ORIGINAL
Research

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Integrating Exercise Counseling Into the Medical School Curriculum: A Workshop-Based Approach Using Behavior Change Techniques

Abstract: Objective. *Physician physical activity (PA) counseling remains low due partly to lack of knowledge, emphasizing the importance of providing learning opportunities to develop competency, given the strong associations between PA and health. This study aimed to describe the behavior change techniques (BCTs) used in an "Exercise Expo" workshop and examine the workshop's effectiveness for improving social cognitions to discuss exercise with patients. Methods. Second-year medical students ($N = 54$; $M_{age} \pm SD = 25.4 \pm 2.95$ years) completed questionnaires assessing attitudes, perceived behavior control (PBC), subjective norms, and intentions to provide PA counseling pre- and postworkshop. Repeated-measures analyses of variance evaluated changes in these theory of planned behavior constructs. Results. The most used BCTs included presenting information from credible sources,*

with opportunities for practicing the behavior and receiving feedback. Significant increases in attitudes, PBC and intentions to discuss PA were observed from pre-post Exercise Expo ($P \leq .01$). No statistically significant differences in subjective norms were

to enhance medical students' social cognitions for PA counseling.

Keywords: medical education; physical activity prescription; curriculum; theory of planned behavior

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observed ($P = .06$). Conclusions. The Exercise Expo significantly improved social cognitions for PA counseling among medical students. Future interventions should target improvements in subjective norms to increase the likelihood the workshop improves PA counseling behavior. The evidence supports the usefulness of a workshop-based educational strategy

Physical activity (PA) interventions are effective for chronic disease prevention; however, 31% of adults worldwide and 43% in the Americas, specifically, are not currently meeting guideline-recommended PA levels.¹ Primary care physicians play an important role in promoting PA, as patients perceive them as credible and respected sources of health information.²

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Since patients receiving PA counseling from their physicians are more likely to be active,³ PA promotion by physicians should be considered integral to routine medical counseling. Unfortunately, only 28% of adults report receiving advice from their physicians to increase PA levels.⁴ Lack of knowledge and skill are common barriers to PA counseling,⁵ with one-third of physicians feeling adequately trained to counsel about PA.⁶ Thus, physicians must be provided with opportunities to develop the skills and behaviors necessary to implement PA counseling into routine medical practice.⁵

The undergraduate medical school curriculum provides an exciting opportunity to address the alarming knowledge gap that exists and yet, PA counseling in formal curriculum remains scarce, with few institutions formally offering coursework/practical learning in PA.⁷ Several studies have evaluated a PA component in the medical school curriculum with varying levels of success for changing the attitudes, intentions, and behaviors of medical students regarding PA counseling.⁸⁻¹² However, few of these investigations include pre- and posttesting measures in addition to a practical guide based on a strong theoretical framework to guide future implementation in alternate settings.¹⁰⁻¹² Improvement in medical students' training regarding PA counseling and prescription is necessary. Formal training by credible PA professionals early in training will equip medical students with knowledge and resources to counsel patients about active living from the onset of their professional practices.¹³

Exercise Is Medicine Canada (EIMC) is a national initiative part of a global movement to increase exercise prescription among physicians. EIMC works closely with university and college campuses to achieve these aims in academic settings. EIMC at Queen's University (EIMC-QU) was first established in 2013 as a graduate student-run group collaborating with many campus departments and community health care professionals to design and deliver 4 intervention types: (1) PA awareness and promotion; (2) educational workshops for

students and/or community members; (3) consultation and collaboration with campus health services, local family health teams, and/or primary care networks; and (4) new medical program curriculum developments.

EIMC-QU, in partnership with an endocrinologist (RH) from Queen's University School of Medicine and Kingston General Hospital, designed and implemented an innovative "Exercise Expo" (Expo) to address the gap in PA counseling within the current medical school curriculum. In 2014, the Expo was established as an annual half-day workshop for second-year medical students addressing PA counseling and prescription to reinforce the important role physicians have for incorporating PA assessment and intervention into patient interactions. To characterize the 2015 Expo's impact on students' social cognitions (thoughts and feelings) toward PA counseling, an evaluation founded in the theory of planned behavior (TPB) was used. The TPB has been demonstrated to predict health care providers' intentions for discussing PA with patients¹⁴ and theorizes that individuals' attitudes, subjective norms, and perceived behavioral control (PBC) for discussing and prescribing exercise influences the individuals' intention to perform that behavior.¹⁵ Therefore, if intentions and PBC are improved, the likelihood of discussing and prescribing PA increases. The behavior change techniques (BCTs)—or mechanisms by which behavior change is produced¹⁶—used in the Expo aligned with TPB constructs. Thus, the Expo theoretically had the potential to change attendees' thoughts and feelings toward PA counseling.

Accordingly, the purposes of this investigation were to (1) describe the BCTs used in the Expo to serve as a model for other training programs and (2) assess the Expo's impact on enhancing second-year medical students' social cognitions for discussing and prescribing PA to their future patients. It was hypothesized that medical students would report significant increases in attitudes, subjective norms, PBC, and intentions to discuss PA with their

patients immediately following their attendance at the Expo.

Methods

Description of the Exercise Expo

Attendance at the Expo was mandatory for second-year medical students and the material was testable. The workshop provided practical information tailored to promote the effective incorporation of PA strategies in patient care plans. Students cycled through seven 25-minute stations: (1) Five Major Steps to Intervention (exercise counseling); (2) Exercise Prescription and Goal Setting; (3) Simple Strategies for Aerobic Activity; (4) Considerations for Rural and Remote Settings; (5) Strategies for PA Promotion; (6) Introduction to the Canadian PA Guidelines; and (7) Strategies for Resistance Exercise Training. The evidence-based station content was designed and developed by EIMC-QU graduate students, whose research and practical expertise included exercise physiology, health promotion, health psychology, biomechanics, and PA epidemiology.

Following the workshop, independent coding and examples of BCTs used in each station were completed by three of the station developers (AB, KD, AF) for students' (1) own PA and (2) PA counseling behaviors (see the appendix). A researcher with expertise in exercise behavior change (JT) was consulted where disagreements or uncertainty existed. BCTs and corresponding examples were reviewed and confirmed by station facilitators.

Assessment of the Exercise Expo's Impact

Protocol. The study received institutional ethics approval. To compare changes in second-year students' TPB social cognitions for PA counseling, hardcopy questionnaires were administered 1 week prior to and immediately following the workshop.

Participants. Eligible participants (N = 100) were second-year medical students at Queen's University who attended

Table 1.Participant Demographic Characteristics.^a

Characteristic	Incomplete (n = 77)	Complete (n = 54)
Gender		
Male	41 (53.2)	25 (46.3)
Female	36 (46.8)	29 (53.7)
Ethnicity		
Caucasian	46 (59.7)	31 (57.4)
Asian	18 (23.4)	11 (20.4)
Other	6 (7.8)	5 (9.26)
Age, y, mean $\pm$ SD	25.07 $\pm$ 2.75	25.44 $\pm$ 2.95
Physical activity, d/wk, mean $\pm$ SD	3.93 $\pm$ 1.69	3.97 $\pm$ 1.71
Highest level of education completed		
University–bachelor’s-level degree	46 (59.7)	29 (53.7)
University–master’s-level degree	14 (18.2)	10 (18.5)
University–doctorate-level degree	8 (10.4)	7 (13.0)
University–professional postgraduate	3 (3.9)	2 (3.70)
Previous academic program		
Life science/health science	48 (62.3)	31 (57.4)
Kinesiology/exercise science/physical education	3 (3.9)	2 (3.70)
Other	19 (24.7)	14 (25.9)

^aAll values are in n (%) unless indicated otherwise. Some participants declined to respond to certain questions; hence, n < 77 and n < 54 for some variables. Examples of “Other” academic programs include nursing and physiotherapy/occupational therapy. Independent *t* tests and χ^2 tests were conducted to determine whether significant differences existed between the demographics of participants who completed only the prequestionnaire (“Incomplete”) versus both questionnaires (“Complete”).

their scheduled endocrinology lecture 1 week prior to the workshop. Students received study information and interested students read and signed the Letter of Information/Consent before completing the hardcopy prequestionnaire (n = 77).

Questionnaire Measures

Demographics. Participants were asked about general demographic

information, current PA levels, and academic background (Table 1). The majority of participants with complete data (pre- and postquestionnaire; n = 54 (54% participation rate) were women (53.7%), Caucasian (57.4%), and holding Bachelor-level degrees (53.7%). Few participants (3.70%) had previous academic experience in kinesiology/exercise science/physical education. Participants had a mean age of 25.44

$\pm$ 2.95 years and were active for 3.97 $\pm$ 1.71 days per week. There were no significant differences in demographic characteristics between those who completed only the prequestionnaire versus those who completed both pre- and postquestionnaires ($P > .05$).

Social cognitions. Participants were asked about their attitudes, subjective norms, PBC, and intentions for exercise counseling and prescription. These items were adapted from a questionnaire shown to be reliable in a study that examined health care professionals’ social cognitions for discussing and prescribing PA,¹⁴ in order to reflect the specific population (medical students) and context (Exercise Expo) of the current intervention. Table 2 contains full item descriptions.

Knowledge of EIMC and PA guideline recall. Participants were asked 3 questions regarding their awareness and knowledge of (1) EIMC, (2) EIMC-QU, and (3) any Canadian PA Guidelines. They were also asked to identify which of the provided multiple-choice answers represented the adult Canadian PA Guidelines.¹⁷

Quality assessment. Participants were asked 9 questions regarding their evaluation of the Exercise Expo (Table 3).

Statistical Analyses

Repeated-measures analyses of variance were conducted for the 4 TPB cognitions across the 2 time points. Using the Bonferroni method, alpha was adjusted for the 4 comparisons ($\alpha = .05/4$ comparisons = .0125). Cohen’s *d* was calculated to determine effect sizes.

Responses to EIMC and PA guideline questions were dichotomized (yes = 1, no = 0 and correct = 1, incorrect = 0, respectively). Frequency counts and exact McNemer’s χ^2 tests were conducted to determine differences between the proportion of students who were aware of EIMC and the Canadian PA Guidelines between pre- and post-Expo. Descriptive statistics were used for each quality assessment item.

Table 2.

Questionnaire Items Assessing Medical Students' Social Cognitions for Discussing Physical Activity With Future Patients and Changes in Medical Students' Social Cognitions Over Time.

Theory of Planned Behavior Construct (No. of Items)	Response Scale	Internal Reliability Score (α) or Correlation (r)		Descriptive Statistics		Repeated- Measures ANOVA	Cohen's d
		Pre	Post	Pre	Post		
<i>Items Included in Scale</i>							
<i>Attitudes (2 items)</i>		$\alpha = .653$	$\alpha = .777$	5.52 ± 0.08	6.14 ± 0.08	$F(1, 46) = 46.3^*$	1.02
Instrumental attitudes	1 = Strongly disagree 7 = Strongly agree						
1. Attending this Exercise Expo will help me discuss PA with my future patients/clients.							
Affective attitudes	Anchors represent extremes (1/7) on 7-point Likert-type scale						
2. Discussing PA with my future patients/clients would be:							
a. Harmful/beneficial							
b. Worthless/valuable							
c. Difficult/easy							
d. Unpleasant/pleasant							
<i>Perceived behavior control (2 items)</i>		$r = 0.326$ $P = .006$	$r = 0.340$ $P = .012$	5.31 ± 0.10	6.08 ± 0.08	$F(1, 47) = 44.53^*$	0.95
If you were really motivated and had all of the resources that you needed, how confident are you in your ability to . . .	1 = Not at all confident 7 = Completely confident						

(continued)

Table 2. (continued)

Theory of Planned Behavior Construct (No. of Items)	Response Scale	Internal Reliability Score (α) or Correlation (r)		Descriptive Statistics Time		Repeated- Measures ANOVA F	Cohen's d Pre-Post
		Pre	Post	Pre	Post		
Items Included in Scale							
1. . . . discuss PA with your future patients/clients?							
2. . . . persuade your future patients/clients to participate in PA?							
<i>Subjective norms (1 item)</i>		N/A	N/A	5.67 $\pm$ 0.14	6.03 $\pm$ 0.13	$F(1, 45) = 3.54$	0.32
1. Other physicians think I should discuss PA with my future patients/clients.	1 = Strongly disagree 7 = Strongly agree						
Intentions (2 items)		$r = 0.671$ $P = .001$	$r = 0.888$ $P = .001$	5.39 $\pm$ 0.12	5.96 $\pm$ 0.13	$F(1, 47) = 18.35^*$	0.67
1. I intend to seek out additional information about PA for my future patients/clients.	1 = Strongly disagree 7 = Strongly agree						
2. I intend to seek out additional information to persuade my future patients/clients to engage in PA.							

Abbreviations: ANOVA, analysis of variance; N/A, not applicable; PA, physical activity.

*Significant difference between pre- and post-Expo ($p < 0.05$).

Table 3.

Medical Students' Quality Assessment Evaluation of the Exercise Expo.

Items Included	Response Scale	Descriptive Statistics ^a
Exercise Expo content (6 items)		
1. I learned a lot of new information at the Exercise Expo.	1 = Strongly disagree 7 = Strongly agree	5.39 ± 1.27
2. The information in the Exercise Expo was interesting.		5.81 ± 1.08
3. The information in the Exercise Expo was easy to understand.		6.61 ± 0.56
4. The information in the Exercise Expo was credible.		6.35 ± 0.78
5. The Exercise Expo was personally important to me.		5.72 ± 1.25
6. I would recommend the Exercise Expo for future use in the medical school curriculum.		6.13 ± 1.05
Exercise Expo overall evaluation (3 items)		
1. Ratings of the Exercise Expo overall	1 = Poor 5 = Excellent	4.02 ± 0.84
2. Ratings of the speakers at the Exercise Expo		4.37 ± 0.68
3. Ratings of the audiovisual aids at the Exercise Expo		3.96 ± 0.82

^aValues are mean ± SD.

Results

Description of the Exercise Expo

The appendix lists and operationalizes all BCTs used in each of the 7 stations. 25 BCT items were identified in total with 34 uses targeting students' personal PA behavior, while 41 uses targeted students' clinical PA counseling behavior. The most commonly used BCTs for both personal and clinical included 4.1–Instruction on how to perform a behavior, 9.1–Credible source, 8.1–Behavioral practice/rehearsal, and 2.2–Feedback on behavior.¹⁶

Assessment of the Exercise Expo's Impact

Descriptive statistics for the TPB variables at both time points are

presented in Table 2. Despite initially high values for each social cognition (all means ≥5.31 out of 7), significant increases in attitudes, PBC, and intentions to discuss PA were observed from pre- to post-Expo ($P \leq .01$). No significant differences in subjective norms were observed from pre- to post-Expo ($P = .06$).

Increases in the proportion of students reporting awareness of EIMC and EIMC-QU from pre- and post-Expo were observed (33.3% vs 54.2%; $\chi^2(2) = 13.0$, $P = .0003$ and 33.3% vs 54.2%; $\chi^2(1) = 7.14$, $P = .008$, respectively). While there was no change in students' awareness of the PA guidelines between pre- and post-Expo (83.3% vs 87.5%; $\chi^2(1) = 0.40$, $P = .527$), there was an increase in the proportion of students correctly

reporting the PA guidelines (23% vs 93.8%; $\chi^2(1) = 34.0$, $P = .001$).

Participants positively rated the Expo (Table 3; all means ≥5.39 out of 7). The students' highest ranking indicated information was easily understandable and credible ($M = 6.35 \pm 0.56$ and 6.35 ± 0.78 , respectively). Notably, participants indicated they would recommend the Expo for future use in the medical school curriculum (6.13 ± 1.05). When asked to provide an overall evaluation of the Expo, speakers and audiovisual aids, the feedback was positive (Table 3; all means ≥3.96 out of 5).

Discussion and Conclusion

The purposes of this study were to (1) characterize the BCTs used in an innovative workshop-based Expo to assist with developing future educational training programs and (2) examine the impact of this intervention on enhancing second-year medical students' thoughts and feelings toward PA counseling with their future patients.

Discussion

The primary findings of this study were that, in agreement with our hypothesis, immediately following the Exercise Expo, participants reported significant increases in attitudes, PBC, and intentions to discuss PA with their future patients. This demonstrates that the "Exercise Expo" is a viable educational component that can be incorporated in a variety of medical education contexts.

Our findings are supported by prior investigations that examine medical school interventions targeting PA counseling.² Three separate studies investigating the utility of various PA education components demonstrated a significant improvement in awareness of the importance and ability to discuss PA with their future patients¹⁰⁻¹²; however, these studies were limited by their postquestionnaire design. These limitations have been addressed by subsequent investigations. Bass Iii et al⁹ examined the influence of a 2-hour interactive lecture including performance

practice for PA and nutrition counseling skills among 57 medical students and found significant improvements in knowledge and self-confidence for PA counseling from pre- to postintervention. Furthermore, Frank et al⁸ observed a significant association between exercise counseling habits and participation in a 4-year project involving numerous lectures and activities directly related to PA counseling. All the preceding interventions, including our own, incorporate experiential learning and are supported by theoretical frameworks, which are both important aspects of effective PA education programs.² The current investigation extends existing literature by providing a detailed description of the active ingredients of the Exercise Expo for future replication and evaluation.

The Exercise Expo is rooted in the TPB and the specific BCTs that align with this theory are outlined at length in the appendix. The BCT taxonomy of Michie et al¹⁶ allows researchers to determine the “active ingredients” of interventions that function to change cognitive processes regulating behavior. By using standardized definitions and labels for the intervention components in the Expo, the intent of this article was to provide a well-specified educational model that can be replicated by others to address the knowledge gap in clinical PA counseling. On retrospective identification of the BCTs, it was evident that 2 complementary elements of clinical exercise prescription were targeted: personal PA behavior and clinical PA counseling, with a greater focus on the latter. Common elements across the stations included presenting medical students with “how to” information from credible sources, with opportunities for practicing the behavior and receiving feedback. Continued exposure to PA-related content throughout medical school will equip future physicians to become credible sources in this area, feeling confident to discuss this lifestyle change with their patients (C. H. Shirazipour et al, unpublished data, 2017).

In contrast to our hypothesis, there was no change in subjective norms. On review of the TPB constructs targeted in

each of the 7 stations, the Expo primarily targeted students’ PBC, followed by attitudes and to a lesser extent, subjective norms; therefore, this finding is not surprising. Furthermore, we are limited in evaluating this construct as only 1 item on the questionnaire was specifically designed to evaluate subjective norms. A shortened TPB questionnaire modeled after a previously used questionnaire for similar purposes¹³ was used to enable feasible data collection. Future research should examine the validity of shorter theory-based questionnaires for use in similar settings. Furthermore, while having kinesiology graduate students and exercise physiologists present the content strengthened the credibility of the information source, the incorporation of physicians’ self-described experience with PA counseling should be considered. Tomasone et al¹⁵ suggest that this would strengthen students’ perceptions that others in their field view engaging in PA and PA counseling as important and relevant. Future iterations of the Exercise Expo should consider the use of both an exercise professional and a physician as the interventionists.

Participants demonstrated greater awareness of EIMC and recall of PA guidelines following the Expo, which is important for physicians as they develop evidence-based practices to ensure effectiveness of treatment and patient safety. An encouraging outcome of this study was the positive feedback received from medical students who found the Expo content and delivery to be engaging and worthwhile, indicating enthusiasm for the continued development and integration of PA counseling into medical school curriculum. While this is promising, it has recently been demonstrated that improvement in PA guideline knowledge is often not maintained 1-month postintervention (C. H. Shirazipour et al, unpublished data, 2017). Furthermore, awareness of guidelines does not necessarily indicate adoption of behavior. Continued exposure to the importance of PA for health throughout medical school will be important to consider for

long-term retention. Further research is required in this population to address the most effective means of implementing PA into physicians’ lifestyles and PA counseling into demanding clinical schedules to improve physician confidence in and feasibility of discussing PA with their patients.

Conclusion

The global health problem of physical inactivity necessitates a collaborative effort from key stakeholders, including health care providers. This evaluation study provides evidence for the usefulness of a workshop-based educational strategy to increase medical students’ knowledge and social cognitions surrounding PA counseling and prescription. The evidence-based material presented using interactive approaches and interpersonal communication likely was influential in changing knowledge and attitudes toward clinical PA counseling. The identified BCT components of the Expo can be used as a foundation to replicate this intervention in other schools. Future studies evaluating the long-term maintenance of clinical behavior following initiatives similar to the Expo are required.

Practice Implications

Patients who receive PA counseling from their physicians are more likely to be active; thus, PA promotion by physicians should be considered an important component of medical counseling. However, many physicians report lack of knowledge and skills as an important barrier to physician PA counseling.⁵ Therefore, it is important that physicians be provided with learning opportunities throughout their training to integrate PA counseling into clinical practice. The Exercise Expo, rooted in the TPB, made effective use of BCTs¹⁶ to improve social cognitions for PA counseling among medical students. This workshop can act as a model for other medical schools to implement into medical school curricula to address the serious gap in PA-related education.

Appendix

Summary of Behavior Change Techniques Used at Each Exercise Expo Station

Station 1: The “5 As”. Attendees were instructed on the 5 As for Lifestyle Counseling, which include Assess, Advise, Agree, Assist, and Arrange.¹ Each component was reviewed in detail. Case studies and role-playing exercises were used to facilitate understanding, discussion, and skill acquisition.

Table A1.

Behavior Change Techniques Used in Station 1.

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
1.2	Problem solving	Analyze, or prompt the person to analyze, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators		Prompted participants to analyze how patient barriers to physical activity behavior would affect the participant's physical activity counseling behavior. Prompted participants to use 5 As as a model for counseling	Perceived behavioral control Intention-behavior gap
2.2	Feedback on behavior	Monitor and provide informative or evaluative feedback on performance of the behavior (eg, form, frequency, duration, intensity)		Asked attendees to be mock patients and physicians and practice the principles of the 5 As given a scenario of a patient who had recently undergone knee surgery. Provided attendees with feedback on their performance. (eg, providing feedback to participants on how to provide advice to the patients in a manner that maintains the autonomy of the patient)	Perceived behavioral control
4.1	Instruction on how to perform the behavior	Advise or agree on how to perform the behavior (includes “skills training”)		Instructed attendees on the components of the 5 As (assess, advise, agree, assist, arrange) and how to incorporate each component into their personal exercise counseling behavior (eg, assess current level of physical activity and knowledge of guidelines/importance of physical activity).	Perceived behavioral control

(continued)

Table A1. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
9.1	Credible source	Present verbal or visual communication from a credible source in favor of or against the behavior		Presented attendees with information based on the Five Major Steps to Intervention as outlined by the United States Public Health Service. All information communicated to participants was taken from academic, peer-reviewed articles.	Attitudes Subjective norms
8.1	Behavioral practice/ rehearsal	Prompt practice or rehearsal of the performance of the behavior one or more times in a given context or at a time when the performance may not be necessary, in order to increase habit and skill		Prompted attendees to practice counseling mock patients to increase self-efficacy and skill of exercise counseling. For example, participants were provided with a scenario of a patient who had undergone knee surgery and was visiting the doctor to discuss exercise-based recuperative strategies. One participant played the role of the patient, and the other participant played the role of the doctor. The doctor was to use the 5 As to counsel the mock patient on relevant exercises for recuperation post-knee surgery.	Perceived behavioral control
15.1	Verbal persuasion about capability	Tell the persons that they can successfully perform the wanted behavior, arguing against self-doubts and asserting that they can and will succeed		Informed participants that they had already been introduced to the 5 As in their curriculum and encouraged them to apply those same skills in a new behavioral context (ie, in the context of PA counseling).	Perceived behavioral control

Abbreviations: BCTT(v1), Behavior Change Technique Taxonomy (v1); BCT, behavior change techniques; CSEP, Canadian Society for Exercise Physiology; PA, physical activity; TPB, theory of planned behavior.

Station 2: Exercise Prescription (FITT) and Goal Setting (SMART Goals). Graduate students specializing in health promotion and exercise physiology provided attendees with an interactive lesson on how to use the FITT principle to design an exercise plan. Students were instructed on the principles of frequency (how often an individual should exercise); intensity (how hard an individual should exercise), including how to measure intensity (% heart rate reserve, rating of perceived exertion); type of exercise, including aerobic exercise, strength training, balance, and flexibility; and time (how long an individual should exercise) according to the type and intensity of activity. Students were given guidelines on low-, moderate-, and high-intensity activity, in addition to strength training and flexibility. Students were also advised on the components of a SMART goal, including being specific, measurable, attainable, realistic, and timely. The students were then asked to make a personal SMART goal using these principles for their physical activity habits.

Table A2.

Behavior Change Techniques Used in Station 2.

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	Label	Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
1.1	Goal setting (behavior)	Set or agree on a goal defined in terms of the behavior to be achieved	Instructed attendees to develop a SMART goal to increase personal physical activity levels during second year of medical school.	Prompted attendees to develop future clinical goals of integrating physical activity counseling into their routine medical practice.	Intention- Intention- behavior gap
1.2	Problem solving	Analyze, or prompt the person to analyze, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators	Encouraged attendees to examine personal barriers to physical activity, including high workload, long class hours, and fatigue. Discussed strategies to overcome barriers such as scheduling physical activity in their daily agenda and signing up for intramural activities to make activity social.		Perceived behavioral control Intention- behavior gap
1.3	Goal setting (outcome)	Set or agree on a goal defined in terms of a positive outcome of wanted behavior	Assisted attendees in setting health benefit goals (eg, improved mood) as an outcome of increased physical activity levels.	Assisted attendees in setting health benefit goals for their patients (eg, improved mood, cardiorespiratory fitness (CRF), and quality of life) as an outcome of increased physical activity counseling.	Attitudes Intention Intention- behavior gap
1.4	Action planning	Prompt detailed planning of performance of the behavior.	Prompted attendees to plan performance of aerobic and strength training by setting the time, frequency, intensity, and duration of the activity and who they would perform it with.		Perceived behavioral control Intention- behavior gap

(continued)

Table A2. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	Label	Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
4.1	Instruction on how to perform a behavior	Advise or agree on how to perform the behavior.	Educated attendees on how to use FITT principles and SMART goal setting for exercise planning. For example, students were informed that participating in a dance class at a moderate intensity for 60 minutes per week contribute to their weekly SMART (specific, measurable, attainable, realistic, timely) goal of performing 150 minutes of moderate-to-vigorous physical activity per week.	Explained how to integrate FITT principles for exercise planning and SMART goal setting into clinical practice, so attendees' patients learn how to participate in the behavior. For example, attendees were advised to help patients set goals that were realistic.	Perceived behavioral control
5.1	Information about health consequences	Provide information about health consequences of performing the behavior	Informed attendees of the mental and physical benefits of physical activity, including increased attention and improved cardiorespiratory fitness.	Informed attendees that goal setting with patients can improve PA counseling outcomes by increasing the likelihood of patients participating in exercise and incurring positive health outcomes.	Attitudes
8.1	Behavioral practice/rehearsal	Prompt practice or rehearsal of the performance of the behavior one or more times in a context or at a time when the performance may not be necessary, in order to increase habit and skill.	Prompted attendees to practice creating personal SMART goals for physical activity and to incorporate into their daily routine.	Instructed attendees to practice SMART goal planning with a peer to develop effective strategies to implement individualized SMART goal setting with their future patients.	Perceived behavioral control
9.1	Credible source	Present verbal or visual communication from a credible source in favor of or against the behavior.	Presented attendees with an interactive session based on credible information using the FITT principle and SMART goal setting, delivered by graduate students in exercise physiology and health promotion. Discussed the Activity Pyramid (ParticipACTION), Borg 15-Point Scale (6-20) for intensity, and reviewed the Heart & Stroke Foundations Personal Action Plan.		Attitudes Subjective norms

Abbreviations: BCTT(v1), Behavior Change Technique Taxonomy (v1); BCT, behavior change techniques; CRF, cardiorespiratory fitness; FITT, frequency, intensity, type, time; PA, physical activity; SMART, specific, measurable, attainable, realistic, timely; TPB, theory of planned behavior.

Station 3: Simple Strategies for Aerobic Activity—Introduction to Urban Poling. Attendees were introduced to the concept and benefits of aerobic exercise training. They were taken through an interactive activity (2-km walk) using Nordic walking poles.

Table A3.
Behavior Change Techniques Used in Station 3.

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Behavior	
2.2	Feedback on behavior	Monitor and provide informative or evaluative feedback on performance of the behavior	Provided attendees individualized feedback on their performance using the walking poles. Specific feedback included: adjusting attendees posture, gait, arm swing and balance while walking		Perceived behavioral control
4.1	Instruction on how to perform a behavior	Advise or agree on how to perform the behavior (includes “skills training”)	Instructed attendees on pole walking techniques, which included how to (1) hold the poles; (2) maintain proper posture; and (3) incorporate the “3 Ps” (plant, push, propel) while walking		Perceived behavioral control
6.1	Demonstration of the behavior	Provide an observable sample of the performance of the behavior, directly in person or indirectly, for example, via film, pictures, for the person to aspire to or imitate	Certified Nordic Walking Instructor and EIMC member provided a live demonstration of proper walking technique using the walking poles		Subjective norms Perceived behavioral control
8.1	Behavioral practice/rehearsal	Prompt practice or rehearsal of the performance of the behavior one or more times in a context or at a time when the performance may not be necessary, in order to increase habit and skill	Encouraged attendees to practice graded pole walking techniques several times, both with and without the poles. Attendees were then taken on a 15-minute walk using their poles		Perceived behavioral control
12.5	Adding objects to the environment	Provided attendees with walking poles for the duration of the session			Perceived behavioral control
13.1	Identification of the self as role model	Inform that one’s own behavior may be an example to others		Indicated to attendees that their own experiences with pole walking may provide them with examples for how they might counsel their patients to incorporate regular light-to-moderate physical activity into their routine	Attitudes Perceived behavioral control

Abbreviations: BCTT(v1), Behavior Change Technique Taxonomy (v1); BCT, behavior change techniques; EIMC, Exercise is Medicine Canada; TPB, theory of planned behavior.

Station 4: Considerations for Rural and Remote Settings. Attendees were made aware of barriers to physical activity (PA) participation in rural and remote communities, with a particular focus on First Nations communities. Barriers discussed included income, weather, infrastructure, and access. Attendees were presented with several photographs of rural and remote areas taken by Indigenous residents for a Photovoice project² and were asked to identify the barriers to PA participation and facilitators given the environment.

Table A4.
Behavior Change Techniques Used in Station 4.

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
1.2	Problem solving	Analyze, or prompt the person to analyze, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators.		Provided attendees with several examples of barriers to physical activity participation in rural and remote environments (eg, low income, weather, limited access to facilities, wildlife, lack of infrastructure, etc) and prompted attendees to discuss potential opportunities for participation.	Perceived behavioral control Intention-behavior gap
4.2	Information about antecedents	Provide information about antecedents (eg, social and environmental situations and events, emotions, cognitions) that reliably predict performance of the behavior.		Informed attendees that antecedents such as weather, pests, and income can predict low participation in physical activity in rural and remote communities.	Attitudes
9.1	Credible source	Present verbal or visual communication from a credible source in favor of or against the behavior		Presented information and mediated discussion from a credible source (eg, a graduate student studying barriers to physical activity in remote settings).	Attitudes Subjective norms
12.1	Restructuring the physical environment	Change, or advise to change the physical environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards, and punishments)		Advised attendees that they may need to change aspects of the physical environment that physical activity would typically be performed in (eg, going to the gym) and use alternative environments better suited to community resources (eg, nature walk).	Perceived behavioral control
12.2	Restructuring the social environment	Change, or advise to change the social environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards, and punishments)		Advised attendees that in rural and remote communities, strengthening community and social relationships through immersing oneself in the community's culture (eg, pow-wows, drumming circles) will help build trust and encourage patients to change their physical activity behavior.	Perceived behavioral control
13.1	Identification of self as role model	Inform that one's own behavior may be an example to others		Informed attendees that as a physician in a remote community, they will likely play a leading role in developing strong community relationships to promote the adoption of physical activity within their communities.	Attitudes Perceived behavioral control

Abbreviations: BCTT(v1), Behavior Change Technique Taxonomy (v1); BCT, behavior change techniques; TPB, theory of planned behavior.

Station A5: Strategies for Exercise Promotion. Attendees were instructed to (a) identify different types of individuals according to their readiness for exercise and (b) understand and apply techniques to change intentions toward exercise. Specifically, students were instructed to determine patient readiness for exercise by identifying patients as (a) nonintenders, (b) intenders, or (c) exercisers. Using this information, students developed individualized strategies to increase PA participation by discussing with their patients: (a) the benefits of PA, (b) the risks of inactivity, (c) opportunities to build PA confidence, and (d) the importance of PA planning and adherence. To solidify understanding at the end of the session attendees gained experience practicing how they would approach exercise counseling in 3 case study scenarios: A (a) middle aged adult male with sleep difficulty, orthostatic hypotension, hypertension, no time to exercise, and just wanting medication; (b) teenage girl, sedentary, does not like sports; and (c) young adult female who is an avid exerciser experiencing low energy levels.

Table A5.
Behavior Change Techniques Used in Station 5.

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
1.2	Problem solving	Analyze, or prompt the person to analyze, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators.		Provided attendees with 3 scenarios where they were instructed to work in groups to identify the individuals' readiness for exercise, discuss how this stage may present barriers to PA participation and how they would go about counseling the respective patient given their readiness.	Perceived behavioral control Intention-behavior gap
2.2	Feedback on behavior	Monitor and provide informative or evaluative feedback on performance of the behavior (eg, form, frequency, duration, intensity).		Provided attendees with suggestions/additional options to consider with regard to the 3 scenarios after attendees had time to think about the situations themselves and share their own ideas with the group.	Perceived behavioral control
4.1	Instruction on how to perform a behavior	Advise or agree on how to perform the behavior.		Discussed how attendees could counsel their clients based on whether the individual is (a) a nonintender, (b) an intender, or (c) an exerciser. Informed attendees that this is a continuum and an exerciser could "fall back" to be an intender (eg, postinjury) and so implemented strategies can change depending on the circumstances.	Perceived behavioral control

(continued)

Table A5. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
				<p>(A) Informed attendees that counseling a nonintender to change their intentions toward exercise can be achieved through informing the nonintender of the benefits of engaging in the behavior and building the patient's self-confidence. Examples of ways to do this are as follows: (1) Ask if they have ever participated in physical activity in the past? (2) Ask if the patient can imagine himself/herself doing the activity or watch a similar person do the activity? (3) Determine if a strong social network is in place to provide verbal and nonverbal support for physical activity participation; (4) Discuss any fear or anxiety and build knowledge so patient understands physiological responses that are normal.</p> <p>(B) Informed attendees that when counseling an intender it is also helpful to build confidence (using the above strategies) in the patient and put in place an exercise plan and ways to address individual barriers to participation.</p> <p>(C) Informed attendees that when counseling an exerciser, it is important to consider adoption and adherence, which includes maintenance and recovery.</p>	
4.2	Information about antecedents	Provide information about antecedents (eg, social and environmental situations and events, emotions, cognitions) that reliably predict performance of the behavior.		Informed attendees about the attitudes of individuals depending on their readiness for exercise: nonintenders ("there is no way"), intenders ("I want to, but I'm trying to figure out how"), exercisers ("I exercise sometimes OR all of the time") and how those attitudes may predict physical activity behavior or receptivity to counseling (eg, nonintenders may be the most challenging scenario).	Attitudes
8.1	Behavioral practice/rehearsal	Prompt practice or rehearsal of the performance of the behavior one or more times in a context or at a time when the performance may not be necessary, in order to increase habit and skill.		Provided attendees with 3 scenarios in which they had to identify (a) the individuals' readiness for exercise and (b) how they would go about physical activity counseling for the respective patient.	Perceived behavioral control

(continued)

Table A5. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
9.1	Credible source	Present verbal or visual communication from a credible source in favor of or against the behavior.		Delivered a theory-based presentation to attendees using the health action process approach model. ⁴ Encouraged attendees to use the CSEP physical activity guidelines ⁵ in clinic as a suggested minimum participation target for exercise prescription for their patients to achieve health benefits. Provided attendees with primary research data indicating the percentage of Canadians who are physically active in their leisure time as a means of emphasizing the importance of exercise prescription adoption practices in clinics as a form of preventative medicine.	Attitudes Subjective norms
15.1	Verbal persuasion about capability	Tell the person that they can successfully perform the wanted behavior, arguing against self-doubts and asserting that they can and will succeed.		Verbally encouraged attendees in their approaches to strategies of discussing physical activity with the 3 different types of individuals presented in the scenarios and that having practiced the skill they are more than capable to continue doing so in clinic.	Perceived behavioral control

Abbreviations: BCTT(v1), Behavior Change Technique Taxonomy (v1); BCT, behavior change techniques; CSEP, Canadian Society for Exercise Physiology.

Station 6: Canadian Physical Activity Guidelines. Attendees were informed about the development and recommended levels of PA in the Canadian PA Guidelines for adults and children.^{5,6} They were also introduced to guidelines specific for special conditions (eg, pregnancy). Additionally, they were taught several ways to assess PA, including the use of technology (pedometers, accelerometers), or activity logs.

Table A6.
Behavior Change Techniques Used in Station 6.

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
2.3	Self-monitoring of behavior	Establish a method for the person to monitor and record his/her behavior(s) as part of a behavior change strategy	Advised attendees on ways to self-monitor their physical activity levels (ie, pedometer, FitBit).	Advised attendees to discuss physical activity tracking with their future patients (ie, pedometer, FitBit)	Attitudes Perceived behavioral control
4.1	Instruction on how to perform a behavior	Advise or agree on how to perform the behavior (includes "skills training")	Instructed attendees on how to meet the physical activity guidelines. Provided specific examples of the frequency, intensity, type and duration of exercise needed to meet the CSEP PA Guidelines (CSEP).	Instructed attendees on how to discuss PA guidelines with their future patients by pointing out individual guidelines for patients of various age (eg, seniors) and health condition (eg, spinal cord injury, Parkinson's).	Perceived behavioral control
4.2	Information about antecedents	Provide information about antecedents (eg, social and environmental situations and events, emotions, cognitions) that reliably predict performance of the behavior	Informed attendees that reducing sedentary time is often associated with increases in light physical activity.	Informed attendees that measuring cardiorespiratory fitness can provide important information for patient management that extends beyond examining traditional risk factors.	Attitudes
5.1	Information about health consequences	Provide information about health consequences of performing the behavior	Informed attendees that physical activity and exercise can reduce (a) stress, anxiety, and depression; (b) increase energy; and (c) improve learning and memory. Presented the concept of exercise as a "pollypill" as it can prevent several conditions, including diabetes, hypertension, and obesity.		Attitudes

(continued)

Table A6. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
5.2	Salience of consequences	Use methods specifically designed to emphasize the consequences of performing the behavior with the aim of making them more memorable	Presented visual graphics and reliable studies to explicitly illustrate the benefits of physical activity and health risks of physical inactivity. For example, a discussion of the ability of physical activity to predict cardiovascular disease beyond commonly evaluated cardiometabolic risk factors. Compared the global burden between smoking and physical activity to highlight sedentary behavior as the “smoking of the 21st century.”		Attitudes
5.6	Information about emotional consequences	Provide information about emotional consequences of performing the behavior	Informed attendees that exercise can improve emotional well-being and quality of life.		Attitudes
9.1	Credible source	Present verbal or visual communication from a credible source in favor of or against the behavior	Presented credible, peer-reviewed research that highlighted the importance of regular physical activity. Information communicated included studies outlining: (1) a 20% increase in CRF in older men and women who meet the physical activity guidelines compared to those who do not ⁷ ; (2) reduced all-cause mortality in men with moderate-to-high CRF compared to those with low CRF independent of other known risk factors ⁸ ; (3) the CSEP Physical Activity Guidelines for adults, older adults, children and youth, as well as, special populations (ie, multiple sclerosis, Parkinson's disease, pregnant women).	Presented credible, peer-reviewed research that highlighted the importance of (1) incorporating CRF into clinical practice and (2) promoting regular physical activity with future patients. Information communicated included studies that outlined the (1) interactive effects of fitness and statin treatment on mortality risk in dyslipidemic populations ⁹ ; (2) reduced risk of CVD mortality in both healthy populations and those with metabolic syndrome in individuals who participate in 30 minutes per day of physical activity ¹⁰ ; and (3) CSEP Physical Activity Guidelines for adults, older adults, children and youth, as well as special populations (ie, multiple sclerosis, Parkinson's disease, pregnant women).	Attitudes Subjective norms

(continued)

Table A6. (continued)

BCT No.	BCT Label	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
		BCT Description		Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
9.2	Pros and cons	Advise the person to identify and compare reasons for wanting (pros) and not wanting to (cons) change the behavior		Prompted attendees to consider barriers in their own day that prevent them from participating in regular physical activity. Encouraged attendees to identify their own personal reward from participating in regular PA.		Attitudes
15.1	Verbal persuasion about capability	Tell the persons that they can successfully perform the wanted behavior, arguing against self-doubts and asserting that they can and will succeed		Provided an example of attendees own workday and developed strategies to incorporate PA into their own day, given the barriers they identified. Emphasized the difference between structured exercise and physical activity to encourage attendees to see the value of activity that extends beyond engaging in structured exercise. Discussed the importance of simply reducing sedentary time as a means to benefit from increased physical activity.	Encouraged attendees to discuss the differences between structured exercise and physical activity with future patients to emphasize the health benefits of simply reducing sedentary time.	Perceived behavioral control

Abbreviations: BCTT(v1), Behavior Change Technique Taxonomy (v1); BCT, behavior control technique; CRF, cardiorespiratory fitness; CSEP, Canadian Society for Exercise Physiology; PA, physical activity; TPB, theory of planned behavior.

Station 7: Strategies for Resistance Exercise Training. Attendees were introduced to the concept and benefits of resistance training. Certified personal trainers instructed attendees on how to use the Physician Physical Activity Clearance form (CSEP), Physical Activity Readiness Questionnaire for Everyone (PAR-Q+) form (CSEP, 2012) and OMNI-RES scale¹¹ for monitoring resistance band training intensity. The trainers led attendees through a series of sample upper/lower body resistance band exercises. Attendees were provided with a complementary sample exercise program and resistance band for personal use and to use as a reference in clinic when discussing resistance training with patients.

Table A7.
Behavior Change Techniques Used in Station 7.

BCT No.	From BCTT(v1) ²		How BCT Was Built into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
1.4	Action planning	Prompt detailed planning of performance of the behavior	Provided attendees with a personal resistance band exercise program, which used written instructions and visuals to depict how to perform upper and lower body exercises using the complementary resistance band. Recommended sets and repetition combinations targeted improvements in muscular endurance as indicated in the CSEP Physical Activity Guidelines for Adults. ⁵ Advised attendees to leave Theraband in office/at desk to encourage use during study sessions.	Advised attendees to leave their Theraband resistance bands in office/at desk in clinic to facilitate discussion and demonstration of how to perform exercises with patients.	Perceived behavioral control Intention-behavior gap
2.2	Feedback on behavior	Monitor and provide informative or evaluative feedback on performance of the behavior	Provided verbal and/or kinesthetic feedback to ensure proper form and activation of target muscle groups as attendees completed sample exercises.	Monitored attendees as they completed sample exercises in order to demonstrate options for personalized progressions/modifications, which should be considered when counseling their patients.	Perceived behavioral control
3.1	Social support (unspecified)	Advise on, arrange, or provide social support or non-contingent praise or reward for performance of the behavior	Verbally praised attendees for engaging in the session, demonstrated how being active can be an enjoyable experience and instilled confidence that they could complete all the sample exercises. Encouraged attendees to complete exercises with a partner to demonstrate how exercise can be social.	Encouraged attendees to complete exercises with a coworker to ensure accountability and help create an environment within their clinic that supports physical activity behavior.	Subjective norms Perceived behavioral control
3.2	Social support (practical)	Advise on, arrange, or provide practical help for performance of the behavior	Provided practical demonstration of sample resistance band activities. Arranged for attendees to receive complementary resistance band and sample exercise program.	Encouraged attendees to use the provided resistance band and exercise program as a reference for how to demonstrate exercises to patients.	Perceived behavioral control

(continued)

Table A7. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
4.1	Instruction on how to perform a behavior	Advise or agree on how to perform the behavior	Led attendees through a 20-minute sample exercise program, instructing in detail how to perform each exercise. Monitored completion of exercises to demonstrate opportunities for making modifications to a particular exercise (progression/regression) as necessary (eg, latex allergy, injuries). Advised on how exercises could be completed with a partner. Advised on how exercises could be completed with a coworker and/or common items in an office/clinical setting to demonstrate flexibility with respect to opportunities to complete the sample exercise program.	Encouraged to use the provided exercise program as a reference for how to instruct patients to complete exercises. Advised that the appropriateness of selected exercise must be considered on individual basis when working with a clinical population (eg, latex allergy, injuries, pregnant women, individuals with disabilities).	Perceived behavioral control
5.3	Information about social and environmental consequences	Provide information about social and environmental consequences of performing the behavior	Encouraged attendees to complete exercises with a partner to demonstrate how exercise can be a social and enjoyable experience (eg, team building). Advised on how exercises could be completed with common items, with minimal equipment and space requirements to demonstrate flexibility with regard to opportunities to complete the sample exercise program.	Emphasized importance of thorough completion of physical activity clearance form and Physical Activity Readiness Questionnaire (PARQ+) (CSEP) to inform other health care professionals of the patient's current health status, which ultimately helps ensure the safety of the patient.	Subjective norms Perceived behavioral control
8.1	Behavioral practice/rehearsal	Prompt practice or rehearsal of the performance of the behavior one or more times in a context or at a time when the performance may not be necessary, in order to increase habit and skill	Practiced sample exercise program several times with attendees in a library conference room to demonstrate the possibility of successfully completing the exercises with minimal space requirements. Prompted attendees to use the complementary resistance band and program for future personal use.		Perceived behavioral control
8.6	Generalization of a target behavior	Advise to perform the wanted behavior, which is already performed in a particular situation, in another situation	Advised attendees to complete sample resistance band program that was rehearsed in library setting at home (eg, while watching television) and/or office (eg, while at desk).	Advised attendees to complete sample resistance band program that was rehearsed in library setting in clinic to increase confidence in teaching patients how to perform the exercise as well.	Attitudes Perceived behavioral control

(continued)

Table A7. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
8.7	Graded tasks	Set easy-to-perform tasks, making them increasingly difficult, but achievable, until the behavior is performed	Designed a basic sample exercise program targeting major muscle groups and demonstrated personalized modifications (progressions/regressions) as necessary. Informed attendees that resistance band colors indicate different intensities in terms of difficulty to stretch the band itself (eg, black is more difficult to stretch than red and therefore provides greater intensity when completing exercises). Familiarized attendees with the OMNI-RES scale of rating of perceived exertion. ¹¹ Demonstrated and had attendees complete exercises modifications using different colored resistance bands (eg, red [easy] vs black [hard]) so they developed a sense for what completing moderate to vigorous resistance band activity (somewhat easy [4] to hard [8] on a 10-point scale) feels like.		Perceived behavioral control
9.1	Credible source	Present verbal or visual communication from a credible source in favor of or against the behavior	Certified personal trainers (eg, Canadian Society for Exercise Physiology [CSEP]) led attendees through the instructional and practical components of the session. Included documentation forms (eg, Physician Physical Activity Readiness Clearance [CSEP], Physical Activity Readiness Questionnaire [PARQ+]) from the CSEP website and provided resistance training information from evidence-based national physical activity guidelines. Familiarized attendees with a validated resistance band specific rating of perceived exertion scale (OMNI-RES Scale).	Encouraged attendees to visit the CSEP website to freely access the presented documentation resources to implement use in the clinic. Referenced the primary article illustrating the resistance band specific rating of perceived exertion scale (OMNI-RES) advising attendees to use the validated scale when monitoring exercise intensity for their patients and/or teaching their patients how to self-monitor their own exercise intensity.	Attitudes Subjective norms

(continued)

Table A7. (continued)

BCT No.	From BCTT(v1) ²		How BCT Was Built Into Station		TPB Construct(s) Targeted
	BCT Label	BCT Description	Personal Exercise Behavior	Clinical Exercise Counseling Behavior	
12.5	Adding objects to the environment	Add objects to the environment in order to facilitate performance of the behavior	Facilitated in-session practical participation by providing resistance bands. Encouraged attendees to keep the complementary resistance band and exercise program to support continued personal use. Advised attendees to leave resistance band in office/at desk to encourage use during study sessions.	Encouraged use of provided exercise program as a reference for how to demonstrate exercises to patients; however, advised that the appropriateness of selected exercise must be considered on an individual basis when working with a clinical population (eg, latex allergy, injuries). Advised attendees to leave resistance band and sample exercise program in clinic to prompt discussion on how to perform activities using the band with patients.	Perceived behavioral control
13.1	Identification of self as role model	Inform that one's own behavior may be an example to others	Inform attendees that by completing the sample exercises with a partner (eg, relative, friend) they can facilitate increasing someone else's physical activity behavior.	Inform attendees that by practicing the exercises themselves they will be better equipped to demonstrate to their patients how to use the resistance band to complete exercises as well.	Attitudes Perceived behavioral control

Abbreviations: BCTT(v1), Behavior Change Technique Taxonomy (v1); BCT, behavior change techniques; CSEP, Canadian Society for Exercise Physiology; PARQ+, Physical Activity Readiness Questionnaire; TPB, theory of planned behavior.

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Authors' Note

First list of references is part of appendix.

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