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Preliminary investigation of the student-delivered Community Outreach teleheAlth program for Covid education and Health promotion (COACH)

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Background: COVID-19 public health restrictions (i.e. physical distancing) compromise individuals' ability to self-manage their health behaviours and may increase the risks of adverse health events.

Objectives: To evaluate the student-delivered Community Outreach teleheAlth program for Covid education and Health promotion (COACH) on health-directed behaviour (self-management) among older adults (≥65 years of age, *n* = 75). Secondary objectives estimated the influence of COACH on perceived depression, anxiety, and stress; social support; health-related quality of life; health promotion self-efficacy; and other self-management domains.

Methods: COACH was developed to provide chronic disease management and prevention support among older adults via telephone or video-conferencing platforms (i.e. Zoom). In this single-group, pre-post study, our primary outcome was measured using the health-directed behaviour subscale of the Health Education Impact Questionnaire. Secondary measures included the Depression, Anxiety and Stress Scale, Medical Outcomes Study: Social Support Survey, MOS Short Form-36, and Self-Rated Abilities for Health Practices Scale. Paired sample *t*-tests were used to analyse outcome changes.

Results: Mean age of participants was 72.4 years (58.7% female; 80% ≥2 chronic conditions). Health-directed behaviour significantly improved after COACH (*P* < 0.001, *d* = 0.45). Improved health promotion self-efficacy (*P* < 0.001, *d* = 0.44) and decreased mental health were also observed (*P* < 0.001, *d* = −1.69).

Discussion: COACH likely contributed to improved health-directed behaviour and health promotion self-efficacy despite the diminished mental health-related quality of life during COVID-19. Our findings also highlight the benefits of using health professional students for the delivery of virtual health promotion programs.

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Key words: activities of daily living, chronic disease, health education, health promotion, self-management, telemedicine

Introduction

Background

Quarantining, social isolation, and physical distancing are on-going primary prevention strategies to prevent viral transmission of the novel coronavirus disease 2019 (COVID-19).[1–3] As a result, communities closed public places, restricted travel, instituted voluntary home curfews, and cancelled events.[4] While important for minimizing the spread of COVID-19, these strategies are also shown to have negative health impacts. For example, social isolation resulting in less social support is associated with increased risk of heart disease, stroke onset, and poor mental health.[5,6] As well, closures of public areas

and financial challenges act as barriers to health promotion self-efficacy, exercise, and dietary quality.[7] Thus, public health restrictions, while important during COVID-19, ultimately compromise individuals' ability to self-manage their health and may increase the risks of adverse health events.

Furthermore, evidence suggests negative effects of such quarantine-type strategies especially affect the physical and mental health of older adults (≥65 years of age), with decreases in physical activity and quality of life, increases in stress, anxiety and depression, and poor sleep quality.[8–10] While various health resources have emerged to support people during COVID-19 (e.g. phone lines, online mental health support),

Key messages

1. COACH delivered health promotion and education to older adults during COVID-19.
2. Increases in self-management and health promotion self-efficacy were observed.
3. COACH supported health management despite worsening mental health from COVID-19.
4. Technology and health students can be useful for self-management program delivery.

few programs with a specific focus on health promotion have been available for older adults during COVID-19. Efforts are required to support older individuals to manage their health during the pandemic.

Delivering health services using technology (i.e. telehealth) is a proven strategy to increase the accessibility of services, especially when in-person services are not an option.[11] In this study, we developed an accessible and active telehealth promotion program to empower adults to better manage their health and well-being during times that require physical and social distancing. The Community Outreach teleheAlth program for Covid education and Health promotion (COACH) is a 2-month program where students from health profession programs (e.g. medical undergraduate students) deliver a standardized health coaching program via telephone or videoconference to older adults. It was rapidly mobilized by the research team (MCY, CC, BMS) in response to the implementation of COVID-19 prevention strategies in 2020. COACH was developed based on an existing health coaching program, guided by the Chronic Care Model, and incorporated evidence-based behaviour change techniques.[12–15] The previous existing health coaching program consisted of seven 30- to 60-min telephone sessions (and five 5- to 10-min check-in calls) over 6 months, and primarily focused on improving self-management of stroke risk factors.[12] Specifically, the program based itself on evidence that improvements to health-related behaviours that influence the risk of developing cardiometabolic diseases could improve self-management in those behavioural areas, and thus improve chronic disease (i.e. cardiometabolic) risk.[12] Rather than focusing on a specific type of chronic disease, COACH reframed the previous program into six 30- to 45-min sessions over 2 months, delivered via telephone or videoconferencing call (i.e. Zoom), and focused sessions on improvement in health-related behaviours and self-management for chronic disease management in general. Specifically, it aimed to support the improvement of health behaviours and self-management in the context of COVID-19. Additionally, COACH was developed to provide COVID-19 education (e.g. guidelines for COVID-19 prevention, status of reopening, as well as current events) to study participants.

Objectives

The primary objective was to estimate COACH's effects on health-directed behaviour (self-management), measured using the Health Directed Behaviour subscale in the Health Education Impact Questionnaire (heiQ), among community-living older adults (≥65 years of age).[16] We hypothesized that COACH would improve self-management of health-directed behaviour among study participants.

Secondary objectives included evaluating COACH's effects on perceived stress, depressive and anxiety symptoms; social support; health-related quality of life (HRQOL); health

promotion self-efficacy; and other self-management domains. We also reported participants' program satisfaction.

Methods

Study design and participants

In this single-group, pre-post study, participants were included if they: were 65 years or older; had access to a telephone or videoconferencing program; and had no previous COVID-19 diagnosis by health professionals. Participants were excluded if they were: not medically stable, had severe hearing loss that could not be corrected with a hearing aid (i.e. could interfere with their ability to participate), or participated in other health promotion programs.

Sample size was calculated based on the Health Directed Behaviour subscale of the heiQ. Using an effect size of 0.37 and a standard deviation of 0.64 based on previous literature, we estimated that 60 participants would have 80% power to detect change at an alpha of 0.05 (two-sided).[17] We recruited 75 participants to account for a 20% dropout rate.[18,19]

We recruited volunteer participants through social media and email lists of local community organizations and patient advocacy groups. Posters, newspaper ads, brochures, and a webpage were also developed for recruitment processes. Participants were recruited from urban and suburban/rural areas of British Columbia (BC). Study procedures were approved by the Behavioural Research Ethics Board (H20-01368) at the University of British Columbia (UBC), and all participants provided informed consent.

Baseline evaluation

Participants completed a baseline evaluation via Zoom videoconferencing or telephone with a trained outcomes assessor. Participants completed a demographic information form, the Functional Comorbidity Index (comorbid conditions assessment),[20] and the following outcome measures (Supplementary Table 1).

Primary outcome. Self-management was measured using the Health Directed Behaviour subscale of the 40-item heiQ questionnaire.[16] The heiQ has high construct validity and can provide valuable information to clinicians, researchers, policymakers, and other stakeholders about the value of patient education programs in chronic disease management.[16] Health Directed Behaviour subscale contains four questions that relate to tangible lifestyle changes (i.e. changes related to health behaviour, such as diet, exercise, and relaxation routines).[16] Total scores range from 4 to 20, with higher scores indicating higher levels of health behaviours.[16]

Secondary outcomes. (i) *Perceived depression, anxiety, and stress* was measured using the 21-item Depression, Anxiety and Stress Scale (DASS-21) (all scored separately)[21,22]; (ii)

Social support was measured using the Medical Outcomes Study (MOS): Social Support Survey (total score)[23]; (iii) *HRQOL* was measured using the physical and mental component summaries (PCS and MCS) of the Short Form-36 (SF-36)[24,25]; (iv) *Health promotion self-efficacy* was measured using the 28-item Self-Rated Abilities for Health Practices Scale (SRAHP, total score)[26]; and (v) Other heiQ subscales were also reported, which included: Positive and Active Engagement in Life, Emotional Distress, Self-Monitoring and Insight, Constructive Attitudes and Approaches, Skills and Technique Acquisition, Social Integration and Support, and Health Service Navigation.[16]

Intervention

After completing baseline evaluation, participants were enrolled into COACH. Participants received a "Healthy Living Booklet" (developed by the research team), which contained information on improving health-related behaviours (e.g. physical activity, diet, stress management) for chronic disease management and prevention. The booklet also contained a "behaviour-change toolkit" which outlined key evidence-based strategies for making behaviour changes (e.g. value clarification, goal setting, action planning), a "Self-Health Review" for participants to self-review their health behaviours and identify potential areas of improvement, and COVID-19 information. These resources were used to inform the six 30- to 45-min virtual health coaching sessions delivered by a trained student coach to each participant over 2 months (Table 1 shows the further description of the COACH).

Coaches were medical undergraduate students in UBC's Faculty of Medicine. Coaches were trained in delivering telehealth interventions, health promotion, chronic disease management, and the 5A counselling model.[27] Particularly, coaches were trained to use the 5A's (Assess, Advise, Agree, Assist, Arrange) as a conversational framework to assist in developing behavioural modification action plans participants could follow in between coaching sessions.[27] Prior to beginning COACH, coaches practiced with an experienced coach trainer and completed a certification on Brief Action Planning (key behaviour change technique used for coaches and participants to collaboratively develop health behaviour actions plans for participants).[28]

Coaching sessions were divided into two components: health promotion and education. Health promotion focused on health-related behaviours that participants self-identified as important to improve on their Self-Health Review. Study participants were asked to complete a Self-Health Review where they considered their health-related behaviours and ranked them according to importance for change (i.e. "low" to "high" opportunities for improvement). Together, coaches and participants reviewed the Self-Health Review and collaboratively developed strategies to help participants reach the health-related goals they wished to focus on, in the context of COVID-19 prevention strategies, such as physical distancing and quarantining. Coaches empowered and supported participants through education and motivation to self-manage their behaviours, while adhering to orders (e.g. physical distancing) aimed at reducing the spread of COVID-19. The education component occurred at the end of sessions and focused on ensuring participants were aware of COVID-19 restrictions, prevention strategies, and reopening phases. Each month, the study coordinator would curate COVID-19 updates from reliable sources (e.g. Centres for Disease Control, BC Government) and send to coaches for dissemination to participants. Coaching sessions followed a standardized schedule:

Session 1. The coach began building rapport with participants through a semi-structured exploration of their personal history, health history, current life context, and health goals. They then reviewed the participant's Self-Health Review, began to identify health behaviour goals, and create action plans to achieve them.

Sessions 2–5. The coach monitored the participant's progress on their plans. Together, the coach and participant reflectively troubleshooted any barriers and made any updates or revisions to action plans (e.g. made plan more challenging if improvement was seen).

Session 6. The coach discussed any learning and behaviour changes that occurred, reinforced strategies that were developed as skills that can be employed on an ongoing basis, and helped develop a long-term plan to help participants maintain improvements experienced during COACH.

Post-intervention evaluation

After completing COACH, participants completed a post-intervention evaluation consisting of all outcome measures collected at baseline (moderated by the same assessor from baseline). Participants were also asked if they were diagnosed

Table 1. Components of the COACH program.

Components	Description
1. Healthy living booklet	• Education on: (i) chronic diseases; (ii) health behaviours as risk factors; and (iii) chronic disease prevention and management.
2. Self-health review	• A self-health review for participants to self-rate their health behaviours as "low," "moderate," or "high" need for improvement. • Health-related areas included: (i) eating habits and nutrition; (ii) physical activity; (iii) responsible use of substances (i.e. smoking alcohol, etc.); (iv) sleep; and (v) mental health.
3. COVID-19 education	• Education on: (i) current COVID-19 restrictions and phases of reopening; (ii) prevention strategies; (iii) COVID-19 information from reliable sources (e.g. World Health Organization, Centers for Disease Control and Prevention).
4. Health coaching	• Six 30- to 45-min coaching sessions over 2 months with a medical student trained on the coaching protocol and brief action planning. Coaches provided health and COVID-19 education and discussed the self-health review. • Student coaches collaboratively worked with participants to develop health behaviour goals and achievable action plans, in the context of COVID-19 restrictions, for participants to follow between coaching sessions.

with COVID-19 at any point during study participation. Additionally, participants completed a satisfaction survey to share their COACH experiences, which consisted of 17 multiple choice questions that were each measured on a 5-point scale (i.e. strongly disagree to strongly agree), along with an open-ended response box that allowed participants to provide further comments regarding likes, dislikes, and suggestions for program improvements.

Analysis

Descriptive statistics were used to characterize responses from the demographic information, Functional Comorbidity Index, and exit satisfaction survey. Outcome measures were tested for statistically significant differences using paired sample t-tests using SPSS Statistics-27. Statistical assumptions were tested for each outcome measure to apply the parametric paired sample t-tests, including normality (Shapiro test), skewness and kurtosis, Q-Q plots, and histogram graphs.[29] The primary outcome was tested for statistically significant differences at $P < 0.05$, whereas a Bonferroni correction was used for secondary outcomes, where statistical significance was $P < 0.004$ (i.e. 0.05/12). Effect sizes were also estimated for each outcome measure using Cohen's d (small = 0.2, moderate = 0.5 and large effect = 0.8).[29]

Results

Sample characteristics

Participants ($n = 75$) were recruited between August 2020 and March 2021, with the last post-intervention evaluation session completed in April 2021. Of the 75 that participated, 71 (95%) completed both baseline and post-intervention evaluations. Sixty-eight participants completed all six sessions of COACH before completing post-intervention evaluations. All six sessions were completed within 6–12 weeks (1–3 weeks in between each session).

The mean age of participants was 72.4 years (SD: 5.8), with 65 being the youngest and 89 being the oldest. Table 2 further shows the sample characteristics. Fifteen percent reported having one chronic condition, with 80% having two or more conditions (Table 3). No participants were diagnosed with COVID-19 during study participation.

Primary outcome

The Health Directed Behaviour subscale showed statistically significant improvement (mean difference: 0.33, SD: 0.75) from baseline to post-intervention [$t(70) = 3.78$, $P < 0.001$] (Table 4). This corresponded to a Cohen's d of 0.45 (moderate effect size).

Secondary outcomes

After Bonferroni correction, there were statistically significant improvements in health promotion self-efficacy as measured by SRAHP [$t(70) = 3.74$, $P < 0.001$], and statistically significant decreases in the MCS of SF-36 [$t(70) = 3.74$, $P < 0.001$] (Table 4). Effect sizes for SRAHP and MCS were 0.44 and –1.69, respectively. No other secondary outcomes had statistically significant differences between baseline and post-intervention. Effect sizes ranged between 0.08 for DASS-21's depression subscale and 0.33 for DASS-21's anxiety subscale.

Table 2. Participant demographic characteristics at baseline evaluation ($n = 75$, 2020–2021).

Demographic categories	n (%) or mean ± SD
Sex	
Male	31 (41)
Female	44 (59)
Age (years)	72.4 ± 5.79
65–74	50 (67)
75–84	21 (28)
85+	4 (5)
Geographical location	
Urban (e.g. Vancouver/Fraser)	43 (57)
Suburban/rural (e.g. Interior, Vancouver Island)	32 (43)
Race/ethnicity	
Asian or Asian Indian or South Asian	11 (15)
White or Caucasian	57 (76)
Hispanic, Latino, or Spanish	1 (1)
Indigenous	1 (1)
Identified with more than one race/ethnicity	5 (7)
Marital status	
Married/common law	47 (23)
Other	28 (77)
Family size	1.8 ± 0.81
1 (living alone)	29 (39)
2+	42 (62)
Employment status	
Employed, working full-time/part-time	7 (9)
Retired	57 (76)
Other	11 (15)
Years of formal education	15.9 ± 3.52
10–14	27 (36)
15+	48 (64)
Highest education level/degree	
Less than a high school diploma	1 (1)
High school degree or equivalent (i.e. GED)	7 (9)
Bachelor's degree (i.e. BA, BSc)	20 (27)
Postgraduate degree (i.e. master's, doctorate)	15 (20)
Other	32 (43)
Approximate household income before taxes	
<$50,000	29 (39)
$50,000–79,999	17 (23)
$80,000 or more	18 (24)
Prefer not to answer	11 (15)

Participant perspectives

Mean responses on the exit satisfactory survey for each question ranged from 4.2 and 4.9 out of 5 (Table 5). Ninety-seven percent agreed or strongly agreed to recommending the program to others, 95% agreed or strongly agreed that the program helped them improve their skills in self-management, and 99% agreed or strongly agreed to having overall satisfaction with COACH.

Responses from the open-ended response box included comments about coaches' enthusiasm in leading COACH,

Table 3. Participant health conditions reported at baseline evaluation, measured by the Functional Comorbidity Index (*n* = 75, 2020–2021).

Health condition[a]	*n* (%)[b]
Arthritis (rheumatoid and osteoarthritis)	33 (44)
Visual impairment (such as cataracts, glaucoma, macular degeneration)	32 (43)
Upper gastrointestinal disease (ulcer, hernia, reflux)	22 (29)
Asthma	20 (27)
Degenerative disc disease (back disease, spinal stenosis, or severe chronic back pain)	18 (24)
Osteoporosis	17 (23)
Congestive heart failure (or heart disease)	13 (17)
Depression	13 (17)
Diabetes (type I and type II)	11 (15)
Anxiety or panic disorders	11 (15)
Angina	9 (12)
Obesity and/or body mass index >30 (weight in kg/height in meters^2)	9 (12)
Heart attack (myocardial infarction)	7 (9)
Hearing impairment (very hard of hearing, even with hearing aids)	7 (9)
Chronic obstructive pulmonary disease (COPD), acquired respiratory distress syndrome (ARDS), or emphysema	6 (8)
Stroke or TIA (transient ischemic attack)	6 (8)
Neurological disease (such as multiple sclerosis or Parkinson's disease)	3 (4)

[a]Participants may have had health conditions before or at the time of baseline evaluation.
[b]Not mutually exclusive percentages.

as well as their ability to motivate and provide accountability to participants. One participant stated, "Having someone to work with on a regular basis about my health and fitness made me more aware of what I was doing and encouraged me to become regularly active." Some participants stated the usefulness of the Health Living booklet as a guide during and outside of sessions. Another participant stated, "One of the benefits about that is that I now have it for a reference and an ongoing [sustainability] of the program." Other participants discussed the program structure, mentioning they would have liked more sessions. Some participants suggested having future follow-up sessions to see if participants maintained the skills and knowledge they learned from COACH.

Discussion

In this single-group, pre-post study, we quantitatively evaluated the student-delivered COACH. Results indicate that participants showed significant improvement in health-directed behaviour and health promotion self-efficacy, and significant decrease in mental components of HRQOL with moderate to large effect sizes. Participants also reported high program satisfaction. Additionally, relative to 128,836 COVID-19 cases that emerged in BC's population (5.1 million) through COACH's duration (August 2020 to April 2021), no participants reported to have contracted COVID-19 during participation.[30] While causality cannot be inferred, COACH's use of goal setting, person-centred action planning, and student-led support

may have contributed to improvements in both self-management and self-efficacy among program participants.

The principal findings support existing research examining self-management programs delivered to older adults (≥65 years of age) with chronic conditions via telehealth strategies. A narrative review published by Guo and Albright presented 31 studies regarding the effectiveness of telehealth technology on self-management on older adults, finding improvement in both self-management and health self-efficacy.[31] Specifically, long-distance technologies (i.e. phone, videoconferencing) showed effectiveness in areas, such as improving patients' quality of life, improving health problem-solving skills and self-care efficacy, adherence to self-care behaviours, and healthcare knowledge.[31] These findings are promising, as self-management and self-efficacy for chronic disease prevention and management are both important in an individual's ability to exercise control over their health conditions.

Self-efficacy is especially important when determining what type of self-care actions an individual uses, how much effort they exert, and how long they sustain their effort in performing self-care actions.[32] Previous studies have highlighted how goal setting and action planning are frequently used to support individuals undergoing behaviour change.[33] They are commonly applied in self-management support programs and have been found to improve not only self-management skills but also individuals' self-efficacy.[33] Therefore, our findings corroborate existing evidence that goal setting and action planning are two important self-management skills and provide further evidence on the effectiveness of self-management programs to support the health of community-living older adults.

Our results, however, are distinct in that they are specific to chronic disease management and prevention during uncertain times like COVID-19. The effects of COVID-19 shifted how chronic diseases were managed and delivered, as there was an increased demand for health services, not only for people with COVID-19 but also for people with chronic diseases.[34] People with chronic diseases either struggled to receive proper health resources or avoided forms of medical care out of fear of contracting the COVID-19 virus.[34] Thus, increasing the importance and demand for services that support chronic disease prevention and management. As COACH was developed early in the pandemic, it serves as an early example of the useful delivery of chronic disease prevention and management (i.e. through goal setting, action plan development, etc.) and COVID-19 education via telehealth solutions during times like COVID-19.

COACH also supports previous findings demonstrating the benefits of student-led interventions. Student-led interventions have achieved overall satisfaction and comparable results to professional-led interventions, including health promotion behaviours (e.g. weight loss).[35–37] Similarly, COACH participants expressed overall positive opinions about their assigned student coach, which likely contributed to participants' overall positive appraisals of the program. Lastly, it is worth noting that student-led interventions are also beneficial to students' learning by helping them develop and improve their communication, knowledge, confidence, and professional identity.[37] In COACH, student coaches developed experiential knowledge in areas, such as behavioural medicine, health promotion, and telehealth delivery services, which have limited focus in entry-to-practice health profession programs.

Table 4. Outcome measures of participants who completed COACH: descriptive statistics, paired *t*-test, effect sizes (*n* = 71, 2020–2021).

Outcome measure	Baseline mean ± SD	Post-intervention mean ± SD	Mean difference ± SD	*t*	*df*	Sig. (two-tailed)	Cohen's *d*
Health Education Impact Questionnaire (heiQ)							
Health Directed Behaviour	4.07 ± 0.088	4.41 ± 0.68	0.33 ± 0.75	3.78	70	<0.001[a]	0.45
Positive and Active Engagement in Life	4.12 ± 0.67	4.22 ± 0.60	0.11 ± 0.46	1.96	70	0.054	0.23
Emotional Distress	2.77 ± 0.88	2.89 ± 0.75	0.12 ± 0.68	1.53	70	0.130	0.18
Self-Monitoring and Insight	4.22 ± 0.47	4.34 ± 0.42	0.12 ± 0.40	2.46	70	0.016	0.29
Constructive Attitudes and Approaches	4.20 ± 0.60	4.32 ± 0.61	0.13 ± 0.53	2.02	70	0.047	0.24
Skills and Technique Acquisition	3.95 ± 0.61	4.07 ± 0.59	0.12 ± 0.54	1.87	70	0.066	0.22
Social Integration and Support	3.87 ± 0.80	3.98 ± 0.76	0.1 ± 0.51	1.85	70	0.069	0.22
Health Service Navigation	4.17 ± 0.56	4.29 ± 0.57	0.12 ± 0.46	2.20	70	0.031	0.26
Depression, Anxiety Stress Scale (DASS-21)							
Depression	6.00 ± 7.22	5.61 ± 6.38	–0.39 ± 4.68	–0.71	70	0.480	–0.08
Anxiety	5.46 ± 6.16	4.02 ± 4.94	–1.44 ± 4.31	–2.81	70	0.006	–0.33
Stress	10.08 ± 8.77	8.54 ± 5.97	–1.55 ± 6.90	–1.89	70	0.063	–0.23
Medical Outcomes Study (MOS): Social Support	3.68 ± 0.92	3.76 ± 0.92	0.08 ± 0.52	1.25	70	0.214	0.15
Short Form-36 (SF-36)							
Physical Component Summary (PCS)	49.56 ± 11.33	47.22 ± 7.78	–2.34 ± 10.92	–1.80	70	0.076	–0.21
Mental Component Summary (MCS)	32.28 ± 6.64	14.50 ± 9.72	–17.78 ± 10.50	–14.27	70	<0.001[b]	–1.69
Self-Rated Abilities for Health Practices	87.51 ± 13.45	92.17 ± 13.33	4.66 ± 10.52	3.74	70	<0.001[b]	0.44

[a]Health Directed Behaviour (primary outcome measure) had a statistically significant (*P* < 0.05) increase from baseline to post-test.
[b]Secondary outcome measures that had statistically significant changes from baseline to post-test after Bonferroni correction (*P* < 0.004).

In terms of delivery modality, COACH's use of telephone or videoconferencing software was successful during COVID-19. The Community Preventative Services Task Force has previously published four systematic reviews that examined several telehealth interventions aimed at reducing chronic disease risk factors and managing chronic disease conditions. These reviews highlight telehealth's ability to reduce in-person visits, and thus give individuals more opportunities to receive the health support they need.[38] This is of importance during COVID-19, where individuals are required to follow the preventative strategies of physical distancing and isolation. Therefore, improved self-management and health promotion self-efficacy observed in this study further support the potential effectiveness of using technology to deliver health promotion and chronic disease prevention programs.

While study findings demonstrated improvements in self-management and self-efficacy, results also indicated a significant decrease in the MCS of the SF-36 (mental component of HRQOL). This may be the result of ongoing mental health challenges presented by COVID-19, including physical distancing and the addition of new variants. Particularly, recent study findings reported by Maggi et al. indicate that greater fear of getting infected was related to diminishing mental health in older adults, possibly due to the perceived vulnerability of older adults to the COVID-19 virus.[39] Additionally, a longitudinal study from Mishra et al. displayed that decreased mobility (decreased walking, standing time, etc.) during COVID-19 was associated with mental health symptoms such as depression.[40] Thus, our results are unique in that they demonstrate the efficacy of COACH at improving self-management behaviour and self-efficacy, despite participant compromises in mental health likely due to COVID-19. While this paradox requires further investigation, our findings indicate the possible usefulness of interventions like COACH during times of stress and uncertainty.

Additionally, our findings indicate the feasibility of delivering a self-management program with short duration (2 months, six sessions). A previous systematic review examined the effects of 12 self-management programs on the daily living of older adults that varied in time length and meeting frequency; the shortest program that displayed efficacy was reported to be once a week for 5 weeks, while the longest lasted up to 2 years.[41] COACH demonstrated potential for

Table 5. Results from the exit satisfaction survey obtained from participants at post-intervention evaluation (*n* = 71, 2020–2021).

Question	Mean[a] ± SD
Staff communication and facilitation	
My privacy was sufficiently protected	4.8 ± 0.50
I always had a say in what was happening	4.8 ± 0.44
I was treated with respect	4.9 ± 0.34
I never knew what was going on[b]	1.4 ± 0.54
There was adequate follow-up from one session to another	4.6 ± 0.64
Things were explained to me in an understandable way	4.7 ± 0.51
Staff listened carefully	4.8 ± 0.40
Usefulness of the service	
I would recommend this program to others	4.7 ± 0.52
The program has helped me improve my skills in self-management	4.5 ± 0.71
I spent more time during my daily life thinking about how to better improve the way I manage my health	4.2 ± 0.71
Equipment	
I found it easy to communicate and attend the sessions via phone or videoconferencing call	4.7 ± 0.58
I could easily hear the staff person while attending the session on the phone/videoconferencing call	4.7 ± 0.60
The staff person could easily hear me through the telephone/videoconferencing call	4.7 ± 0.56
I found the use of the telephone/videoconferencing call programs a good alternative for delivering health support resources	4.5 ± 0.58
Program structure	
There was enough time to work through the coaching program sessions	4.5 ± 0.73
There were enough sessions in the coaching program	4.3 ± 0.86
Overall, I was satisfied with the coaching program	4.8 ± 0.47

[a]Responses ranged from 1 (strongly disagree) to 5 (strongly agree).
[b]Reverse coded (1 is better than 5).

self-management programs to improve self-management and self-efficacy in as little as 6 weeks, and thus allowing participants to receive quick and positive results.

Limitations

Due to the single-group, pre-post study design, we cannot determine the causal effects COACH might have had on study outcomes. Our results, however, demonstrate high satisfaction with COACH along with moderate-sized effects on outcomes with statistical significance. There may be low internal validity due to possible uncontrollable confounding variables (i.e. life events experienced outside of study participation). Future directions should involve evaluating COACH using a randomized controlled trial to control for confounding variables.

Group means at baseline for each outcome measure suggested that participants started the study with good health-related behaviours, which may have limited the potential for improvements in the evaluated outcome measures. Participants were primarily white and highly educated with access to technology, which limits the generalizability of results. Thus, future research should look further into how successful this or similar interventions are among other racial or ethnic population groups. Regarding technology accessibility, there is also a chance that participants were mainly people with higher technology readiness (e.g. stable internet/phone service). Furthermore, outcomes may have been influenced by social desirability bias. Future data collection in the absence of an assessor may help to limit this bias (e.g. online data collection), thus making self-report responses on outcome measures more anonymous. In addition, the use of performance-based measures (e.g. activity monitors) will help to avoid social desirability bias.

Conclusion

COACH is a feasible health promotion and education program that may improve self-management and self-efficacy during times that require physical and social distancing. Our findings also highlight the benefits of using health professional students for delivering virtual health promotion programs. Future COACH evaluations using a randomized controlled trial study design may further determine its effectiveness on clinical outcomes.

Supplementary material

Supplementary material is available at *Family Practice* online.

Author contributions

All authors have contributed to the manuscript conception, drafting, revision, and final approval to be included as authors.

Conflict of interest

There are no relevant conflicts of interest to disclose for this study.

Data availability

Aggregate data and study materials will be made available upon request.

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