EXPLORING SELF-CONSCIOUS EMOTIONS IN INDIVIDUALS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE: A MIXED-METHODS STUDY

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A. Abstract

B. Objectives: This study aimed to explore the extent to which self-conscious emotions are expressed, to explore any associations with adverse health outcomes and to compare self-conscious emotions in individuals with COPD to healthy controls.

B. Methods: A two stage mixed-methods study design was employed. Interviews with 15 individuals with COPD informed the choice of questionnaires to assess self-conscious emotions which were completed by individuals with COPD and healthy controls.

B. Results: Five overarching themes were abstracted: grief, spectrum of blame, concern about the view of others, concealment and worry about the future. The questionnaires were completed by 70 patients [mean(SD) age70.8(9.4) years, FEV₁%pred 40.5(18.8), 44%male] and 61 healthy controls [mean(SD) age62.2(12.9) years, 34%male]. Self-conscious emotions were associated with reduced mastery, heightened emotions and elevated anxiety and depression (all p<0.001). Individuals with COPD reported lower self-compassion, higher shame and less pride than healthy controls (all p≤0.01).

B. Conclusion: There is a need to increase awareness of self-conscious emotions in individuals with COPD. Therapies to target such emotions may improve mastery, emotions and psychological symptoms.
A. Introduction

Symptoms of breathlessness on exertion limit the ability of individuals with Chronic Obstructive Pulmonary Disease (COPD) to sustain physical and social activities which are important for wellbeing, compromising quality of life and leading to psychological co-morbidities. Personal culpability for COPD is often experienced due to the onset of the disease being commonly attributed to smoking behavior, potentially leading to self-conscious emotions. Self-conscious emotions related to our sense of self and self-worth, are associated with both self-perceptions and appraisals of how we are perceived by others, and encompass feelings such as; guilt, shame, embarrassment and self-blame. In individuals with COPD such feelings of self-worth may be compromised by the presence of a chronic, debilitating disease which requires seeking help from family members. Visible differences conferred
by symptoms as well as dependency on others and on devices may force patients to reappraise their identity within the context of their disease. Constructions of self-blame and personal culpability for disease are prominent in narratives of patients with COPD. This is perhaps unsurprising if communicated by the substantial proportion of physicians who believe that patients with COPD are to blame for their disease. The experience of self-blame and concern about the manner in which others view their behavior has been associated with negative emotional responses including feeling shamed, disgraced, depressed and embarrassed, leading to reduced help-seeking, reduced adherence to oxygen therapy, failure to attend pulmonary rehabilitation (PR) and social isolation.

To date, such issues have been noted indirectly, elicited from patients’ narratives describing their disease experience or exploring views on smoking behavior. We chose to adopt a mixed-methods approach consisting of qualitative and quantitative methodologies to explore the extent to which self-conscious emotions are expressed in patients with COPD, to explore any associations with reduced health related quality of life (HRQOL), self-
efficacy or increased psychological symptoms and to compare self-conscious emotions in individuals with COPD to healthy controls.

**A. Methods**

**B. Study design**

A two stage mixed-methods study design was employed. Qualitative techniques enable the collection of detailed data allowing for true meaning and contradictions to be explored. Information arising from the qualitative phase informed the choice of questionnaires to assess self-conscious emotions which are relevant to individuals with COPD.

Ethical approval for this study was obtained from the The Joint Bridgepoint Health – West Park Healthcare Centre – Toronto Central Community Care Access Centre – Toronto Grace Health Centre Research Ethics Board and all participants provided written informed consent prior to inclusion in the study.

**B. Recruitment**

*C. Individuals with COPD*
Eligible patients had a diagnosis of COPD confirmed by spirometry, a smoking history greater than 10 pack years, resided in the community and were able to provide written informed consent. Individuals were excluded if they had a primary respiratory diagnosis other than COPD and an inability to communicate because of language skills, hearing or cognitive impairment. Consecutive patients with COPD were approached in an out-patient respiratory clinic held at a specialized rehabilitation center.

*C. Healthy Controls*

Multiple strategies were used for the recruitment of healthy controls. Friends and family members of patients who attended respiratory clinics were approached. Posters, emails, advertisements, and announcements were displayed at the rehabilitation center.

To be considered eligible controls had to; consider themselves ‘healthy’ and be over 40 years old. Subjects were excluded if they had a chronic respiratory condition.

*B. Data collection*

*C. Phase 1: Qualitative phase*

A semi-structured interview schedule consisting of open-ended questions was informed by the results of a previous study exploring the views of patients who refused a referral to PR
following an acute exacerbation. Feedback was provided from a patient advisory group consisting of four members. The interview schedule was revised throughout data collection.

SH interviewed participants individually in a quiet room at the healthcare center. Interviews lasted between 20 minutes and 60 minutes and were largely patient led.

C. Phase 2: Quantitative phase

Patients completed a questionnaire pack consisting of self-reported measures of self-conscious emotions, COPD-specific items of self-consciousness, HRQOL, self-efficacy and psychological symptoms. The choice of measures was informed by the qualitative findings and advice was sought from a patient advisory group consisting of four individuals with COPD. Healthy controls completed a questionnaires pack consisting of the three measures of self-consciousness only.

C. The Brief Fear of Negative Evaluation Scale

The Brief Fear Negative Evaluation (BFNE) scale is a valid and reliable measure of social anxiety ($\alpha = 0.97$). It is convenient for use consisting of 12 items measured on a five-
point Likert scale (one to five). Scores range from 12 to 60 with higher scores indicating greater apprehension about others evaluations.

C. The Shame and Guilt Scale

The State Shame and Guilt Scale (SGS) contains five shame items ($\alpha = 0.89$) five guilt items ($\alpha = 0.82$) and five pride items ($\alpha = 0.78$). Responses are given on a five-point Likert scale (1 = “always feeling this way” to 5 = “never feeling this way”). Lower scores indicate increased feelings of shame and guilt and elevated levels of pride. The scale was adapted to ask how individuals had felt “in the past two weeks” rather than at the present moment to counteract any influence of the hospital setting on levels of shame or guilt.

C. The Self-Compassion Scale-Short Form

The Self-Compassion Scale-Short Form (SCS-SF) assesses six aspects of self-compassion; self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. The 12-items are rated on a five-point response scale ranging from one (almost never) to five (almost always). The shortened scale correlates well with the full SCS ($r \geq 0.97$). The total score is calculated by adding together each item and dividing by 12.
C. COPD-specific items of self-consciousness Supplement 1

Based on the qualitative findings and the advice from patient advisory group members, disease-specific items were developed encompassing self-conscious emotions related to COPD. Each item is scored on a five-point Likert scale. Positive and negative statements were included so as not to induce feeling of self-consciousness.

C. Health-related quality of life - The Chronic Respiratory Questionnaire-Self Reported (CRQ-SR)

The CRQ-SR is a self-reported measure of health status shown to be valid and reliable in patients with COPD. It consists of four dimensions: dyspnoea, fatigue, emotion and mastery.

C. Self-efficacy - The Pulmonary Rehabilitation Adapted Index of Self-efficacy (PRAISE)

The PRAISE has been fully validated in a PR population. The tool consists of 15 questions, each one scored from one to four with four being the highest level of perceived self-efficacy.

C. Psychological symptoms - The Hospital Anxiety and Depression Scale (HADS)
The HADS comprises of two subscales; anxiety (α=0.68) and depression (α=0.91) with a score range of zero to 21. Scores ≥11 for each sub-scale are considered to indicate clinical caseness.

B. Data analysis

C. Phase 1: Qualitative phase

All interviews were recorded and transcribed verbatim. The data was stored and organized using a computer software program (QSR NVivo version 9; QSR International, Doncaster, Australia) and analyzed using Inductive Thematic Analysis (ITA).

The process of analysis followed the procedure described by Hayes (2000) with researcher (SH) initially reading the transcripts to identify meaningful units of text. Initial coding for each transcript involved grouping units of text dealing with similar issues into categories and labeling them with a provisional name and definition, this step was undertaken by SH and verified in two transcripts by a second researcher (DB). SH and DB then systematically reviewed the original transcripts to ensure the labels and description assigned to each code were accurately supported by the data. Categories were grouped into emerging themes agreed on by the two researchers (SH, DB) and presented to members of
the patient advisory group and at a collaborative workshop consisting of; a research assistant, a nurse, an occupational therapist, a physiotherapist, two respirologists, two scientists, one PhD student and one clinical care coordinator. The final master themes were settled by SH and DB and thematic mapping was used to develop the relationships between themes.

C. Phase 2: Quantitative phase

The sample was powered to detect a medium effect size (0.30) for a positive/one-sided correlation.23

The statistical analyses were performed using SPSS® (Statistical Package for Social Sciences, version 18.0 for Windows). Relationships between self-reported measures of self-consciousness and the COPD-specific items of self-consciousness and other variables were assessed using Pearson correlations. Due to multiple comparisons a Bonferroni correction was applied and the significance level was set at p<0.001. Comparisons between measures of self-consciousness in patients with COPD and healthy controls were performed using independent t-test with significance set at p<0.05.
A. Results

B. Phase 1: Qualitative phase

Fifteen individuals agreed to participate in semi-structured interviews. Demographic information was recorded and is displayed in Table 1. Their mean age was 73 years, BMI 24.7, FEV₁%pred 41.1% and FEV₁/FVC 44.2%.

Across the five themes novel interpretations are described in detail, informed and contextualized by findings from the previous qualitative investigations. A total of five themes were identified.

C. 1. Grief and loss

Issues surrounding feelings of grief appeared two-fold: patients expressed grief for the person they once were and the things they used to be able to do and they articulated a sense of loss surrounding their inability to fulfill plans they had made for the future.

Patients appeared acutely aware of the constraints on daily activities conferred by their disease, using strong language to portray the value placed on those activities in which they
were no-longer able to participate and consequent feelings of sadness and frustration “I love going out to get my wife but I won’t be driving anymore cause I’ve given up my license.” (ID. 1) “And I do miss not gardening. That is my biggest horror... that I can’t get and dig in the dirt.” (ID. 8).

Participants’ transcripts relay accounts of the time and energy spent working to save for retirement and the anticipation of being unable to attain their goals. The excitement of fulfilling these plans appears to compound the sense of loss felt that due to the limitations inflicted by the progression of their disease they were no-longer able to complete” I wanted to start an indoor herb garden. That didn’t happen.”(ID. 2).

C. 2. Spectrum of blame

Blame was discussed by most participants as they made sense of their state of health and its origins and could be construed as a spectrum extending from personal culpability for the development of a chronic and progressive disease to fault from external agencies.

At one end of the spectrum, five individuals readily accepted personal responsibility for their condition “Stupidity. There’s only uh two ways you can get emphysema, smoking and
second hand smoke” (ID. 13) and emphasized their compliance with interventions such as, PR and smoking cessation. At polar opposite three participants refused to accept any personal responsibility for their condition, ascribing their condition to occupational factors and passive smoking “I really do believe that it is the ceramic dust that has caused it.” (ID. 10).

For those patients expressing personal culpability for COPD dissonance appeared prominent alongside attempts to suppress thoughts or externalize blame. “Hitler’s fault. It’s a poor excuse but everybody smoked in the war.” (ID. 11). These narratives were infused with considerable emotional expressions of; shame, self-pity and regret. “I was full of self-pity and I was very depressed….Oh God, you think to yourself, you know, like you should have had a bag put over your head for being so unintelligent. You know?” (ID. 3), “I’m embarrassed to say that I was a smoker.” (ID. 5).

C. 3. Concern about the view of others

Participants’ narratives reflect heightened sensitivity to the ways in which they are viewed by others. Concerns were expressed surrounding the ‘visibility’ of the condition with subsequent impact on patients’ sense of wellbeing and adherence to supportive aids.
COPD seemed to be construed as a socially undesirable condition in terms of the symptoms it provokes. “I mean the only thing that bothers me as far as other people go [cough] is my coughing. That can sort of embarrass me. Other than that…It’s gross.” (ID. 6) as well as its impact on physical appearance “It’s disgusting. I don’t like the bruises. Yeah it looks terrible, yeah.” (ID. 4).

Patients’ appeared apprehensive about others evaluation “I’m sure when I get out of a car, people must look at me and think, why is she in handicap parking?” (ID. 6) “one thing I’m told is... should not swallow it. But yet if you’re in a public place what are you supposed to do?” (ID. 13) displaying an acute awareness of the manner in which they must appear and be perceived by others.

Devices which increase the visibility of the disease, namely oxygen and rollers, were described as symbols of disability and aging provoking stoical attitudes. “Because you know I always associated it [rollator] with people who are feeble or old.” (ID. 15).

Consequently, participants made attempt to minimize their dependency on aids to preserve an image of independence. “I don’t like using it [rollator]. Like I’ve never used it ... when
I’ve gone anywhere. Uh that ... that maybe it’s uh... that might be a pride thing, I don’t know.” (ID. 6).

Participants noted that even the most facilitative and well-intentioned actions were affected by their use of supports. Behavior could be a source of embarrassment and shame surrounding a sense of perceived vulnerability and burdening others. “I was coming home by bus. And I felt too embarrassed to be in there because I was there... people got up and made sure I had a seat, that was... you know, but I felt as if it [rollator] was in the way. And I felt very embarrassed.” (ID. 10).

Yet, other participants expressed gratitude for devices which improved function and enabled independence. “Uh, what the first time I was on oxygen? ... I felt great. Yeah because uh... I was struggling all the time. And now I was struggling less. Right? And not all the time.” (ID. 14) “So I traded it [rollator] and got this one and ... ... I couldn’t care less. That’s how I get out, that’s how I get out.” (ID. 11). For these patients the benefits obtained through the use of these supportive devices appeared to outweigh any self-conscious emotions.
Participants describe attempts to hide their disability often driven by expressed guilt for contributing to their condition, and their motivation to retain integrity and appear physically robust. This desire to appear competent seems to overwhelm the need for their disability to be understood by others.

Stoical attitudes are expressed, encouraged by feelings of guilt pertaining to the emotional burden patients see as inflicting on others. “I don’t really talk to ... about it too much. I don’t volunteer any information. I try not to say anything to him about it. Just let him know everything is fine, you know” (ID. 4).

Participants attempts to conceal their condition seems driven by a desire to appear competent in their current roles, at work and in the home “I didn’t tell the truth, I never told a soul at work.....I had to present myself as someone who is extremely capable and keep trucking. I had to prove to yourself and everybody else that there was nothing wrong with me.” (ID. 3). Inability to complete these roles appeared to provoke shame-based emotions and diminished self-worth “Well I have become pretty useless. Uh, you know it’s like when you can’t bend down to pick something up.” (ID 13).
Whilst hiding their condition permitted patients to maintain their identity and sense of self-worth, frustration was expressed at the lack of awareness and compassion shown by others. “It’s not a nice disease and it’s hidden too, so a lot of people don’t know you are sick and... going up the stair I’ll stop at the mall and they... they try to push you out of the way” (ID. 4).

Concealment seemed accompanied by social comparisons to others with COPD which served to minimize the significance of their own disease state. “So other people may have something. There are some people there that are really ill.” (ID 9). Patients readily accepted delays in their care, emphasizing the urgency of attending to other patients’ needs before their own, believing their own condition to be less serious and or/life threatening and being unable or unwilling to assert themselves. “I would think they would deal with the heart attack and stroke before me. Would think it’s a bit more serious, whereas with me I would expect I guess, me being me, they could always give me a mask temporarily.” (ID. 7).
C. 5. Worry about the future

Patients’ narratives portrayed a sense of threat which was both imminent and yet stretched into the future.

Patients appeared hyper-vigilant to their disease state voicing catastrophic cognitions concerning the effects of certain actions and activities “I get a little anxious especially when I am going home….I get anxious, my heart starts racing cause I realize okay... especially in the winter. Put on a coat, put on the boots... even if it’s summer I guess.” (ID. 15). Such anxieties appeared to result in avoidance of activities for fear that it would prompt undesirable symptoms “If the situation required me to exert a lot. I wouldn’t do it.”(ID. 7).

The progressive nature of the disease seemed to provoke feelings of worry and uncertainty about what the future will hold “where is this going? You know what I mean? How bad is it going to get or how worse it’s going to get.” (ID. 5). Such concerns appeared to limit individuals’ ability to be spontaneous and live the lifestyle once known “Yep, it still affects my confidence because I travelled. And uh ... I had fears of not being able to get myself from point A to point B due to my limitations.” (ID. 3)
B. Phase 2: Quantitative phase

C. Individuals with COPD

Recruitment and patient demographics are reported in figure 1 and table 2 respectively.

C. Healthy controls

Sixty three healthy individuals agreed to participate. Two were excluded from the data analysis because they had abnormal spirometry (Forced Expiratory Volume in one second (FEV$_1$%) predicted <80% or Forced Expiratory Volume in one second/Forced Vital Capacity (FEV$_1$/FVC) <70%) leaving 61 subjects to complete the questionnaires. Five subjects were unable to perform the spirometry testing correctly but were included on the basis they had no history of smoking or respiratory compromise. Subject characteristics (n=61) are displayed in table 2.

B. Associations with health outcomes

Self-reported measures of self-consciousness, including the COPD-specific items of self-consciousness, correlated with each other (all p<0.01). Relationships between measures of self-consciousness and the COPD-specific items of self-consciousness with health
outcomes, including HRQOL, self-efficacy, anxiety and depression, are displayed in table 3.

B. Self-conscious emotions in individuals with COPD and healthy controls

Differences between scores obtained on measures of self-conscious emotions in individuals with COPD compared to healthy controls are displayed in table 4.

A. Discussion

COPD is acknowledged as self-inflicted provoking painful emotions surrounding feelings of self-blame, embarrassment, shame and guilt. Self-conscious emotions were prominent and associated with reduced mastery, heightened emotions and elevated symptoms of anxiety and depression. Individuals with COPD were noted to be less compassionate towards themselves, have higher levels of shame and lower levels of pride than healthy controls.

These findings echo previous literature in which self-blame and personal culpability are prominent in the narratives of individuals with COPD. Self-blame has been associated
with negative emotional responses including feeling shamed, disgraced, depressed and embarrassed, leading to reduced help-seeking, reduced adherence to oxygen therapy and social isolation\textsuperscript{6,10,11}. Self-conscious emotions are also reported in conjunction with negative feelings of dependency on people and on devices which force patients to reappraise their identity within the context of their disease. Such critical self-appraisals negatively influences self-confidence and challenges feelings of self-worth\textsuperscript{5} which can lead to the decline of active interventions as patients feel undeserving of dedicated care\textsuperscript{12}. Feelings of worthlessness may also mean patients have difficulty asserting themselves.

They describe feeling they have no right to complain especially when dealing with health care professionals\textsuperscript{5}. Shaming attributes may arise from interactions with health care professionals, who believe patients with COPD are to blame for their disease, resulting in patients feeling stigmatized\textsuperscript{7,9}. Therefore, health care professionals need to be mindful of interactions with patients; taking the time to listen can positively influence patients’ self-control and feelings of self-worth\textsuperscript{24}.

Self-conscious emotions have not previously been assessed objectively in individuals with COPD. Such emotions were strongly associated with reduced mastery, a heightened emotional response and elevated symptoms of anxiety and depression, detectable both by
the general measures of self-consciousness and the disease-specific items. This is the first study to apply these objective measures of self-compassion, shame and guilt to a population of older adults living with chronic disease. Patients with COPD were found to be less compassionate towards themselves than healthy controls of a similar age, and both populations in this study scored lower than scores reported in younger adults aged 17-36 years. 

The vast majority of patients expressed feelings of guilt during the interviews and identified their “own behavior” as being responsible for their lung disease, yet questionnaire-assessed guilt did not differ between healthy individuals and those with COPD. Given that guilt is rarely experienced on the conscious level it may be difficult to detect using self-reported measures. Although it has been reported in the narratives of individuals newly diagnosed with COPD, it is unclear whether feelings of guilt remain salient eight years following diagnosis.

This study is not without its limitations. The infrequent application of the self-conscious measures in those with COPD, in particular the SGS, makes it difficult to contextualize our results in comparison with other chronic disease populations. This measure was chosen as it
considers three important dimensions, (shame, guilt and pride) two of which (shame and pride) are strongly associated with important health outcomes. Given the number of correlations the chance of significant correlation was high. However, even after correction for multiple correlations all self-conscious emotions, with the exception of guilt, were significantly associated with reduced mastery, a heightened emotional response and psychological symptoms.

Our observations suggest a need to scope and address self-conscious emotions in individuals with COPD. Therapies to target self-conscious emotions include, compassion focused therapy \(^{27}\) and mindfulness \(^{28}\). Self-compassion, as a key component of mindfulness, has been reported to mediate the effect of mindfulness-based cognitive therapy for depression supporting Gilberts’ model (2010) of self-compassion as a mediator for psychological affect \(^{29,20}\). A pilot randomized controlled trial of an eight week Mindful Self-Compassion program noted significant differences in favor of the intervention group in self-compassion, mindfulness, life satisfaction, depression, anxiety, stress and avoidance and these benefits were also visible after 12 months \(^{31}\). Such interventions have the potential to improve wellbeing, reduce psychological symptoms and encourage effective disease strategies. Although disease-specific self-conscious items still require psychometric
testing prior to broader application in the COPD population, the items correlated well with other general measures of self-consciousness and with important health outcomes. They were simple to apply and well accepted by individuals with COPD.

B. Conclusion

Patient narratives reflected low levels of self-compassion, high self-judgment and diminished self-worth, known to negatively impact on help-seeking behavior and adherence to active interventions. Self-conscious emotions are prominent and were associated with reduced mastery, heightened emotions and elevated symptoms of anxiety and depression. Individuals with COPD were less compassionate towards themselves, had higher levels of shame and lower levels of pride compared with healthy controls of a similar age. An improved awareness of self-conscious emotions will enable targeted therapy aimed at improving mastery and reducing psychological symptoms.

Funding Acknowledgements: This study was funded by the Canadian Lung Association, Canadian Respiratory Health Professionals (CRHP), and DB holds a Canadian Research Chair.
Declaration of Conflicting Interests: The Authors declare that there is no conflict of interest.


12. Harrison SL, Robertson N, Apps L, Steiner C, Morgan MDL, Singh SJ. “We are not worthy” understanding why patients decline pulmonary rehabilitation following an acute exacerbation of COPD. *Disabil Rehabil* 2015; 37(9):750.


Table 1. Patient demographics for Phase 1: Qualitative phase

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Table 2. Between group differences in characteristics between individuals with COPD and healthy controls

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<th>Between group differences</th>
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</thead>
<tbody>
<tr>
<td>Age (y)</td>
<td>70.8 (9.4)</td>
<td>66.2 (12.9)</td>
<td>p=0.33</td>
</tr>
<tr>
<td>Gender (%male)</td>
<td>44</td>
<td>34</td>
<td>p=0.23</td>
</tr>
<tr>
<td>BMI</td>
<td>25.2 (6.3)</td>
<td>25.8 (4.9)</td>
<td>p=0.617</td>
</tr>
<tr>
<td>FEV(^1)%pr</td>
<td>40.5 (18.8)</td>
<td>89.2 (28.0)</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>FEV(^1)/FVC</td>
<td>43.5 (14.4)</td>
<td>76.4 (7.5)</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Smoking status (%yes, ex, no)</td>
<td>5.7</td>
<td>4.9</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>94.3</td>
<td>18.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>77.0</td>
<td></td>
</tr>
<tr>
<td>Pack years</td>
<td>43.5 (21.7)</td>
<td>2.8 (7.3)</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Length of diagnosis (y)</td>
<td>8.8 (6.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of co-morbidities</td>
<td>2.7 (2.0)</td>
<td>1.1 (1.4)</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Social status (lives with) (%alone spouse, family, other)</td>
<td>37.7</td>
<td>28.3</td>
<td>p=0.004</td>
</tr>
<tr>
<td></td>
<td>37.1</td>
<td>58.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24.3</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.4</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>Oxygen usage (% yes)</td>
<td>44.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking aid usage (% yes)</td>
<td>51.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SD; Standard Deviation, BMI; Body Mass Index, FEV\(^1\); Forced Expiratory Volume in one second FEV\(^1\)/FVC; Forced Expiratory Volume in one second/Forced Vital Capacity
Table 3: Significant correlations between self-conscious emotions and health related quality of life (HRQOL), self-efficacy and psychological symptoms (Persons r)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BFNE</td>
<td>NS</td>
<td>NS</td>
<td>r=−0.47*</td>
<td>r=−0.60*</td>
<td>NS</td>
<td>r=0.60 *</td>
<td>r=0.49*</td>
</tr>
<tr>
<td>SCS-SF 16</td>
<td>NS</td>
<td>NS</td>
<td>r=0.41*</td>
<td>r=0.55*</td>
<td>NS</td>
<td>r=−0.50*</td>
<td>r=−0.51*</td>
</tr>
<tr>
<td>SGS: Guilt</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
<td>r=0.45*</td>
<td>NS</td>
<td>r=−0.47*</td>
<td>NS</td>
</tr>
<tr>
<td>SGS: Shame</td>
<td>NS</td>
<td>NS</td>
<td>r=0.52*</td>
<td>r=0.65*</td>
<td>NS</td>
<td>r=−0.70*</td>
<td>r=−0.56*</td>
</tr>
<tr>
<td>SGS: Pride</td>
<td>NS</td>
<td>NS</td>
<td>r=−0.50*</td>
<td>r=−0.57*</td>
<td>NS</td>
<td>r=0.58*</td>
<td>r=0.61*</td>
</tr>
<tr>
<td>COPD-specific items of self-consciousness</td>
<td>NS</td>
<td>NS</td>
<td>r=0.58*</td>
<td>r=0.65*</td>
<td>NS</td>
<td>r=−0.51*</td>
<td>r=−0.55*</td>
</tr>
</tbody>
</table>

BFNE: Brief Fear of Negative Evaluation, SCS-SF: Self-Compassion Scale-Short Form, SGS: Adapted Shame and Guilt Scale, COPD: Chronic Obstructive Pulmonary Disease, PRAISE: Pulmonary Rehabilitation Adapted Index of Self-Efficacy, HADS: Hospital Anxiety and Depression Scale, CRQ-SR: Chronic Respiratory Questionnaire-Self-Reported.

Due to multiple comparisons significance levels were set at p<0.001*

NS: Not Significant
**Table 4. Self-conscious emotions in individuals with COPD compared to healthy controls**

<table>
<thead>
<tr>
<th>Measures of self-conscious emotions</th>
<th>COPD (n=70) mean (SD)</th>
<th>Healthy controls (n=59) mean (SD)</th>
<th>Between-group differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFNE</td>
<td>27.8 (10.5)</td>
<td>30.9 (7.2)</td>
<td>p=0.046*</td>
</tr>
<tr>
<td>SCS-SF</td>
<td>3.3 (0.6)</td>
<td>3.6 (0.7)</td>
<td>p=0.010*</td>
</tr>
<tr>
<td>SGS - Guilt</td>
<td>18.8 (4.3)</td>
<td>18.6 (3.4)</td>
<td>p=0.808</td>
</tr>
<tr>
<td>SGS - Shame</td>
<td>21.3 (3.9)</td>
<td>23.0 (2.8)</td>
<td>p=0.006*</td>
</tr>
<tr>
<td>SGS - Pride</td>
<td>12.3 (4.03)</td>
<td>10.3 (3.2)</td>
<td>p=0.001*</td>
</tr>
</tbody>
</table>

COPD: Chronic Obstructive Pulmonary Disease; SD: standard deviation; BFNE: Brief Fear of Negative Evaluation, SCS-SF: Self-Compassion Scale-Short Form, SGS: Adapted Shame and Guilt Scale

Significance levels were set at p<0.05*
Refused n=45
Reasons included; not having enough time to complete the questionnaires, not being interested in research, feeling too unwell, one patient did not want to discuss emotional issues.

Excluded n=23
Palliative/too unwell n=2
< 10 pack years n=1
Admitted to inpatient hospital n=8
Long term healthcare center n=1
Cognitive impairment n=5
Limited/no English n=6

Enrolled n=75

Completed n=70

Dropped out n=4
Failed to return the questionnaire or did not attend scheduled appointment.