acute headache treatment and mean Migraine Disability Assessment (MIDAS) scores.^{9,10} Participants had increased preventive medication adherence and reported the education sessions to be of value.^{8,9} To our knowledge, there has not yet been an evaluation of pharmacist-led migraine group appointments. Given the role medications play in migraine treatment, the increased risk of medication overuse headache due to tendency to self-medicate with over-the-counter analgesics,

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and increasing interest in natural health products for migraine, pharmacists are uniquely positioned to support this patient population. We sought to pilot a pharmacist-led group appointment model aimed at optimizing migraine management by empowering and equipping people with migraine to self-manage their condition.

Methods

Study recruitment occurred between September 2019 and June 2020 where adults with migraine were invited to participate in a pharmacist-led migraine group appointment. This study was advertised through physical posters displayed on the University of British Columbia (UBC) campus and e-newsletters to UBC staff, faculty and community members residing on UBC campus. We included individuals aged 18 years or older with a migraine diagnosis. We offered participation to all eligible participants on a first come, first served basis with a group size limit of 10. We aimed to have complete data at all time points from 10 participants; assuming 30% attrition rate, we estimated that 15 participants should be enrolled. Each group appointment program was comprised of 3 sessions. Group appointments were facilitated by a clinical pharmacist and held either in-person or virtually through the UBC Pharmacists Clinic. The clinic, housed within the UBC Faculty of Pharmaceutical Sciences, is a pharmacist-led patient care service that provides comprehensive medication management to patients with complex needs. Patients may self-refer or be referred by other healthcare providers and are typically followed longitudinally. While the clinic's standard model of care is one-on-one consultation, group appointments were piloted as an innovative approach to expand access and evaluate the potential benefits of care delivered in a shared format. Virtual sessions were conducted using the Zoom platform (Zoom Video Communications, San Jose, CA, USA).

Originally, all sessions were planned to be delivered in-person; however, the COVID-19 global pandemic necessitated shifting to virtual delivery to meet provincial health regulations. Our program was therefore delivered via two modalities: in-person (prior to the COVID-19 pandemic) and virtual (during the COVID-19 pandemic). In-person sessions were 90 minutes each while virtual sessions were 60 minutes each. Extra time was allotted for in-person sessions to allow for wayfinding and pre- and post-session survey completion. The first session was designated as month 0, the second session a month later as month 1, and the final session, held three months after the first session, as month 3. Each group appointment was designed to combine pharmacist-led education with interactive, participant centered discussion. Sessions followed a consistent structure: an introductory activity to build rapport and set the tone, a focused educational component addressing key migraine management topics and a concluding segment with reflection, take-home messages and goal setting (Table 1). Throughout, participants were encouraged to share personal experiences, reflect on migraine management

strategies and engage with each other in a supportive, non-judgmental environment. Group discussions and reflection questions were incorporated to promote active participation and peer-to-peer learning. Pharmacists facilitated dialogue to ensure that clinical information was accurate and tailored, while also fostering an environment where patients share their experiences openly. Educational handouts summarizing content and resources were provided to reinforce learning and support ongoing self-management between sessions.

Participants completed surveys to assess migraine frequency and severity at baseline prior to the first meeting (month 0), the beginning of the last meeting (month 3), and at follow-up three months after the program had ended (month 6). Surveys were developed by the research team with input from clinical pharmacist colleagues experienced in treating migraine. The survey included a MIDAS score and assessed healthcare service utilization due to migraine, understanding of and adherence to medications, and attitude and self-competence in migraine management. Additionally, at the end of each group appointment, participants completed a survey describing their perceptions of the group appointment and assessed their level of satisfaction with the program content and structure. The in-person group was provided with paper-based surveys during in-person meetings and an online survey at month 6. The virtual group was provided with online surveys at all time points. Online surveys were administered through the UBC Survey Tool hosted on Qualtrics (Qualtrics International Inc, Seattle, WA, USA). This study was approved by the UBC Behavioural Research Ethics Board (H19-00760).

Data analysis

Categorical data was summarized using counts and proportions. Paired t-tests were used to evaluate the impact of group appointments on MIDAS scores and specifically migraine frequency and severity at the three time points compared to baseline. Survey questions were independent from one another; therefore, we included participants with partial data. We performed all data analysis using Stata V. 15 (StataCorp, College Station, TX, USA) and significance was set to $\alpha = 0.05$. Qualitative data was abstracted from open-ended questions and NVivo 12 (QSR International) was used to conduct a thematic analysis of keywords. Analysis procedure consisted of initial open coding to capture main concept, focused coding, in which codes were shortened and condensed and selective coding for a final list of themes and categories.

Results

Twelve participants were enrolled in migraine group appointments: Five and seven participants comprised the in-person and virtual cohorts, respectively. Participants were all working adults living on or within close proximity to the UBC campus (metropolitan Vancouver). We found that mean number of headache days per month was reduced by three days from 10.62 (SD 8.77) headache days per month at

baseline to 7.62 (SD 6.55) and 7.73 (SD 7.78) days at the end of the group appointments and at the 3-month follow-up, respectively. Participants reported decreased migraine attack severity at the end of group appointments with or without medications (Table 2). At the end of the group appointments, 75% (9/12) of our cohort felt they were better able to self-manage migraine [80.0% (4/5) of the in-person group and 71.4% (5/7) of the virtual group] (Table 3). Throughout the course of this program fewer participants made headache-related telephone calls to their treating physician or experienced unscheduled visits for acute treatment (Table 3). Reported adherence to acute or preventive therapies across the study was mixed with no overall significant positive or negative effects noted. In both cohorts, more participants reported improvement in perceived efficacy of migraine medications at the end of the group appointments and at follow-up compared to baseline (Table 3). No outcomes evaluated reached statistical significance.

Our surveys also included three open-ended questions, which resulted in 52 responses (40 about learning experience and 12 about virtual session experience). Three key themes were identified. The first was gaining knowledge on migraine management. Participants reported gaining valuable knowledge on migraine management, particularly in relation to medications, migraine pathophysiology, and triggers. One participant shared, "I had very little knowledge of migraines beforehand, so the information provided was useful in helping me to understand what is happening." Participants also appreciated learning about overlooked aspects of migraine, such as postdrome symptoms, with one commenting, "This made me feel better about my symptoms as I feel they are recognized and validated." The second theme was providing and receiving emotional support. The group format fostered connection and validation. One participant reflected, "I learned that there are other people who suffer from migraines and that made me feel less isolated and alone." Another highlighted, "The hosts allowed lots of time for people to ask questions if they wanted, and I felt comfortable sharing my experiences." Several expressed a desire for more opportunities like this. The third theme identified included sharing feedback on delivery modality. Most participants felt the sessions were well structured and effective, with one noting: "It was well structured and the feedback from all was appreciated." Virtual delivery was valued for its convenience, though some noted drawbacks, such as "Ironically, using the computer gave me a headache (I have sensitivities to light and sound)."

Discussion

Compared with baseline values, both in-person and virtual cohorts showed a decrease in migraine frequency and severity at the end of the group appointments and at follow-up. Although not statistically significant, participants reported a reduction in the number of headache days per month as well as a reduction in migraine severity regardless of whether they

were currently taking migraine medication. Participants from both cohorts expressed positive feedback regarding the group appointments, feeling more confident in migraine management as well as feeling supported by the pharmacist facilitator and other participants.

While this is the first pilot study to assess the feasibility of pharmacist-led group appointments for migraine management, our results suggest improvement in migraine outcomes and treatment satisfaction, comparable to those reported in group appointment models led by physicians or multidisciplinary teams for other chronic conditions.^{10–13} In-person pharmacist-led group appointments for the management of type 2 diabetes mellitus, hypertension and associated cardiovascular disease have previously been reported in the literature. Pharmacist-led group appointments have been demonstrated to be both sustainable and effective in improving clinical outcomes, particularly in achieving glycemic control, lowering cardiovascular risk, enhancing blood pressure management and ensuring appropriate prescribing for associated conditions.^{14–16} These interventions have also proven to be cost-effective, contributing to a reduction in overall healthcare costs.¹⁷

This pilot study is unique as two delivery modes of group appointment were utilized, in person and virtual. While both cohorts reported a reduction in migraine frequency and severity compared with baseline values, the virtual cohort showed greater improvement. This could be a result of differences between groups at baseline with virtual group participants reporting more headache days per month and therefore may have been more likely to see improvement.

Our results also highlight the potential that lies in virtual group appointment programs. Recent studies have suggested that virtual group appointments are an effective approach for managing chronic health conditions.^{18,19} Offering online group appointments provides an opportunity to reach populations that have limited access to healthcare resources, such as rural and remote communities.²⁰ A recent randomized trial assessed the feasibility of virtual appointments with specialists on migraine care compared with in-person appointments. While the authors reported similar improvement in clinical parameters in both groups, the virtual group reported higher convenience and showed shorter visit time, which increased clinician productivity.²¹ They supported the use of video-based medical appointments with specialists for the treatment of severe migraine, suggesting it as a feasible and effective treatment alternative to in-person visits for follow-up care.²¹ The results of our study suggest that the success of individual virtual appointments can be extended effectively to provide care at a group level. It is important to note that while the virtual cohort showed improvement in migraine parameters, the virtual modality of delivery and screen exposure could itself act as a trigger for some people with migraine. Patients may encounter additional barriers to participating such as

technological challenges, privacy and security concerns, and difficulty reading body language and expressing emotions.²² These should be acknowledged and addressed by healthcare providers who are considering providing virtual group appointments.

A benefit of group appointments also lies in the ability to increase access to care by increasing healthcare provider productivity and efficiency without increasing hours of clinical work.⁴ Our group appointments allowed the clinical pharmacist to effectively provide education and clinical support for up to seven participants per appointment. Previous studies suggest that patients with complex medical and social needs will benefit most from group medical appointments, yet our study also saw benefits in mild and moderate migraine cases.⁵ Both in-person and virtual appointments have the potential to foster relationships and trust between healthcare providers and patients.^{23,24}

To our knowledge, this is the first study to characterize and evaluate the feasibility of a pharmacist-led group appointment in migraine care. Strengths of this study include a long follow-up time, high response rate, and comprehensive quantitative and qualitative analysis. Our study has several limitations. The validity of our results, as well as our ability to achieve statistically significant differences among endpoints was limited due to small sample size. Participant demographic characteristics were not collected as this pilot program was designed to trial feasibility of this program in a real-world practice setting. This makes generalization of the results and applicability to different populations challenging. Additionally, all participants were recruited from advertisements within a university campus community, which may indicate a higher education level and socio-economic status and limit generalizability to other patient groups. By including all participants who wished to enroll, regardless of health literacy or clinical condition, the extent of the benefit achievable from such a program may have been limited. Individuals who self-enrol in group appointments may inherently be more engaged and self-sufficient in managing migraine and motivated to see improvement, which may have led to selection bias. Regardless, this program generated rich dialogue amongst participants and the opportunity to learn about their peers' lived experiences. Despite these limitations, our study adds to the growing body of literature characterizing pharmacist-led group care.

Further large-scale research is needed to further expand on the potential benefits of the group appointment approach on migraine care. Future studies should assess the demographics of participants who will most benefit from group appointments, as well as the optimal length of group appointment and necessary follow-up to sustain a positive effect. Future research should also consider offering group appointments for different migraine subtypes to tailor content and group discussions.

Conclusion

Our study demonstrated that migraine group appointments provided by clinical pharmacists either in-person or virtually were well received and helped to build a sense of community among migraine patients. Pharmacist-led group appointments hold promise for reducing migraine frequency and severity and providing a network of support for patients. Future studies with a larger sample size are required to further determine impact on clinical outcomes.

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Conflicts of Interest: None

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Table 1. Content overview and structure of pharmacist-led migraine group appointments

	Month 0	Month 1	Month 3
Session outline	Introduction to migraine causes and triggers, lifestyle and non-pharmacologic treatment options, introduction to headache diary, goal setting	Medications for migraine, medication overuse headache, natural health products	Review, open discussion, goal setting
Major topics	<ul style="list-style-type: none"> - Headache types - Migraine diagnosis - Trigger identification and management - Headache diaries - Acute treatment alternatives (use, benefit, side effects, contraindications) <ul style="list-style-type: none"> o Simple analgesics (acetaminophen, non-steroidal anti-inflammatory drugs) o Triptans o Opioids - Preventive treatment (use, benefit, side effects, contraindications) <ul style="list-style-type: none"> o Beta-blockers o Tricyclic antidepressants o Anticonvulsants o OnabotulinumtoxinA o Anti-CGRP agents - Natural health products (use, dosing, side effects, contraindications) <ul style="list-style-type: none"> o Riboflavin (Vitamin B12) o Magnesium citrate o Co-enzyme Q10 o Butterbur - Supportive treatment for nausea and vomiting: 		

Abbreviations: CGRP: calcitonin gene-related peptide

Table 2. Migraine frequency and intensity at baseline, 3 months, and 6 months

	Total (n=12)					In-person (n=5)					Virtual (n=7)				
	M0	M3	95% CI, P	M6	95% CI, P	M0	M3	95% CI, P	M6	95% CI, P	M0	M3	95% CI, P	M6	95% CI, P
MHD (SD)	10.6 2 (8.7 7)	7.62 (6.5 5)	- 2.0713 4 to 8.0758 8, 0.265	7.73 (7.7 8)	-5.071 to 10.99 1, 0.448	6.58 (5.5 4)	6.18 (5.8 7)	- 0.78 6 to 1.59 6, 0.39 9	6.46, (6.5 3)	- 1.54 4 to 1.78 4, 0.85 1	14.0 0 (9.6 5)	8.83 (6.8 8)	-5.38 to 15.7 1, 0.26 3	9.00 (8.8 8)	-8.44 to 20.04 , 0.375
HA intensity on medication (Scale of 1 to 10)	4.37 (1.7 2)	3.83 (1.8 5)	-0.836 to 1.920, 0.405	3.73 (1.4 9)	-1.349 to 2.531, 0.513	4.70 (0.8 4)	5.20 (1.3 0)	- 1.57 5 to 0.57 5, 0.26 6	4.00 (1.8 7)	- 0.79 5 to 2.19 5, 0.26 3	4.14 (2.1 9)	2.86 (1.5 7)	- 1.09 to 3.66, 0.23 2	3.50 (1.2 2)	-3.03 to 1.69, 0.655 6
HA intensity without medication (Scale of 1 to 10)	8.08 (1.4 9)	7.54 (1.1 6)	-0.467 to 1.550, 0.262	7.64 (1.5 7)	- 1.147 to 1.693, 0.678	8.40 (0.4 2)	7.90 (1.0 2)	- 0.37 8 to 1.37 8, 0.18 9	8.20 (0.8 4)	- 0.50 8 to 0.90 8, 0.47 6	7.86 (1.5 7)	7.29 (1.2 5)	-1.34 to 2.49 0.49 2	7.10 (1.9 4)	-1.92 to 2.92, 0.543 3

Abbreviations: HA: headache; MHD: monthly headache days; M0: baseline, M3: end of group appointment; M6: follow up; SD: Standard deviation

Table 3. Healthcare services utilization, medication adherence, and migraine management

	Total (n=12)			In person (n=5)			Virtual (n=7)		
	M0	M3	M6	M0	M3	M6	M0	M3	M6
Made any headache-related telephone calls to treating provider or any unscheduled visits to any facility for treatment of an acute headache, N (%)	8 (66.67%)	4 (33.33%)	3 (27.27%)	2 (40%)	1 (20%)	0 (0%)	6 (85.7%)	3 (42.85%)	3 (50%)*
Felt that this group-educational session helped them better manage migraine, N (%)	10 (83.33%)	9 (75%)	10 (90.90%)	4 (80%)	4 (80%)	4 (80%)	6 (85.7%)	5 (71.4%)	6 (100%)*
Adherence to acute medications prescribed, N (%)	9 (75%)	9 (81.81)*	8 (72.72%)	4 (80%)	4 (100%)*	3 (60%)	5 (71.4%)	5 (71.4%)	5 (83.33%)*
Adherence to preventive medications prescribed, N (%)	6 (50%)	6 (66.67%)*	6 (54.54%)	3 (60%)	1 (50%)*	0 (0%)	3 (42.8%)	5 (71.4%)	6 (100%)*
Felt that the medications being prescribed to treat migraine are effective	3 (25%)	7 (63.63%)	8 (72.72%)	3 (60%)	4 (100%)*	4 (100%)*	0 (0%)	3 (42.85)	4 (66.67%)*

N: number, *percentage out of participants answered; M0: baseline, M3: end of group appointment M6: follow up