

Exploring the Feasibility and Acceptability of Telehealth Qi Gong Shared Medical Appointments: A Novel Approach to Expand Access

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Abstract

Background: Research on Qi Gong (QG) supports promising health benefits. Both interest and use of QG in U.S. adults has increased over the past decade. Shared Medical Appointments (SMAs) are a novel, cost-effective, and time efficient health care delivery approach associated with patient and clinician satisfaction.

Objectives: A telehealth delivered QG SMA was pilot tested among a diverse demographic population within an integrative medicine practice at an academic medical center to assess feasibility and acceptability.

Methods: This was a feasibility/acceptability pilot study conducted at a large New York City academic medical center's Integrative Health and Wellness center from January to July 2023. A QG instructor-acupuncturist and an integrative medicine physician-acupuncturist co-led 3 separate series (5 Element QG, Eight-Section Brocade, and Joint-Mobilizing/Sinew Strengthening exercises) of weekly 30-45-minute sessions of QG SMA on a weekday afternoon via telemedicine. The first session included an overview of QG and Traditional Chinese Medicine (TCM) research while follow-up sessions included a check-in, didactic demonstration followed by QG practice, and a debrief to answer questions. Video links were provided for home practice. Surveys assessing satisfaction were sent pre/post series.

Results: 18 sessions of QG SMA were offered over a 6-month period. A total of 40 unique participants from diverse demographics (gender, race/ethnicity, primary residence) attended, for a total of 197 virtual visits. A total of 20 participants enrolled in Series 1 (8 weeks), 23 enrolled in Series 2 (7 weeks), and 16 enrolled in Series 3 (3weeks). For each session, group attendance ranged from 8-16 with an average of 11 participants. Attendance was high with participants attending an average of 72% of the sessions. Participants attended 88% of the first 8-week series, 54% of the second 7-week series, and 60% of the third series. Participant interest persisted over time with 35% of the 40 participants attending more than 1 series, and 12.5% attending all 3 series. Participants' diagnoses and health symptoms included pain (62.5%), cancer (45%) anxiety/depression (40%), cardiovascular disease (CVD) or metabolic conditions (32.5%), gastrointestinal (GI) symptoms/diagnoses (27.5%), stress (22.5%), osteopenia/osteoporosis (17.5%), and insomnia (17.5%). Pre-series [n = 27] participants endorsed symptoms including sleep disturbances, fatigue, pain, stress, weakness, GI symptoms, psychological symptoms, hot flashes, and brain fog. Post-program survey results [n = 11] suggested QG program addressed common symptoms including fatigue, insomnia, anxiety, stress, pain, weakness, and gastrointestinal symptoms. Participants reported incorporating QG, breathing techniques, and meditation into their daily routine. All participants reported their goals were met and that they would recommend the program to others. Regarding delivery preferences, 73% preferred telehealth, 27% hybrid, and none preferred in-person. Participants appreciated the format, new skills, community, and instructors.

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Conclusion: While the Virtual QG SMA series provided to diverse demographic population with mixed diagnoses is feasible, acceptable, and shows promising positive impact in this pilot, caution in interpreting the data is advised due to the low response rate of the post-program survey. Robust studies with longer follow-ups are recommended.

Keywords

Qi Gong, shared medical appointment, group medical visit, telehealth, remote delivery, integrative medicine, mindful movement, traditional Chinese medicine, pain, anxiety, depression, cancer, cardiovascular, fatigue, stress, neuropathy, balance

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Background

Between 2007 and 2017, Tai Chi/Qi Gong (TCQG) use in U.S. adults increased by 64%. The greatest increases in TCQG use (in 2017) were among vulnerable subgroups¹ (older adults, lower income, female, delayed access to health care, physically inactive).

Positive trends have been observed for improving anxiety, stress, depressive symptoms, fatigue, sleep quality, and quality of life among cancer patients who participate in Qi Gong (QG) and Baduanjin.²⁻⁵ QG, particularly Baduanjin (a popular QG set), improved sleep quality in adult populations with and without chronic conditions (fatigue, fibromyalgia, cancer, Parkinson disease, chronic low back pain, and stroke) and those with a chronic condition reported significantly greater sleep improvements after Health QG training.⁶ QG is an effective and safe exercise with potential benefits in reducing severity and frequency of migraines⁷ and hot flashes,⁸ improving perimenopausal sleep quality,⁸ and improving post-menopausal sleep (quality, latency, duration, efficiency).⁹ It is also associated with physical, mental, and relational improvements in well-being.¹⁰ Research on the use of QG to improve musculoskeletal pain, Parkinson's, blood pressure, cancer, chronic obstructive pulmonary disease (COPD), chronic heart failure, maternal health, diabetes, and aging are promising.¹¹⁻¹⁵

Shared medical appointments (SMA), also called group medical visits, have increased in popularity over the past 50 years as an innovative approach to improve health education and social support, access to care, and clinician well-being without increasing the cost of care.¹⁶⁻²⁰ SMAs are a group health care model where patients with similar medical conditions participate in a collective appointment with health care providers. More recently, Integrative SMAs²¹⁻²⁴ add complementary and integrative health (CIH) care education and services to existing SMA models²⁵ and may increase patient access to CIH services such as acupuncture, mindfulness, and yoga that are often inaccessible due to limited insurance coverage²⁶ and high out-of-pocket costs. They may also advance health equity by serving patient populations that have been historically negatively impacted by health and health care disparities.²⁷⁻²⁹

SMAs, including virtual ones, have been found to be feasible, cost-effective, time-efficient, and beneficial for both patients and clinicians. These appointments have also garnered interest and satisfaction among stakeholders.^{19,25,30-34} Virtual SMAs were successfully piloted in 2020-2022 at the

Integrative Health Center of an academic tertiary care center in New York City among patients with various health concerns (oncology, women's health) or modality interests (lifestyle change, yoga, acupuncture). Although telehealth visits became routine during the pandemic and improved access to care for underserved patients with chronic conditions,³⁵⁻³⁹ few studies have assessed the feasibility and impact of virtual QG group visits on both patients and clinicians.⁴⁰

Given the interest in mind-body SMAs, yoga, acupuncture, and Traditional Chinese Medicine (TCM), a telehealth delivered QG SMA among a mixed diagnosis population was piloted to assess feasibility and acceptability. Specifically, this study aimed to assess feasibility and acceptability of Virtual Qi Gong Shared Medical Appointment (VQGSMA) offered via telehealth among a diverse demographic population with mixed diagnoses within an integrative medicine practice at an urban tertiary care academic medical center and describe its potential impact on patient goals, clinician satisfaction, and institutional financial efficiency.

Methods

This was a feasibility/acceptability pilot⁴¹ study at a large academic medical center's Integrative Health and Wellness Center in New York City from January 2023 to July 2023.

Setting

The Integrative Health Center is part of a large urban academic medical center, providing evidence-based, comprehensive, holistic care to prevent disease, promote relaxation, reduce stress and anxiety, and relieve symptoms associated with medical conditions or their treatment. Types of services provided include consultations with physicians, acupuncturists, nutritionists, massage therapists, and mental health clinicians who provide a variety of integrative health therapies including psychoeducation, acupuncture, nutritional counseling, psychotherapy, mind-body therapies, massage therapy, in both 1:1 as well as group visit formats. Our center conducts 12 000 patient visits per year and serves adult and pediatric patients with complex diagnoses from the large urban city and surrounding areas. The center was initiated in 2016 through philanthropic support and is now sustained predominantly through insurance covered visits and hospital funding. The purpose of the center is to make evidence based integrative care accessible and affordable.

Participants

Participants were adult patients (18 years or older) of the academic medical center, English speaking, and had internet access.

Clinicians were employed by the academic medical center's Integrative Health and were trained in an Integrative Medicine related field such as acupuncture, QG, or integrative medicine.

Invitations to participate were disseminated through flyers, referrals from integrative medicine clinicians, referrals from the institution's primary care clinicians and specialists, hospital events page, email blasts,⁴² word of mouth/patient testimonials, grand rounds presentations, and community outreach programs.

Intervention

Like previously described SMAs in the literature including Integrative Medicine Group Visits developed by Gardiner et al, 2017,^{43,44} our intervention involved patient groups that focused on health conditions and were led by a medical facilitator. However, what was unique about our intervention was that we taught QG using telehealth in a heterogeneous patient population (ages, gender, race/ethnicity) with mixed diagnoses. The VQGSMA series was initiated as a new service line under Integrative Health and co-led by an integrative medicine physician who is board certified in medical acupuncture and a QG instructor who is a board-certified acupuncturist. No new staff were hired to lead VQGSMA. Each VQGSMA visit combined didactics with experiential QG instruction.

The VQGSMA series were conducted in 3 separate series of weekly 30-45-minute sessions on a weekday afternoon via telehealth using the HIPAA-compliant version of Zoom teleconferencing software. Each visit consisted of a review of the small group confidentiality agreement, distinct didactic content, a QG demonstration followed by an experiential practice, and question/discussion time. During the demonstration and experiential, the QG instructor faced the camera (adjusting foot and body placement to allow viewing of form from multiple angles) while the integrative medicine physician provided technological support (helped participants connect online, monitored the chat box for questions, observed participant's fidelity of movement, answered medical questions).

Series One. Consisted of 8-weekly sessions on the Five Elements and San Jiao. Five Element QG is a form of QG that harmonizes the Five Elements and Five Organs: Lung-Metal, Kidney-Water, Liver-Wood, Heart-Fire and Spleen-Earth.⁴⁵ San Jiao ("triple burner", or "triple energizer", or "triple heater") is a concept in TCM and acupuncture. San Jiao is believed to be a body cavity of some kind which could influence other organs and overall health, mainly through the free movement of Qi.⁴⁶

Series Two. Consisted of 7-weekly sessions on Baduanjin (8-Section Brocade). Baduanjin QG (八段錦) is 1 of the most common forms of Chinese QG used as exercise.⁴⁷ This contrasts with religious or martial forms of QG.⁴⁸

Series Three. Consisted of 3-weekly sessions on myofascial stretches of the whole body. See [Appendix 1](#) for list of exercises.

For the first 2 series, the first session of each series included an overview of QG for health, TCM, and the existing research on the benefits of QG.¹¹ In response to patient request to focus on the experiential, the overview of QG and description of TCM research was eliminated after series 2 without negative consequence. This information was weaved into the experiential and debriefing time according to participant interest. All sessions after the first session included a check in time (2-3 minutes), breathing (5 minutes), didactic demonstration with experiential practice of QG (20 min), and debriefing time (10 minutes). (The first session had an abbreviated experiential due to the overview). The sequences covered were the same during each session, but the level of difficulty increased with one's understanding of each movement through repetition. This is because repetition allowed participants to focus on all the nuances of the movement such as timing, shifting of weight, and breath. Over time, the goal was to make the movements smoother, more efficient, and whole-body aligned.

Each series sequentially introduced exercises. Once all the elements were introduced, the instructor would lead participants in performing the entire sequence, culminating in the final session of the series, where participants were observed as a group performing the sequence twice without stopping.

At the beginning of the series, the physician would call each patient prior to the group visit for a brief check-in. In addition, the coordinator and physician would routinely call participants ahead of time to confirm attendance. If any discomfort with or access to technology was detected, technology guidance was provided. During the series, most of the patients saw either the integrative physician who co-led the VQGSMA, another integrative physician in the practice, or 1 of their other specialists (oncologist, pain management physician, etc.) at least once. Electronic health record (EHR) notes were reviewed at each group medical visit for coordination and continuity of care. Generic advice was given during the didactic portion of the group visit, and individualized advice based on diagnosis was provided and documented in the EHR. Following the VQGSMA, digital health resources based on questions from the discussion time and video of the QG instructor demonstrating exercise sequences for home practice were sent to participants through email.

Documentation of the VQGSMA visit along with individual medical management and customized recommendations and treatment plan, was completed by the physician with billing based on decision making complexity. The creation of detailed, customized visit templates (purpose, group interventions utilized, topics discussed) for each session greatly facilitated the electronic charting needed to generate billing information. Unlike "community classes", our SMA began with a group check-in, ended with a group debriefing, offered safe QG delivery under the synergetic supervision of both an integrative medicine physician and a QG instructor, and provided pre/post-SMA coordination of care and collaboration with an interdisciplinary medical team led by integrative medicine physician (chart review and

medication management requests). It focused on coping with and relieving symptoms and provided mental health benefits of group support. Our intervention responded to patient interest for receiving integrative health services in conjunction with their established health care at the academic medical center.

The group visit coordinator communicated with participants through phone, email, and the patient portal. The coordinator verified insurance, set up and disseminated the zoom link, and sent follow up resources. Electronic pre and post Qualtrics surveys were sent to participants at time of enrollment and after each series was completed. Additional qualitative feedback from participating interdisciplinary professionals was also gathered. The academic medical center's Institutional Review Board (IRB) determined that this activity was not considered research involving human subjects due to its anonymous, program evaluation nature and that further IRB review and approval was not required.

Data and Outcome Measures

Electronic pre and post surveys using Qualtrics were sent via email from the SMA coordinator to participants at the time of enrollment and immediately after each series was completed.^{49,50} Responses to the 3-question pre-survey and 10-question post-surveys were optional and completely voluntary. No incentives were available or offered. Surveys were only written in English. All participants in our pilot were comfortable with English, although we did not determine fluency in English as a pre-requisite for participation. See Appendix 2 for surveys.

Sources of data included participant demographics, pre- and post-survey evaluations including responses to open-ended questions, and materials from the program development process. Short debriefing conversations between the integrative medicine physician-acupuncturist and the Qi Gong-acupuncturist occurred after co-led sessions without participants being present.

These conversations facilitated an iterative processing of what was working and areas for improvement. Materials were created in the process of developing and implementing the VQGSMA, including e-mails, flyers, and handouts. Descriptive data were collated, and means were calculated in Excel. Responses to open-ended questions on the post-survey were reviewed by the authors. Responses were organized into general themes based on participants' reported experiences. The center's executive director performed cost analysis forecasting. The data source was organizational administrative data including elements such as encounters, diagnosis and procedure codes for clinical services, claims, amount billed, and amount reimbursed. Cost analysis methods evaluating efficiency of VQGSMA entailed comparing estimated reimbursement from 1-hour individual consultations for integrative medicine with estimated reimbursement from 1-hour SMAs. Costs for non-revenue generating clinicians and administrative support using hourly rates were factored into the cost/revenue forecasting. Details on the cost-analysis approach can be found in a previous publication.⁵¹

Results

Between January and July 2023, 40 participants were recruited, of whom 27 (68%) completed the optional online pre-program survey and 11 (28%) the optional post-program survey [Figure 1]. A total of 18 sessions of VQGSMA (divided into 3 separate series covering different topics) were offered over a 6-month period. As we did not know how acceptable the VQGSMA would be to participants, only a 8-week series (Series 1) was initially offered. We decided to offer Series 2 (7 weeks) and Series 3 (3 weeks) based on participant feedback requesting more sessions. Over the 18 sessions, we had 59 participants (40 unique individuals) for a total of 197 virtual visits. A total of 20 participants enrolled in Series 1, 23 enrolled in Series 2, and 16 enrolled in Series 3 (Table 1). During each

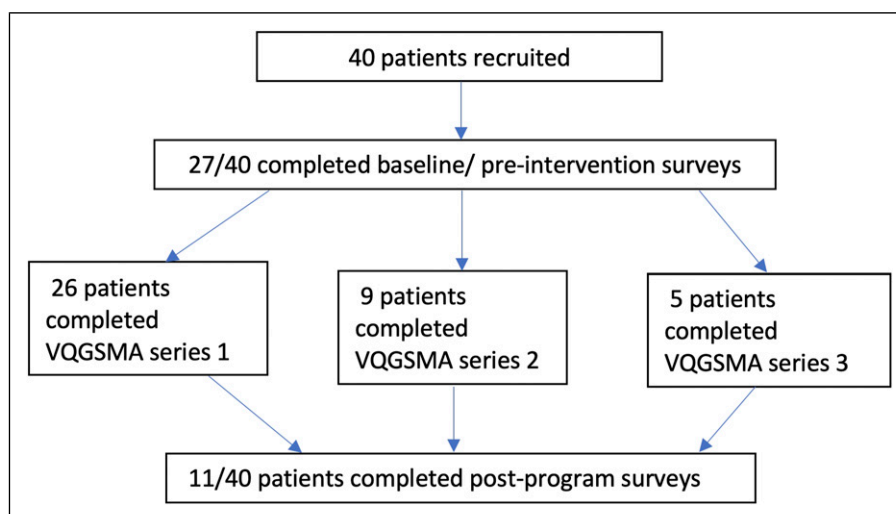


Figure 1. Participant recruitment and retention in Virtual Qi Gong Shared Medical Appointment (VQGSMA) Series.

Table 1. Attendance in Virtual Qi Gong Shared Medical Appointments (VQGSMA) by Series.

VQGSMA Series #	Length of Series	Number of Participants	% of Sessions Attended by Series
One	8 weeks	N = 20	88% (7/8 sessions)
Two	7 weeks	N = 23	57% (4/7 sessions)
Three	3 weeks	N = 16	60% (2/3 sessions)
Total (1 + 2 + 3)	18 weeks	40 ^a	72% (13/18)

^aA total of 40 unique patients participated over the 18 weeks, with 19 of them participating in more than 1 session, for a total of 59 participants.

session, group attendance ranged from 8-16 with an average of 11 participants per session. Participation was high as reflected by participants attendance in Series 1 (88% of sessions), Series 2 (54% of sessions), Series 3 (60% of sessions). Participant interest also persisted over time. While the series were meant to be stand alone, some of the participants continued to show interest by choosing to enroll in subsequent series (with different didactic content). 35% of the 40 individuals participated in more than 1 series, and 12.5% attended all 3 series. Participants were not automatically enrolled in the subsequent series and had to contact the VQGSMA coordinator to enroll in subsequent series if desired.

Participant demographics included primarily older (mean age 63 years), white (82%), females (80%) from city center (Manhattan or neighboring suburbs/states). However, nearly a third (30%) of participants lived in underserved areas (Harlem, Bronx, Queens, Brooklyn) and payor mix included 40% Medicare, 60% Commercial insurance (Table 2). Preferred spoken language was English.

Quantitative Feedback

Before the program, participants reported a range of diagnoses and health symptoms including pain (62.5%), cancer (45%) anxiety/depression (40%), cardiovascular/metabolic (32.5%), gastrointestinal (27.5%), stress (22.5%), osteopenia/osteoporosis (17.5%), insomnia (17.5%), fatigue (12.5%), asthma/bronchitis (12.5%) grief/Post Traumatic Stress Disorder (PTSD)/Eating Disorder (ED) (7.5%), (7.5%) cognition/memory (7.5%) Neuropathy and breathing issues were most frequently written in the “other” text box.

Post-program survey results suggested VQGSMA program addressed common symptoms including fatigue, insomnia, anxiety, stress, pain, weakness, and gastrointestinal symptoms. Hot flashes were the sole symptom of the 14 pre-program symptoms that was not reported to be addressed for any participants. Balance, which was not reported as a pre-program concern, was reported to be addressed by 55% post program with 27% reporting post-program improvement in balance. Neuropathy as a symptom was not included as an option in the pre-survey but written in by participants as pre-series symptom. Of note, neuropathy (27%) and balance (55%) were cited by participants to have been addressed by the VQGSMA and balance (27%) was cited by participants to

Table 2. Patient Demographic Characteristics, n = 40.

Characteristic	63 (27 – 93)
	Number (%)
Gender	
Female	32 (80%)
Male	8 (20%)
Race	
Caucasian	33 (82%)
Asian	3 (7.5%)
African american	3 (7.5%)
Other/Declined	1 (2.5%)
Ethnicity	
Hispanic/Latino	1 (2.5%)
Non-Hispanic/Latino	39 (97.5%)
Location of residence	
Manhattan	17 (43%)
Manhattan-Harlem	3 (7.5%)
Queens/Brooklyn/Bronx	9 (22.5%)
Westchester/Long Island/Upstate	6 (15%)
Connecticut/New Jersey	5 (12.5%)

have improved post-series. Participants also reported post-program improvements in loneliness/isolation [Table 3].

Although only VQGSMA was offered, when asked about their preferred mode of program delivery “What did you think about the format?”, 73% preferred remote (zoom), 27% preferred hybrid (remote + in person), none preferred in-person format (0%). All participants felt their goals for attending the series were met and would unequivocally recommend the program to others.

Qualitative Feedback

Pre-VGSMA, when asked “What are you hoping to learn/gain from this Qi Gong Group visit?” participants expressed a wide range of physical (chronic pain, breathing, balance, strength), mental (anxiety, depression, stress), cognitive (focus) and self-efficacy goals (self-knowledge, self-soothing, self-healing) (See Table 4). When asked “What health concerns or life issues are you hoping to address during this Qi Gong Shared Medical Visit series?”, responses

Table 3. Patients' Pre-program Symptoms/Health Concerns, and Whether They Were Addressed and Improved by the Program.

Symptoms/Health Concerns	Pre-program, n = 27	Post-program Addressed, n = 11	Post Program Symptom Improvement, n = 11
	n (%)	n (%)	n (%)
Fatigue	19 (70%)	5 (45%)	2 (18%)
Insomnia/sleep	19 (70%)	3 (27%)	3 (27%)
Pain	18 (67%)	6 (55%)	2 (18%)
Anxiety/fear	15 (56%)	4 (36%)	3 (27%)
Stress/Irritability	11 (41%)	7 (64%)	4 (36%)
Weakness	11 (41%)	3 (27%)	1 (9%)
Gastrointestinal symptoms ^a	10 (37%)	3 (27%)	1 (9%)
Depression/hopelessness	8 (27%)	3 (27%)	2 (14%)
Other	7 (26%)	1 (9%) ^c	0 (0%)
Hot flashes	6 (22%)	0 (0%)	0 (0%)
Brain fog	5 (19%)	2 (18%)	0 (0%)
Isolation/loneliness	3 (11%)	4 (36%)	1 (9%)
Balance	0	6 (55%)	3 (27%)

^anausea/vomiting/constipation/diarrhea.

^bParticipant text: neuropathy (2), issues breathing, overeating, migraine, odd breathing patterns, racing heart.

^cParticipant text: Long COVID.

No patients (0%) reported "no symptoms" for pre-program, post-program, or post-program symptom improvement.

Table 4. What are You Hoping to Learn/Gain From This Qi Gong Group Visit?

Themes	
Physical	Gain better functionality breathing
	How to better deal with chronic illness physically
	Practices to help with sedentary lifestyle doing work on computer all day. To know exercises I could get up and do every 45 minutes or whatever
	Less chronic pain overall, improvement in sleep, improvement in migraines, improvement in body aches and improvement in hot flashes
	Learn ways to move for healing
	Ways in which qigong might improve my physical health
	Ways to move subtle without making my pain and balance worse
	Relaxation, balance, strength training
	Better body movement
	Hoping to gain another source of working out to improve my physical well being
Mental	This is my first exposure to qi gong. Hoping to learn more about it and how it might be helpful in managing my symptoms
	How to deal with chronic illness mentally
	Practices I can use as healthy alternative to vices I go to when stressed...
	Improvements in anxiety and depression symptoms
	Learn ways to meditate
Cognitive	Modalities to promote calmness
	To bring a bit of mindfulness to my everyday life
	Ways to self soothe
Social	How to stay in the moment, clear my mind, ground myself
	Focus and better body movement
Self- efficacy	I enjoy being part of this community of fellow warriors
	I am curious to discover practices I might use in the future
	I am hoping to learn body movements/techniques that would help in my healing journey
	To deepen my practice of Qi Gong
	Self knowledge, self healing, and the power of qi

included general health (post-surgery and for health maintenance), musculoskeletal (muscle, joint, flexibility), neurologic (migraine, balance, neuropathy, dizziness), pulmonary, gastrointestinal, metabolic, oncologic, and mental health (anxiety, stress, sadness, sleep, focus) (See Table 5)

Post VQGSMA, participants reported incorporating QG into daily practice, exercising more regularly including Tai Chi and yoga, using more mindfulness modalities including QG in their daily routines, enrolling in weekly women's QG class, adding breathing exercises, and engaging in meditative practices. (See Table 6)

Participants appreciated the format of the class, the patience, pace, and teaching style of the instructors, ease of learning new skills, gentle quality of the exercises, ease of practicing at home with no equipment, and "learning a new mindfulness modality in community with people experiencing the same issues as I am." Feedback and suggestions included interest in a next level class (advanced beginner class), introduction to other forms (sets) of qi gong, primer-type text or handouts with illustrations, access to videos earlier in the series, more full body movement, and longer sessions. The most common patterns from the content

Table 5. What Health Concerns or Life Issues are You Hoping to Address During This Qi Gong Shared Medical Visit Series?

General Health	Be Physically and Mentally Stronger Improve physical strength and energy, balance my systems General mental/physical wellbeing (3) After back surgery looking to improve strength Movement
Pulmonary	Assistance with breathing better Breathing patterns are erratic and contribute to my anxiety and systemic medical issues
Gastrointestinal	IBS issues
Musculoskeletal	Muscle and joint tension, core dysfunction, TMJ Pain, aches, stiffness Gentle movement (range of motion) to help with arthritis Mechanical flaws from 5th lumbar and hip issues Improvement of strength and flexibility of spine/back after fusion surgery Better balance, some muscle innervation
Neurologic	Decrease in dizziness Neuropathy Balance Migraine, fatigue
Oncologic	Hot flashes, fatigue from HR +breast cancer treatment Breast cancer after chemo, radiation and surgery. Struggling with joint and muscle pain, osteopenia General health and wellness during and after treatments for breast cancer
Metabolic	Improved self-awareness and weight reduction
Mental health	Chronic and acute stress and anxiety Difficulty falling asleep, overreliance on supplements to sleep To help my sleep (2 responses) Mind/body connection for stress and pain Focus (2 responses) Stress (2 responses), anxiety (4 responses), sadness

Table 6. What Positive Changes Have You Made in Your Life Since Starting the Program?

I aspire to incorporate Qi Gong into my life and daily practice
Doing exercise more regularly including tai chi and yoga
Committed to adding qi gong workouts several times a week along with the other workouts that I am currently performing in order to keep my body in the best possible state it can be
I've incorporated more mindfulness modalities (including a qigong practice) into my daily routine
Enrolled in a weekly women's qigong class
I try to do the exercises daily (but not enough) but I do use the breathing technique a lot
I've incorporated qi gong, a new mind/body practice into my day. I had been doing meditation. I like how qi gong combines movement with a meditative like practice
I don't know that I actually had anxiety/fear, or that those feelings have been mitigated, but I do feel more grounded, and able to summon that feeling more easily

analysis of open-ended responses reported was the ease of learning and the quality of the instructor.

Feasibility

Program feasibility was demonstrated through high program participation rates and fidelity to QG exercises was based on observation of participants performing QG at the end of each program series. During the final sessions of each series, participants were observed as a group by the integrative medicine physician via telehealth as they performed the sequences twice without stopping. Participants who had no prior experience with QG reported being helped by the home videos provided by the instructor, practicing on non-VQGSMA days at home, and eventually practiced QG on their own every day. The QG instructor also noted that even those who had previous QG experience appeared to participate in the QG exercises more smoothly and independently by the end of the VQGSMA series.

Telehealth Implementation and Access

While nearly all patients had some type of chronic diagnosis, at least 1/3 were patients who had cancer and had recently undergone or were currently undergoing chemotherapy, radiation or surgery. The flexibility to access care made it easier for these immunocompromised individuals to participate. Those with limiting physical conditions also verbally expressed their appreciation for the ease and safety of “gathering” and building community through the virtual format. All participants were able to join via phone, iPad, computer, or television screen. While most joined from home, several joined from free internet hotspots.

Clinician Feedback

The integrative medicine physician-acupuncturist and QG-acupuncturist were present at every session. Clinicians were part of Integrative Health staff; therefore, no additional hiring of full-time employees was required. Both clinicians reported high levels of satisfaction with VQGSMA and found it to be a sustainable option from the clinician perspective.

Financial Sustainability

For our practice, with a payor mix of 40% Medicare, 60% Commercial insurance and medically complex patients, cost neutrality was attained if groups with 2 providers (MD and QG instructor) enrolled at least 8 participants. Our groups had an average of 11, with a range of 8-16. Physician used the common standard billing method of E/M codes 99212-99214. Of the 197 insurance billable patient visits over the 18 sessions offered over 6-month, there were no SMA specific insurance denials identified based on reports by the center’s executive director and practice manager. See [Table 7](#) for details on revenue/cost forecasting.

Discussion

Despite the increasing popularity of SMAs as a means to improve health education, social support, access to care, and clinician well-being without increasing costs, there remain significant gaps in the literature regarding the integration of Complementary and Integrative Health (CIH) services into these models. While telehealth visits became routine during the pandemic and improved access for underserved patients with chronic conditions, few studies have assessed the feasibility and impact of virtual Qi Gong group visits on both patients and clinicians. This study aimed to assess the feasibility and acceptability of Virtual Qi Gong Shared Medical Appointments (VQGSMA) among a diverse demographic population with mixed diagnoses within an integrative medicine practice at an urban tertiary care academic medical center. Additionally, it sought to describe the potential impact on patient goals, clinician satisfaction, and institutional financial efficiency.

Our pilot study demonstrated that VQGSMA was feasible and acceptable to patients, clinicians, and institutions. The high weekly attendance rate, consistent individual attendance, and repeat attendance in subsequent series underscore the program’s feasibility, participant interest, and acceptability. Participants who completed the program surveys expressed favorable opinions, and clinicians reported high satisfaction. Financial projections indicate the model’s sustainability, with revenue from group visits exceeding that of individual consultations. Participants reported that VQGSMA effectively addressed both physical symptoms

Table 7. Revenue/Cost Forecasting.

Revenue		Cost	
Estimated reimbursement	\$120/patient	Provider cost	
Average number of patients per session	11	MD	\$240
Total revenue	\$1320	Qi gong	\$60
		Admin	\$40
		Total	\$340

MDs get 1 h for SMA and 1 h for charting per 5 attendees. Admin cost is \$40 or 1 h for every 5 attendees.

(such as fatigue, insomnia, pain, weakness, gastrointestinal symptoms, and neuropathy) and psychoemotional symptoms (such as anxiety, stress, and loneliness). Many participants reported implementing Qi Gong, breathwork, meditative practices, and other exercises into their daily lives, suggesting the potential for long-term behavioral change.

Building up on the literature supporting SMAs, mind-body therapies (predominantly yoga or meditation), and in-person vs remote delivery, this study is innovative by combining 3 factors into 1 intervention: qi gong, group visits, and remote delivery.

A key take-away from this study is the potential for improving clinical care and access while simultaneously improving provider satisfaction and institutional efficiency. Through these innovative VQGSMA, patients reported symptom relief and satisfaction with the integrative medicine care they received. At the same time, providers reported satisfaction with leading SMAs. The feasibility and cost-benefit to the institution through these insurance-covered VQGSMA makes integrative care accessible and affordable, especially to vulnerable immunocompromised patients seeking to reduce exposure. While further research is needed, through the integrative care provided in SMAs, patients and institutions may benefit in the future through potentially lower need for pharmaceutical medications, emergency care utilization, surgeries, and ultimately health care system costs.

Another take-way is that billing and reimbursement for VQGSMA need not be a barrier for implementation. Standard billing methods for physicians can be followed using Evaluation and Management codes (E/M) Current Procedural Terminology (CPT) 99212-99214 depending on medical complexity. These billing code options have been successfully used in other shared medical appointments⁵¹⁻⁵³ (Freeman 2022, Loy, 2023). Institutional billing and coding experts can assist in optimizing reimbursement and sustainability of services.

Our findings are consistent with existing literature on in-person Qi Gong, which has demonstrated improvements in physical⁴⁻⁶ and psychoemotional^{9,12} symptoms. However, our study extends this knowledge by demonstrating the feasibility and benefits of a mixed-diagnosis population and telehealth delivery. Notably, telehealth delivery was not a deterrent, with all participants reporting their goals were met and none preferring an in-person format for future sessions. This preference for remote or hybrid delivery over in-person sessions aligns with trends observed during the pandemic, where telehealth significantly enhanced access to care.

Several limitations should be considered. The 28% response rate to the post-program survey suggests potential reporting bias, as those with positive experiences may have been more likely to respond. The sample may also over-represent participants from higher-income households, although a significant number lived outside the city center. The study's demographic skew towards older women, while

consistent with broader trends in integrative medicine usage, limits generalizability to other populations. Furthermore, all participants were fluent in English, highlighting a need for future studies to include non-English speakers⁵⁴⁻⁵⁶ to enhance inclusivity. Technological issues, though not observed in this pilot, could pose potential limitations for future virtual Qi Gong instruction.

This pilot study highlights several avenues for future research. Well-controlled studies,⁴⁰ such as randomized controlled trials, comparing VQGSMA to in-person QGSMA are needed. Future research should examine long-term health outcomes, feasibility among more diverse populations, and the provision of other integrative health care modalities via telehealth. Additionally, examining outcomes such as increased knowledge, patient and staff satisfaction, clinical outcomes, financial data, office efficiency, and health care utilization will provide a more comprehensive understanding of the impact of the VQGSMA model. At our institution, our plan is to trial VQGSMA with an Nurse Practitioner and Qi Gong Instructor instructor as well as compare virtual and in-person QGSMA with the same 2 providers. We hope to expand beyond our main hospital to satellite community hospitals with higher minority populations.

In conclusion, VQGSMA was found to be feasible and acceptable among a diverse demographic population with mixed diagnoses within an integrative medicine practice at an urban tertiary care academic medical center. This innovative combination of SMA, telehealth, and Qi Gong offers increased access to integrative care for diverse, health-disparate populations, including patients with physical, immunocompromised, or socioeconomic limitations. Our findings suggest promising impacts on patient goals, clinician satisfaction, and institutional financial efficiency, laying the groundwork for future research and implementation efforts to expand and optimize this model of care.

Conclusion

Using a pre-post design, VQGSMA demonstrated feasibility and acceptability for delivery of QG via telehealth to a mixed demographic and mixed diagnoses population. Patients expressed satisfaction with the modality and the pilot suggested preliminary efficacy with respect to symptoms addressed, symptom improvement, and lifestyle changes. This novel VQGSMA was also acceptable to clinicians/institutions and feasible/sustainable regarding time and cost. VQGSMA among a mixed demographic is feasible, acceptable, sustainable, and cost effective to patients, clinicians, and institutions. Nevertheless, caution in interpreting the data is advised due to the low response rate of the post-program survey. Larger methodologically sound implementation trials within health care systems with more diverse populations and with longer follow-up periods are needed and recommended.

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Author Contributions

Dr L. conceptualized and designed the study, coordinated, and supervised data collection, collected data, conducted the initial analysis, drafted the initial manuscript, reviewed, and revised the manuscript. T.F. provided Qi Gong instruction and reviewed the manuscript. All authors approve the manuscript as submitted and agree to be accountable for all aspects of the work.

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Institutional Review Board Statement

The academic medical center's Institutional Review Board (IRB) determined on 31 January 2023 (#23-01 025 565) that this activity is not considered research involving human subjects due to its anonymous, program evaluation nature and that further IRB review and approval is not required.

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Data Availability Statement

Data used in this program evaluation will be made available upon request.

Supplemental Material

Supplemental material for this article is available online.

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