SciMedCentral

Journal of Family Medicine & Community Health

Case Study

# A Community-Based Low Intensity Exercise Program for Individuals with Chronic Conditions and Functional Limitations: A Case Study

**Ryan Carson S[1], Carr C[2], Manley S[2], Sutherland S[2,3], Tompkins C[2], and Sampalli T[3]***

[1]*Primary Health Care, Department of Family Practice and Trifacilities, Nova Scotia, Canada*
[2]*Community Health Team, Primary Health Care, Nova Scotia Canada*
[3]*Primary Health Care, Nova Scotia, Canada*

***Corresponding author**
Sampalli T, Research and Innovation, Mumford Professional Centre, 6960 Mumford Road, Suite 0265 (Main Floor), Halifax, NS B3L 4P1, Canada, Fax: 902-454-7107; Email: tara.sampalli@nshealth.ca

**Submitted:** 16 August 2016

**Accepted:** 07 March 2017

**Published:** 09 March 2017

**ISSN:** 2379-0547



**Keywords**
- Community health
- Low intensity exercise
- Risk factor management
- Chronic disease management

**Abstract**

Musculoskeletal conditions, chronic pain and other complex chronic conditions are primary causes of disability and higher costs to the health system world-wide and in Nova Scotia. Evidence has shown that exercise is considered an effective way to prevent further deterioration and facilitate better health in individuals with these debilitating conditions. However, adherence to exercise programs is shown to be low in individuals with pain related conditions due to many factors including symptoms related to the conditions, access to the programs and lack of motivation. Primary Health Care in Nova Scotia has designed free health and wellness programs offered in community settings, namely, the Community Health Teams (CHTs). In their initial engagement with the communities, implementation of exercise programs for individuals with functional limitations due to chronic conditions was identified as a priority. Consequently, the Low Intensity Exercise Program (LIEP) was developed and implemented to address this priority of the community. In the ten-week program, participants are empowered to safely self manage symptoms of over-exertion and are taught techniques to gradually progress their physical activity. The impact of the intervention was examined in an observational study. A total of 140 individuals participated in the study and showed significant improvements in physical health and over 90% indicated being satisfied with the program. Over 50% of participants also showed improvements in modifiable risk management factors. LIEP is a one-of-a-kind initiative in Canada that has taken into account adherence challenges into its design considerations and is considered a leading practice by Accreditation Canada.

## INTRODUCTION

### Background

Physical activity is considered important in rehabilitation, prevention and management of chronic conditions [1,2]. Increasing physical activity levels is recommended to improve health and well being [3]. The benefits of exercise can be attained at any age, so that persons who have been inactive can improve their health and well being by becoming moderately active on a regular basis. Additionally, the importance of exercise and activity in improving chronic conditions and further deterioration is also well established [4,5]. Musculoskeletal conditions, chronic fatigue and other complex conditions are becoming an increasingly well-recognized cause of disability and mobility issues in addition to causing higher costs to the health system [6-8]. There are many negative impacts at the individual level including decreased physical function and quality of life, increased disability, and increased use of the health system such as emergency visits, physician visits and specialist visits [6,9].

Nova Scotia has one of the highest rates of chronic disease and associated disability costs in Canada [10]. Recognizing the magnitude of the problem related to chronic conditions and disability, the local health authority administered surveys to understand the specific needs of the communities it serves. A community survey conducted in 2009 – 2010 showed that 2/3 of individuals in the central zone of the health authority reported having one or more chronic conditions [11]. The surveys also indicated 50% physical inactivity and 21% unhealthy lifestyle in the general population. In the same region, disability rates were shown to be particularly higher for individuals with chronic pain and related conditions. These individuals have significant physical limitations that prevent them from performing their daily activities.

Exercise has shown to be an effective treatment modality in improving health outcomes for musculoskeletal, chronic pain conditions and complex chronic conditions [12-14]. However, adherence to exercise programs appears to present a variety of

challenges especially to those with pain and fatigue symptoms. A meta-analysis of exercise interventions for older adults established greater than 50% dropout in the first three to six months of the program [15]. There are numerous factors that have been demonstrated as barriers to regular exercise, including perceived poor health, poor self-confidence, low motivation and perceived exercise enjoyment [16]. Research has thus focused efforts on improving adherence to and participation in exercise programs in individuals who have significant physical limitations and other outlined factors [14]. Community-oriented primary care has shown to support health and wellness for individuals in the community in which they live [14]. It is shown that individuals who will not access the healthcare system are more apt to receiving support from health and wellness programs in their community. Furthermore, evidence also suggests that participation in regular group activities can lead to true behavior change through a pathway of social interaction, group bonding and behavior modification approaches [12]. Quality of life, self efficacy, motivation and a sense of camaraderie are other important indicators that show improvement through group exercise programs [7]. Furthermore, Primary Health Care (PHC) has always been conceived as an approach with an implicit requirement to address Social Determinants of Health not merely the health systems needs [16].

Primary Health Care in Central Zone (previously known as the Capital Health) at the Nova Scotia Health Authority developed and implemented a novel exercise program, namely the Low Intensity Exercise Program (LIEP) to meet the needs of individuals with low physical and functional tolerance. The needs identification, community engagement, the development and implementation processes associated with the LIEP are described in this paper.

## A unique exercise program to support complex needs and promote healthy communities

Community Health Teams (CHTs) are a novel initiative in the central zone of Primary Health Care, Nova Scotia Health Authority offering free health and wellness programming in the community to help make healthy lifestyle choices and to prevent and manage risk factors that are common across chronic conditions [17]. During the initial engagement with citizens and stakeholders from the community, the CHTs received an overwhelming ask for wellness programs in a variety of areas including physical activity with a focus on elderly, low income, and those with chronic illnesses and complex needs [17].

The LIEP is a novel community based collaborative program designed specifically to meet the needs of individuals who are physically limited due to chronic conditions. LIEP is unique as it brings together, via self-referral, people with varying chronic conditions (chronic pain, arthritis, orthopedic conditions, cardiovascular and pulmonary diseases, and neurological conditions) all under the same roof in their own community.

LIEP is a 10 week community based exercise program available to citizens who are unable to participate in other exercise programs due to limiting chronic illnesses. LIEP incorporates exercise that improves aerobic endurance, strength, flexibility and balance. Participants are empowered to safely self manage their symptoms of over-exertion and given guidance on how to progress their physical activity. They are guided to establish realistic goals using behavior change principles. They work with physiotherapists to develop individualized home exercise programs to find solutions to barriers to physical activity that exist in their lives. Upon successful completion of the program, participants may be navigated to community exercise programs and other resources. Participant screening, assessment, exercise testing and exercise prescription is led by physiotherapists, and is consistent with American College of Sports Medicine Guidelines, the gold standard for exercise testing and prescription.

LIEP's innovative design helps participants take control of their own health through the integration of self management supports and behavior change techniques into all components of the program. Unlike other exercise classes where participants simply follow the leader, LIEP participants are taught how to self monitor their exercise intensity level (using blood pressure and oxygen saturation readings, and blood glucose results). Participants keep daily records of attendance, pedometer steps, rate of perceived exertion (effort), and signs and symptoms in their log books, thereby building their skills and comfort level for exercising independently. LIEP is creative as it takes the practice of a guided exercise program and extends it to incorporate the needs of people living with one or more chronic illnesses. It differs significantly from traditional exercise programs by empowering participants to take charge of their own health, giving them the tools to problem solve and self manage physical activity in the context of their chronic conditions, using behavior change methods.

## Novel design constructs of LIEP

LIEP is specifically designed to help individuals with musculoskeletal and other physically debilitating conditions to benefit from participating in an exercise program with a unique design that has enabling factors that promotes participation as shown in Figure (1).

Individual constructs are described below.

- Self –referral: LIEP is unique as it brings together, via self-referral, people with varying chronic conditions (chronic pain, arthritis, orthopedic conditions, cardiovascular and pulmonary diseases, and neurological conditions, etc.) all under the same roof in their own community.
- Care in community: As participants attend supervised exercise programs with their neighbors and other community members, they develop a greater confidence and positive attitude about exercise, as well as community integration.
- "Take control of your life and care" approach: LIEP's innovative design helps participants take control of their own health through the integration of self management supports and behavior change techniques into all components of the program.
- "You are the expert": LIEP participants are taught how to self monitor their exercise intensity level (using blood pressure and oxygen saturation readings, and blood glucose results). Participants keep daily records of attendance, pedometer steps, rate of perceived

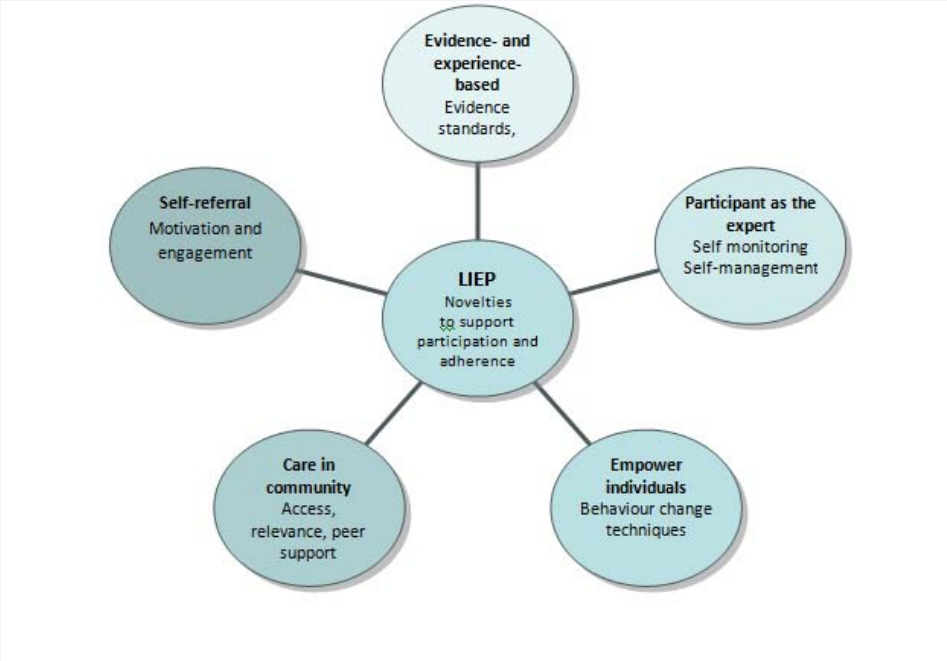


**Figure 1** Novelties of LIEP constructs.

exertion (effort), and signs and symptoms in their log books, thereby building their skills and comfort level for exercising independently.

- Enhancing existing standards: LIEP is creative as it takes the practice of a guided exercise program and extends it to incorporate the needs of people living with one or more chronic illnesses
- Development of LIEP based on citizen and community feedback: LIEP is unique as it brings together people with varying chronic conditions (arthritis, orthopedic, cardiovascular, pulmonary, and neurological conditions) all under the same roof in their own community. Participants attend LIEP in the same setting as their neighbours. They develop a greater confidence and positive attitude about exercise.
- Support for self-management of chronic conditions: LIEP helps participants manage their own health through the integration of self-management supports and behavior change techniques into all components of the program. Participants monitor their exercise intensity level and signs and symptoms of over exertion. Automatic blood pressure cuffs are available for self-monitoring. Diabetic participants test their own glucose. Participants keep daily records of attendance, pedometer steps, rate of perceived exertion and signs and symptoms in their log books.
- Behaviour change intervention: LIEP is grounded in behavior change methods that support participants in getting started, increasing confidence and transferring knowledge into practice. On program entry, participants are guided to set realistic and achievable goals with a goal setting tool established in collaboration with Behavior Change Institute [18]. Their goals are re-evaluated at week six, at discharge and at 6 month follow-up. To encourage participants to exercise between supervised sessions, become more independent with their exercise program, and help them work through their identified barriers, participants receive an individualized home exercise program based upon their goals.. Participants are encouraged to record their activity in a log and to review with the physiotherapist if desired.
- Support to build motivation: To supplement knowledge, enhance motivation, and provide greater opportunities for networking and social support information/discussion, sessions occur during the warm-up and cool-down on topics focused on self-management, behavior change and motivation. Topics include succeeding with home exercise program, barriers to exercise and solutions, getting and staying motivated, problem solving, home exercise equipment and community resources.
- Facilitating improvement of physical capacity and tolerance: Supporting physical activity maintenance after completion of LIEP is essential, and is a short fall of many exercise focused rehabilitation programs. LIEP works with participants, providers, community partners and citizen volunteers to maximize opportunities for physical activity maintenance. The CHT supports and partners with other community based physical activity facilities and programs for free, low cost and accessible programs and navigates participants to these options and assists them with making the connections where needed. LIEP has been integral in supporting community volunteers to lead walking programs and support other programs for LIEP participants.

- Addressing social determinants of health (SDH): LIEP represents the efforts of PHC and SDH in identify disempowerment and alienation of marginalized groups, i.e. those with significant physical limitations as an obstacle to achieving health equity

### Impact of the intervention

In an observational study, the impact of a low intensity community-based exercise program designed to improve physical functionality in individuals with chronic pain, fatigue and with diminished physical capacity was examined. Participants that accessed the service from 2010-2015 and completed the required pre, post and follow up measures were included in observing the impact of the intervention. Inclusion criteria included people who are unable to walk or exercise more than 15 minutes due to a chronic health problem, who are able to work independently in a group setting and who are interested in gradually improving their physical activity levels. Exclusion criteria are shown below:- Admission to hospital or emergency for a cardiac event within last 3 months OR established cardiovascular disease with high risk stratification [2]. Both require referral to Cardiac Rehabilitation Program.

-Any contraindication to exercise participation, as per ACSM's Guidelines for Exercise Testing and Prescription.

-Hereditary Aneurysm, or connective tissue disorder with predisposition for aneurysm.

*Note: Those who have never participated in a disease specific exercise/eduction program, such as cardiac or pulmonary rehabilitation were strongly encouraged to attend these programs over the LIEP.

The standard of care prior to LIEP was exercise programs available in the community such as yoga or exercise programs associated with disease-based interventions and programs such as cardiac rehabilitation program, pain self-management program or programs for eating disorder.

## MEASURING SUCCESS

Outcomes considered important and relevant to the intention of the intervention were measured to understand the overall impact of the initiative in meeting the specific needs of the community, the population and the health system. Key outcome measures for LIEP are given below.

- Demographics information

o In terms of demographics, information was collected regarding age, sex, education level (attainment of a high school diploma), marital status, ethnicity, employment status, and whether a participant had anyone to support them in being physically active.

- Individual level outcomes

o 6 minute walk Distance (6MWD) is an objective measure of functional exercise capacity in individuals with moderately severe impairment. The test is a self paced, submaximal test of exercise capacity, which reflects the exercise level needed for daily tasks [19].

o SF-12 (short form health survey) -a multipurpose short-form measure of health status. SF-12 includes items from the eight concepts of health status: physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality (energy/fatigue), social functioning, role limitations due to emotional problems, and mental health (psychological distress and psychological well being) [20].

o Canadian Physical Activity Guidelines indicates "to achieve health benefits and improve functional abilities, adults should accumulate at least 150 minutes of moderate- to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more".

- Process outcomes

o Other measures include number of participants achieving target duration of physical activity, number of participants improved quality of life scores, and number of participants reporting readiness to continue with exercise post program.

- System outcomes

o Self reported outcomes related to health system utilization, improvements in function, return to work and other rehabilitation outcomes

### Statistical analysis

The purpose of this evaluation was to determine the impact of the LIEP on specific clinical and exercise measures, and on SF-12 physical and mental health composite scores. Descriptive statistics were calculated for each measure. McNemar's test was used to compare pre-post and follow-up paired data. For dichotomous measures, discordant pairs of data can be used to determine the impact of the LIEP. Comparisons of pre- to post-assessment and pre- to follow-up assessment for all dichotomous outcomes were performed using McNemar's test. The significance level was set at $p<0.05$ and Stata computer program was used for all statistical analyses.

## RESULTS

LIEP outcomes are reported for participants who completed the 10 week program and follow-up session. Between June 2010 and October 2015, a total of 140 individuals completed all pre, post and follow-up sessions. Of these, 77% were women, and 70% were 65 years of age or older. Most of the participants attending the program (65%) had either a musculo-skeletal condition or arthritis. The average dropout rate for the program was 30% per program offered.

### Blood pressure

At the initial LIEP assessment, 62.86% of the participants had a blood pressure of less than 140/90mmHg (Figure 2). After attending the LIEP program, 70% of participants' blood pressure readings were less than 140/90mmHg. At the follow-up session, 70.7% of participants had a blood pressure less than 140/90mmHg.

### At least 150 minutes of weekly exercise

Prior to the program, 23.3% of participants (Figure 2) met the LIEP exercise guideline of at least 150 minutes a week of low to moderate aerobic physical activity, compared to 42.5% of participants who met the guideline immediately following the program ($p \leq 0.05$). At the follow-up session 41.4% of participants were still exercising at least 150 minutes a week ($p \leq 0.05$).

## 6MWD

Figure (4) shows the proportions of patients who made a small (≥20m) and/or substantial meaningful (≥50m) change in the 6MWD performance measure. Immediately following the program, 54.5% of participants made either a small and/or substantial meaningful change in the 6MWD performance measure. Among those participants who made a change in the 6MWD, 26.8% made a small meaningful change (≥20m) and 27.7% made a substantial change in 6MWD by walking at least 50 metres more in the 6MWD test at the post session.

At the follow-up session 47.6% of participants improved on their 6MWD since pre-assessment (Figure 3). At the follow-up session, 17.8% of participants made a small meaningful change by walking at least 20 metres and 29.8% made a substantial meaningful change by walking at least 50 metres more in the 6MWD test than at pre-assessment, showing that participants are continuing and improving upon their physical abilities.

## SF-12: Physical Composite Scores

The overall mean physical composite score (PCS), for LIEP participants prior to attending the program, was 29.9, well below the Canadian normative mean of 50.5. After attending the LIEP, the overall mean score for the group was 32.88. At follow-up, the overall mean PCS score was 32.86. The overall mean mental

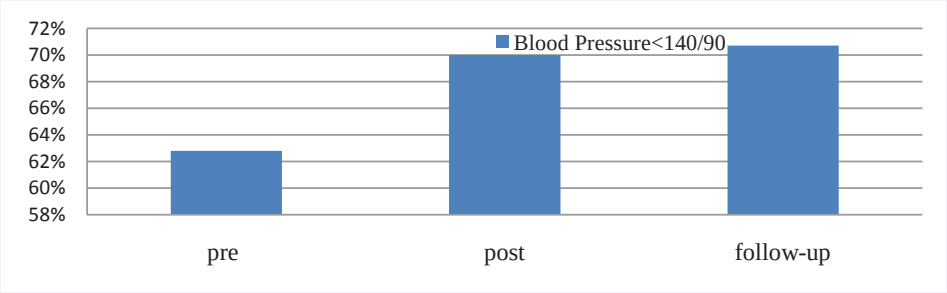


**Figure 2** Proportion of participants who met target blood pressure, by time period.

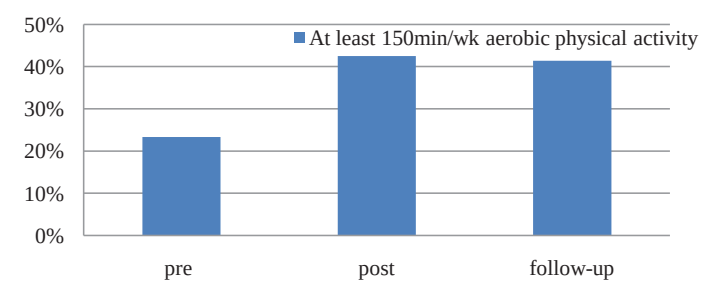


**Figure 3** Proportion of participants who met the aerobic physical activity guideline of at least 150 min/wk, by time period.

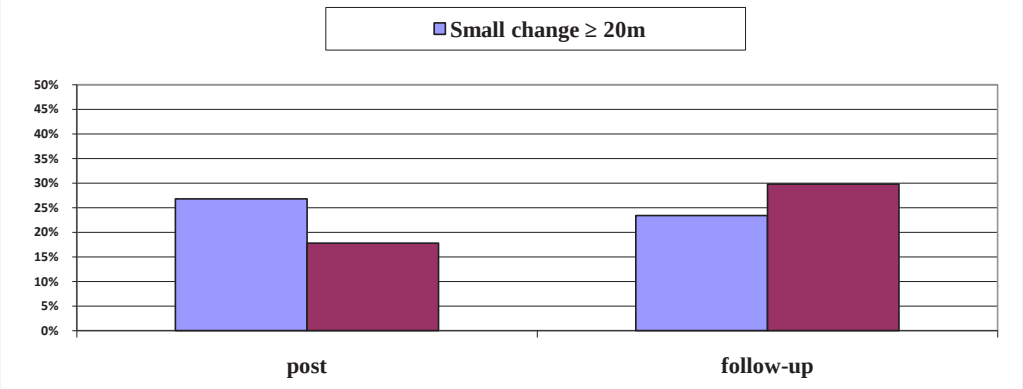


**Figure 4** Proportion of participants who made a small or substantial change on the 6MWD, by time period.

composite score (MCS) for LIEP participants prior to attending the program was similar to the Canadian normative mean, 51.3 versus 51.7 respectively. After attending the LIEP, the overall mean score for the group was 55.5. At follow-up, the overall mean MCS score was 52.4. Cut-off points based on the standard error of measurement (allows for some variability in repeat tests) were used to determine if participants' physical health is significantly above average, average or significantly below average compared to Canadian normative means. The proportion of participants who scored in the average or significantly above average range of the PCS (Figure 4) increased from 14.1% to 23.9%, after attending LIEP. The proportion of participants who scored in the average or significantly above average range of the PCS at follow-up was almost maintained at 22.2%.

The proportion of participants who scored in the average or significantly above average range of the MCS (Figure 5) increased significantly from 60.7% to 81.3%, after attending the LIEP ($p \leq 0.05$). The proportion of participants who scored in the average or significantly above average range of the MCS at follow-up was 67.4%.

## Individual and System-Level Impact - Participant Feedback

In addition to quantitative outcome data, analysis of qualitative data from client satisfaction surveys revealed: 93% of participants found the LIEP program valuable. Participants indicated that they have made progress to improve their health and wellness by increasing their knowledge (94%), skills (94%) and confidence (94%). 99% of participants reported that they feel ready to continue to exercise on their own.

## Participant feedback about value-added from participation

- Semi-structured interviews were conducted to better understand the value-added to individuals from participating in LIEP. Main themes of improvement post intervention documented through the interviews includeOverall sense of well-being and a feeling of better health.

- Symptom management.

- Significant improvement in physical capacity as it translated to their activities of daily living such as self care, recreational activities, walking, being able to do chores and being able to work.

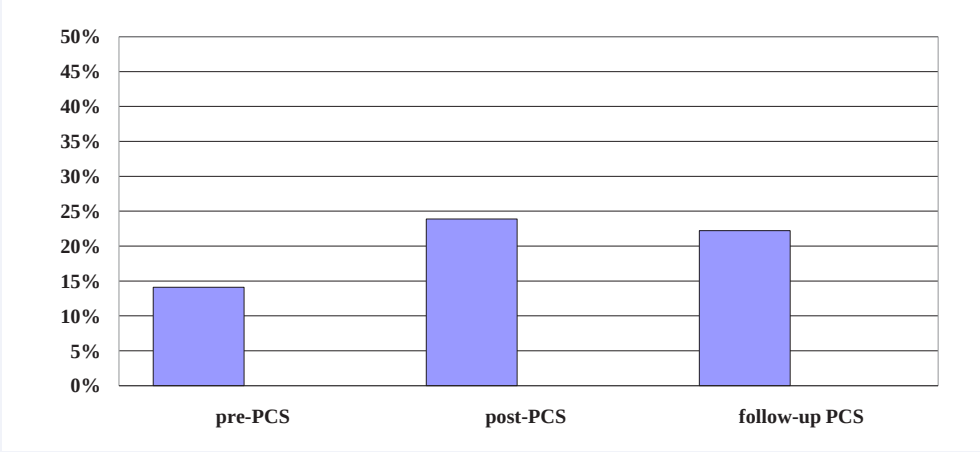


**Figure 5** Proportion of participants with average or above average SF-12 physical composite score (PCS), by time period.

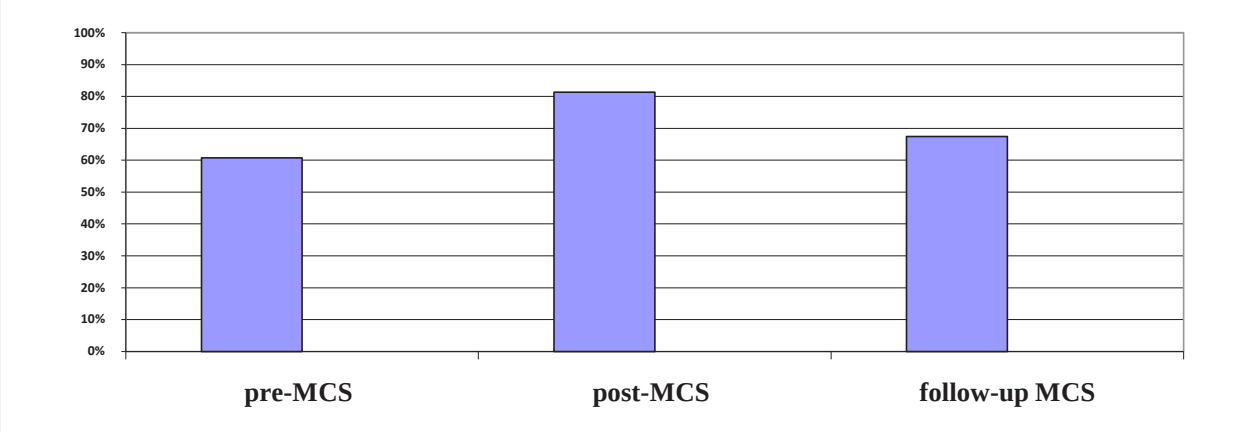


**Figure 6** Proportion of participants with average or above average SF-12 mental composite score (MCS), by time period.

- Reduction in usage of medication.
- Reduction in use of health services.
- Perception of better mental health.

Sample comments from participants are shown below:

*"The whole idea of a group concept- there were about 12 of us on average. It was motivational."*

*"For the past 7 weeks I've been in the Low Intensity Exercise Program. When I started, I could only walk for 5-10 minutes at a very slow pace. Now I can walk normally for 30 minutes."*

## DISCUSSION AND CONCLUSION

LIEP evolved out of the priority needs identified by the community, by PHC and by the health authority. Key stakeholders were involved from the inception, design, implementation, to ongoing improvements to the programming. Community members identified that individuals living with physical limitations related to chronic conditions were unable to access regular physical activity programs [5]. This need aligned with a strategic priority area for PHC around improving access and needs related to chronic disease prevention and management. Implementation of LIEP was also intended to speak to the basic and implicit requirement of PHC to address social determinants of health for its citizens in its care delivery design [16].

During the initial engagement with citizens and stakeholders, key priorities, barriers and requirements were identified leading to the novel design elements of this program. Barriers identified included cost, relevance and availability. Priorities and requirements included specific consideration for individuals with very low physical and functional capacity, with chronic conditions and those that could not tolerate regular physical activity programs. Design considerations also included the advantages of group programming and offering program in the community. LIEP was thus created as a free of charge health and wellness program in PHC that is located in a community setting with accessibility considerations such as free parking and location on a main bus route. The participants and providers work together to develop appropriate and achievable exercise programs. To aid in the continuity of care and sustenance of physical activity improvements, LIEP communicates with family physicians on program performance and maintenance goals.

A novel community-based exercise program has been described in this paper with some preliminary outcomes that are promising. LIEP has a high scalability and spread component to it which is very appealing. The program within the health authority has developed in a LEAN approach with cost-effective and efficient design similar to other CHT programming [17]. LIEP is also considered a novel way of addressing gaps in the health system for individuals with significant physical capacity challenges related to complex chronic conditions [21]. LIEP could be readily replicated by other organizations as a low-cost community-based physical activity program [22]. It could run as an adjunct to regular established chronic disease and prevention programs or be integrated into existing health human resource pool (for example, using a community physiotherapist and nurse). Facilitators to implementing a LIEP program include: having established relationships with community partners and referring groups and organizations; having access to promotional material; and access to a suitable community venue/ exercise space. Due to its unique design considerations and spreadable components, LIEP has received the Accreditation Canada's Leading Practice Award in 2014. This award specifically recognizes the importance of this program in engaging the community effectively in addressing their needs. The team of providers in LIEP and CHTs have special skills and training in engaging community to optimally understand and support their needs through co-design of programs and navigational support [17]. The CHT is the recipient of the International Project of the Year from the International Association of Public Participation in 2016.

Similar to initiatives such as Exercise in Medicine Canada which is focused on building capacity in primary care providers to include physical activity in the design of care plans for patients, LIEP is being viewed as a community resource to providers with a potential to inform the medical curriculum in Family Medicine [23].

Future research will focus on exploring systemic issues of perceived exertion and adherence along with program component specific issues such as incorporating falls prevention management.

## REFERENCES

1. Victoria VG. The Active for Life Physical Activity Framework. Sports and Recreation. Melbourne, 2000.
2. Rodriguez NR, Di Marco NM, Langley S. American College of Sports Medicine position stand. Nutrition and athletic performance. Med Sci Sports Exerc. 2009; 41: 709-731.
3. Mills PR, Kessler RC, Cooper J, Sullivan S. Impact of a health promotion program on employee health risks and work productivity. Am J Health Promot. 2007; 22: 45-53.
4. Cox KL, Burke V, Beilin LJ, Derbyshire AJ, Grove JR, Blanksby BA, et al. Short and long-term adherence to swimming and walking programs in older women – The Sedentary Women Exercise Adherence Trial (SWEAT-2). Prev Med. 2008; 46: 511-517.
5. Broemeling AM, Watson DE, Prebtani F. Population patterns of chronic health conditions, co-morbidity and healthcare use in Canada: Implications for policy and practice. Healthc Q. 2008; 11: 70-76.
6. Hayden JA, van Tulder MW, Tomlinson G. Systematic review: strategies for using exercise therapy to improve outcomes in chronic low back pain. Ann Intern Med. 2005; 142: 776–785.
7. Losito J, Murphy S, Thomas M. The Effects of Group Exercise on Fatigue and Quality of Life During Cancer Treatment. Oncol Nurs Forum. 2006; 33: 821-825.
8. James P. Griffith, Fahd A. Zarrouf. A Systematic Review of Chronic Fatigue Syndrome: Don't Assume It's Depression. Prim Care Companion. J Clin Psychiatry. 2008; 10: 120-128.
9. Leveille SG, Ling S, Hochberg MC, Resnick HE, Bandeen-Roche KJ, Won A, et al. Widespread musculoskeletal pain and the progression of disability in older disabled women. Ann Intern Med. 2001; 135: 1038-1046.
10. Colley RC, Garriguet D, Janssen I, Craig CL, Clarke J, Tremblay MS. Physical activity of Canadian children and youth: Accelerometer results from the 2007 to 2009 Canadian Health Measures

Survey. Health Rep. 2011; 22: 15-23.

11. Statistics Canada. Directly measured physical activity of children and youth, 2012 and 2013. 2015.

12. Canadian Physical Activity Guidelines and Canadian Sedentary Behaviour Guidelines. 2015.

13. Hicks AL, Martin KA, Ditor DS, Latimer AE, Craven C, Bugaresti J, et al. Long-term exercise training in person with spinal cord injury: effects on strength, arm ergometry performance and psychological well-being. Spinal Cord. 2003; 41: 34-43.

14. Baicker K, Cutler D, Song Z. Workplace wellness programs can generate savings. Health Aff. 2010; 29: 1-8.

15. George A. Kelley, Kristi S. Kelley Dropouts and Compliance in Exercise Interventions Targeting Bone Mineral Density in Adults: A Meta-Analysis of Randomized Controlled Trials. Journal of Osteoporosis. 2013; 2013.

16. Martin M. Evans, Gordon Foxall, Ahmad Jamal. Consumer Behaviour. 2ed. John Wiley & Sons Ltd. 2009.

17. Carson SR, Carr C, Kohler G, Edwards L, Gibson R5, Sampalli T. A novel community-based model to enhance health promotion, risk factor management and chronic disease prevention. Healthc Q. 2014; 17: 48-54.

18. Vallis M. Are Behavioural Interventions Doomed to Fail? Challenges to Self-Management Support in Chronic Diseases. Can J Diabetes. 2015; 39: 330-334.

19. ATS Statement: Guidelines for the Six-Minute Walk Test; American Thoracic Society. 2002.

20. Ware J Jr, Kosinski M, Keller SD. A 12 Item Short Form Health Survey: Construction of scales and preliminary tests of reliability and validity. Med Care. 1996; 34: 220-233.

21. Sampalli T, Christian E, Edwards L, Ryer A. A Chronic Disease Prevention and Management Corridor© Approach to Supporting System-Level Transformations for Chronic Conditions. Healthc Q. 2015; 18: 43-48.

22. Perera S, Mody SH, Woodman RC, Studenski SA. Meaningful change and responsiveness in common physical performance measures in older adults. J Am Geriatr Soc. 2006; 54: 743-749.

23. Pierre Frémont. Exercise prescription and referral tool to facilitate brief advice to adults in primary care. Can Fam Physician. 2014; 60: 1120-1122.

**Cite this article**

*Ryan Carson S, Carr C, Manley S, Sutherland S, Tompkins C, et al. (2017) A Community-Based Low Intensity Exercise Program for Individuals with Chronic Conditions and Functional Limitations: A Case Study. J Family Med Community Health 4(1): 1103.*