

# Literature Review: Effect of a Motivational Interviewing-Based Health Coaching on Quality of Life in Subjects With COPD

Rosalyn Phung SRT, Rachel Wang SRT, Haley Caldwell SRT

## Background

Chronic Obstructive Pulmonary Disease (COPD) is a respiratory illness that is widespread and quickly growing due to the aging population. COPD is both progressive and chronic, mainly affecting individuals 35 years and older (Government of Canada, 2018, para. 1). This condition cannot be cured; thus, symptom management is essential to ensure the quality of life (QOL) of COPD patients.

The symptoms of COPD (chronic cough, shortness of breath, chest tightness) can make tasks of daily living as simple as walking and self care difficult (National Heart, Lung, and Blood Institute [NIH], n.d., para. 1). Since COPD is a chronic condition, patients require ongoing medical care through pulmonary rehabilitation (PR). PR educates and helps patients improve their QOL through lifestyle changes and symptom management (Sharma & Singh, 2011, p.276). An intervention used in PR is health coaching. It involves disease education, healthy behaviour promotion, reinforcing confidence in one's ability to self-manage, and support from a healthcare professional (Long et al., 2019, p. 516-517). Often, health coaching uses motivational interviewing (MI) strategies to encourage positive behaviours (e.g., medication adherence) and help resolve those that are negative (e.g., substance use) (Hall et al., 2012, p. 660; Linden et al., 2009, p. 166). This utilizes goal setting and helping the patient overcome barriers to changing detrimental behaviours (Linden et al., 2009, p. 166). At the moment, MI is regarded as the best health coaching technique as it has consistently resulted in positive behavioural outcomes in patients (Linden et al., 2009, p. 167).

PR through health coaching and MI are important for the management of chronic diseases, like COPD, but opportunities to participate can be limited by various factors. Some factors that play a role include distance to a healthcare facility, time, financial status, physical health, and depending on location, culture and language barriers as well. These barriers impact whether a patient is able to seek the care they need.

The emergence of remote healthcare has stemmed from this need for more accessible alternatives to receiving quality care. Studies on telephone-based healthcare has shown a decrease in hospitalizations and lower healthcare costs (Härter et al., 2016, p. 2). It has also shown benefits for physical, behavioural, and psychosocial patient health (Härter et al., 2016, p. 2).



<https://www.hazeldenbettyford.org/education/bsr/addiction-research/adolescent-motivational-interviewing-cs-1017>

## Objective

Its objective was to determine whether a combination of telephone health coaching and MI had an effect on the health status of COPD patients, and whether it would be a feasible and effective alternative for in-person PR.



<https://medical-alert-systems.bestreviews.net/best-home-phones-seniors/>

## Methods

Fifty subjects with moderate to severe COPD received 10 health coaching phone calls over three months to measure various factors affecting daily life. The first factor evaluated was improvement in dyspnea, measured using the modified Medical Research Council scale (mMRC). As well, disease-specific QOL measurements encompassing four domains (dyspnea, fatigue, emotional function, mastery) were gathered from the subjects through a Chronic Respiratory Disease Questionnaire (CRQ). Lastly, a general QOL measurement was obtained by asking each patient to rate their overall health status (GSRH).

Prior to any MI, all fifty subjects filled out the above questionnaires in order to get baseline measurements for their life with COPD. First, individuals were asked to scale their general self-rated health status (GSRH): Excellent (1), Very good (2), Good (3), Fair (4), Poor (5). This was to obtain a general measurement of their overall QOL. Secondly, quantitative measurements were obtained measuring each patient's breathlessness specific to their respiratory disease using mMRC. The mMRC requires the individual to rate their dyspnea as follows: Dyspnea only with strenuous exercise (0); dyspnea when hurrying or walking up a slight hill (1); walks slower than people of the same age because of dyspnea or has to stop for a breath when walking at their own pace (2); stops to breathe after walking 100 yards or after a few minutes (3); and too dyspneic to leave the house or breathless when dressing (4). Lasty, participants were asked to fill out a CRQ, which measures both physical (dyspnea, fatigue) and emotional (emotional function, mastery of disease) aspects of COPD. For each of the four categories, subjects are to grade themselves on a Likert scale of 1 to 7 with higher values indicating a greater health-related QOL.

Overall, 44 individuals successfully completed the intervention by participating in at least 8 of the 10 scheduled health coaching calls. We had these patients complete the same questionnaires: GSRH, mMRC, and CRQ post-intervention. Furthermore, 16 patients were randomly selected for a post-intervention qualitative evaluation, which assessed subject accountability, physical activity level and awareness, level of communication with a coach, and barriers to exercise.



<https://bookit.severesthoma.org/diagnosis-assessment/questionnaires/>

## Results

Analysis of the data collected found significant improvements in the patients' reports of dyspnea, fatigue, emotional function, mastery, and QOL ( $P = .002$ ,  $P = .001$ ,  $P = .001$ ,  $P = .007$ ,  $P = .03$ , respectively) after the intervention. Improvements not only were seen in the mMRC measure of dyspnea post-intervention, but at the three and six month marks as well. Thirty-six (71%) of the patients had clinically important improvements in one or more of either the mMRC or CRQ measures, and 30 patients (58%) had less significant, but still clinically important improvements for at least one CRQ domain measure. Twenty-three (45%) patients improved in at least one measure by six months.

Measurement Tool	Baseline	3 Months (Post-Intervention) Change	p	Subjects With Clinically Significant Improvement* After Intervention (%)
mMRC (scale 0-4)†	2.4 (1.0)	-0.4 (0.7)	.002	27.4
CRQ Dyspnea (scale 1-7)‡	4.8 (1.5)	0.2 (0.8)	.20	25.5
CRQ Fatigue (scale 1-7)‡	4.0 (1.3)	0.5 (0.9)	.001	33.3
CRQ Emotion (scale 1-7)‡	5.0 (1.1)	0.4 (0.7)	.001	31.4
CRQ Mastery (scale 1-7)‡	5.1 (1.2)	0.3 (0.9)	.007	33.3
GSRH (scale 1-5)‡	3.7 (0.9)	-0.3 (0.8)	.03	33.3

\* One point for mMRC and GSRH, and a half point for CRQ.  
 † Lower value indicates best condition.  
 ‡ Higher value indicates best condition.  
 mMRC = Modified Medical Research Council  
 CRQ = Chronic Respiratory Disease Questionnaire  
 GSRH = general self-rated health status. How do you rate your health: excellent, very good, good, fair or poor?

During the post-intervention qualitative assessment, subjects conveyed a general sense of acceptance and saw value in the intervention with three main themes emerging regarding health coaching conversations. Specifically, they were (a) seen as motivating and encouraging, (b) increased accountability, and (c) increased awareness of health and health-related behaviours of patients.

## Discussion

MI as a remote health coaching strategy has resulted in significant improvements in dyspnea, fatigue, emotional function, mastery, and overall quality of life (QOL) in subjects with moderate to severe COPD. Other studies have provided evidence of its benefits in COPD management as well. For instance, Benzo et al. (2015) determined that COPD patients participating in MI-based telephone health coaching in combination with written plans in case of exacerbations, had significant improvements in their disease-specific QOL compared to the control group after 6 and 12 months (p. 675). This form of health coaching not only promotes mastery in patients with chronic disease, but it improves self-efficacy, lifestyle changes (e.g., medication use, exercise compliance), and perceived health status (Linden et al., 2010, p. 169; Long et al., 2019, p. 537-538). It provides these benefits while reducing health behavioural risks and COPD-related hospital admissions (Linden et al., 2010, p. 169; Long et al., 2019, p. 537-538).

Despite the intervention's ability to improve PR accessibility, there are still questions regarding whether or not it is actually a feasible model. There are concerns that MI-based health coaching may be difficult to implement as it would require extra time to allow for adequate conversation (Robert et al., 2017, p. 10). Given that MI is a complex method, it may also be difficult to train clinicians to be competent in using MI; thus, intensive training would be required as well as ongoing supervision (Robert et al., 2017, p. 11). Furthermore, long-term benefits of telephone health counselling using MI has yet to be proven. Another study by Benzo & McEvoy (2019) was unable to find improvements in self-management of patients participating in MI-based remote health coaching at 12 months (p. 1068). They believed this may be due to a decrease in the number of health coaching sessions, which may signify the need for maintaining the number of health coaching sessions in order to sustain intervention benefits (Benzo & McEvoy, 2019, p. 1070).

Thus, additional research is recommended to determine the long-term effectiveness of this form of health coaching. Other possible avenues of PR should be considered as well in order to maximize accessibility, feasibility, and long-term effectiveness. One way may be the use of technology in health coaching as seen in a study by Hataji et al. (2017) on whether smart watch-based coaching improved physical activity level in stable COPD patients (p. 4062). Smart watch-based coaching could be extremely beneficial as it adds an element of convenience as aging populations become more technologically literate.

Overall, the study provides additional evidence for the benefits of telephone health coaching using MI. In the short-term, there were improvements in QOL and positive responses to the intervention by patients, suggesting that MI-based telephone health coaching is feasible; however, several barriers to effective implementation still need to be addressed—especially in the long-term. These findings support the idea that telephone health counselling may be a promising alternative for those unable to access in-person PR programs.

## References

Benzo, R., & McEvoy, C. (2019). Effect of Health Coaching Delivered by a Respiratory Therapist or Nurse on Self-Management Abilities in Severe COPD: Analysis of a Large Randomized Study. *Respiratory Care*, 64(8), 1055-1072. <https://doi.org/10.4187/respcare.09227>

Benzo, R., Vickers, K., Novotny, P.J., Tucker, S., Hoult, J., Neuenfeldt, P., Connett, J., Lorig, K., & McEvoy, C. (2015). Health Coaching and Chronic Obstructive Pulmonary Disease Rehabilitation: A Randomized Study. *American Journal of Respiratory Therapy*, 194(6), 672-680. <https://doi.org/10.1164/ajrccm.201512-2503OC>

Government of Canada. (2018, May 1). *Chronic Obstructive Pulmonary Disease (COPD) in Canada* [Blog Post]. Retrieved March 27, 2020, from <https://health-infobase.canada.ca/statstabcopd.html>

Hall, K., Gible, T., Libman, D. I. (2012). Motivational Interviewing Techniques. *Australian Family Physician*, 47(9), 660-667. Retrieved April 1, 2020, from [https://www.mcgill.ca/familymed/files/familymed/motivational\\_counseling.pdf](https://www.mcgill.ca/familymed/files/familymed/motivational_counseling.pdf)

Härter, M., Dimmeler, J., Dwinger, S., Kräussel, L., Herberich, L., Siegmund-Schultze, E., Bemejo, L., Metzschner, H., Heider, D., & König, H. (2016). Effectiveness of Telephone-Based Health Coaching for Patients with Chronic Conditions: A Randomized Controlled Trial. *PLoS ONE*, 11(9), 1-18. doi:10.1371/journal.pone.0161269

Hataji, O., Nishi, Y., Ito, K., Sakaguchi, T., Sakai, H., Suzuki, Y., D'Alessandro-Gabazza, C., Fujimoto, H., Kobayashi, T., Gabazza, E. C., & Taguchi, O. (2017). Smart Watch-Based Coaching with Tiotropium and Obidaterol Ameliorates Physical Activity in Patients with Chronic Obstructive Pulmonary Disease. *Experimental & Therapeutic Medicine*, 14(5), 4061-4064. <https://doi.org/10.3892/etm.2017.5086>

Linden, A., Battenworth, S.W., & Prochaska, J.O. (2010). Motivational Interviewing-Based Health Coaching as a Chronic Care Intervention. *Journal of Evaluation in Clinical Practice*, 16, 166-174. doi:10.1111/j.1365-2753.2009.01300.x

Long, H., Howells, K., Peters, S., & Bakemore, A. (2019). Does Health Coaching Improve Health-Related Quality of Life and Reduce Hospital Admissions in People with Chronic Obstructive Pulmonary Disease? A Systematic Review and Meta-Analysis. *British Journal of Health Psychology*, 24(3), 515-540. <https://doi.org/10.1111/bjhp.12366>

National Heart, Lung, and Blood Institute. (n.d.). *COPD - Signs, Symptoms, and Complications*. Retrieved March 27, 2020, from <https://www.nhlbi.nih.gov/health/topics/copd>

Rehman, H., Karpman, C., Douglas, K.V., & Benzo, R.P. (2017). Effect of a Motivational Interviewing-Based Health Coaching on Quality of Life in Subjects With COPD. *Respiratory Care*, 62(8), 1043-1048. doi:10.4187/respcare.04884

Robert, S., Donovan-Hall, M., & Bruton, A. (2017). Motivational Interviewing in Respiratory Therapy: What do Clinicians Need to Make it Part of Routine care? A Qualitative Study. *PLoS ONE*, 12(10), e0187335. <https://doi.org/10.1371/journal.pone.0187335>

Sharma, B. B., & Singh, V. (2011). Pulmonary Rehabilitation: An Overview. *Lung India*, 28(4), 276-284. doi:10.4103/0970-2113.85690