

**Online Supplement**  
**Meaning in Life: A Novel Factor for Promoting Wellbeing in COPD**

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## **Instruments**

Demographic information was gathered via chart review. Patient age, sex, BMI, BMI group, race, ethnicity, marital status, and level of education was collected. To further assess their COPD, health related quality of life metrics, and activity levels the following information was compiled: FEV1, GOLD group, modified Medical Research Council dyspnea scale, Interpersonal Support Evaluation List-12, Patient Health Questionnaire, Generalized Anxiety Disorder 2-item, Chronic Respiratory Questionnaire, and Self-Management Ability Scale.

The modified Medical Research Council (mMRC) dyspnea scale is a 5-point dyspnea scale based off of varying levels of physical activity that lead to breathlessness.<sup>1</sup> Higher scores designate significant dyspnea with light activity, such as dressing. It has high interrater reliability and has correlates well with other dyspnea measures.<sup>2,3</sup>

The Interpersonal Support Evaluation List-12 (ISEL-12) is a 12-item measure of overall perceived social support with three subscales: availability of appraisal (counsel or guidance), belonging, and tangible social support (material or financial aid). Each subscale is measured by four items, rated using a 4-point Likert scale, with scores ranging from 4-16. Scores are typically summed together for a total social support scale of 16-48, with higher scores indicating more social support.<sup>4</sup>

The Patient Health Questionnaire (PHQ-9) is a 9-item instrument which scores each of the nine DSM-IV criteria for depression. Each of the 9 criteria are scored ranging from 0 (“not at all”) to 3 (“nearly every day”), with a total possible score of 27. A total score of  $\geq 5$  is concerning for depression with severity ranging from mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27).<sup>5</sup> A meta-analysis demonstrated that PHQ-9 scores  $\geq 10$  were 88% sensitive and 85% specific for major depressive disorder.<sup>6</sup>

The Generalized Anxiety Disorder 2-item (GAD-2) is a 2-item screening test for common anxiety disorders. It comprises the first 2 items of the previously validated GAD-7, with scores ranging from 0 (“not at all”) to 3 (“nearly every day”). A total score of  $\geq 3$  is concerning for anxiety.<sup>7</sup>

The Meaning in Life Questionnaire (MLQ) is a 10-item tool with two separate subscales: the *presence of meaning* (MLQ-P; example “my life has a clear sense of purpose”) and the *search for meaning* (MLQ-S; example “I am looking for something that makes my life feel meaningful”). Each subscale is measured by five items, rated using a 7-point Likert scale, with scores ranging from 5 to 35. Higher scores are indicative of higher search or presence of meaning. Subscales had Cronbach’s alpha values 0.82-0.87 with one-month test-retest reliability of 0.70 (MLQ-P) and 0.73 (MLQ-S).<sup>8</sup>

The Chronic Respiratory Questionnaire (CRQ) is a 20-item tool with the following domains: dyspnea, fatigue, emotional function, and mastery. Each domain includes 4 to 7 items, rated using a 7-point Likert scale. Scores in each domain are summated to provide a total score for each domain, with higher scores indicating higher health-related quality of life.<sup>9</sup> The domains

can be further categorized into physical (dyspnea + fatigue) and emotional (emotional function + mastery) subscales.

The Self-Management Ability Scale (SMAS-30) is a 30-item tool with six subscales: taking initiative, investment behavior, self-efficacy, variety, multifunctionality, and positive frame of mind. Each subscale is measured by five items, rated using a 6-point Likert scale, with scores ranging from 5 to 30. Higher scores are indicative of higher self-management ability. The subscales had Cronbach's alpha values ranging from 0.67 to 0.84, with a total-item internal consistency of 0.91. The 16-week test-retest reliability was 0.76.<sup>10</sup>

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