

Investigation of Temperament and Character Patterns in Patients with Chronic Obstructive Pulmonary Disease

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Abstract

Background: Chronic obstructive pulmonary disease (COPD) is one of the main causes of mortality in both developed and developing countries, and will be the third main cause of death by 2020. The role of personality factors in the development of different diseases has been acknowledged. This study investigated the temperament and character patterns in COPD patients based on the Cloninger's questionnaire.

Methods: Seventy cases of COPD and 91 healthy subjects were selected randomly. The data were collected with two questionnaires and analyzed with the SPSS17 statistical software.

Results: Comparison of temperament and character factors showed a significant decrease in the novelty seeking ($P = 0.015$) and self-transcendence ($P = 0.00$) in the COPD patients than in the healthy subjects. Significant decrease was also observed in the reward dependence and self-directedness at the ages ranging 30-49 years as well as ranging 50-64 years. Other parameters were similar between COPD and healthy groups.

Conclusion: According to this study, the novelty seeking and self-transcendence were protection factors against COPD disease. Individuals' personality could make them vulnerable to COPD disease. More comprehensive investigations are necessary for affirmation of this relationship.

Keywords: Cloninger, chronic obstructive pulmonary disease, character, personality, temperament

Introduction

Chronic obstructive pulmonary disease (COPD), a progressive inflammatory disease, is associated with various personal, social and economic problems. COPD is characterized by irreversible airflow limitation, and includes emphysema, chronic bronchitis, and small airway diseases. The prevalence of COPD is increasing in all countries. The patients' quality of life is low. Studies have shown that the prevalence of COPD is ranging 7% to 12%, increasing with age, and being more common in men (1, 2). Therefore, COPD is a disease with increasing importance in terms

of public health in the world. It is estimated that COPD will be from the current sixth to the third cause of death by 2020 worldwide (3).

Recognizing the risk factors is an important issue in the prevention and treatment of diseases. The risk factors for COPD include genetics (alpha one antitrypsin deficiency), airway hyper-responsiveness, tobacco use, occupational exposure to chemicals, air pollution, infections, and economic and social situations (4).

The relationship between mind and body has always been ambiguous and interesting (5). Many studies have examined the roles of psychological factors such as the depression and anxiety in the respiratory diseases and supported the effects of these factors on COPD (6-11). Personality is also considered as a factor influencing various diseases including pulmonary diseases (12-14). Some personality factors including emotional instability, sensitivity to rejection, intense fear, and lack of persistence in difficult situations, are related to the greater use of corticosteroids and bronchodilators as well as longer hospitalization of patients with asthma. According to Cloninger's theory, personality is composed of three components: temperament, character and psyche. The temperament is a behavioral response to physical stimuli, inherited, appears early in life, and includes four components: novelty seeking, harm avoidance, reward dependence, persistence. Character is the individual difference in goals, values, and meaning of experience in life. Character grows throughout life and is influenced by social learning, and its three factors include self-directedness, cooperativeness, and self-transcendence. Psyche is immediate and direct intuition (15, 16). The aim of this study was to investigate the relationship between personality components and COPD.

Materials and Methods

This is an analytical observational study on 70 cases with COPD and 91 healthy subjects from April to February 2013. All participants were in the 30 to 84 years age. The information was collected with two questionnaires: one self-made questionnaire that assesses the demographic characteristics, and another standardized questionnaire that assesses temperament and character (this questionnaire contains 125 questions). The acquired data were statistically analyzed with the SPSS (version 17) software. Chi-square and ANOVA tests were used. Cloninger's questionnaire includes information of society and identification of personality development. This questionnaire includes four temperament scales and three character scales. The temperament scales are novelty seeking, harm avoidance, reward dependence, persistence. The character scales are self-directedness, cooperativeness and self-transcendence.

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Table 1. The average scores of personality components in COPD patients and healthy individuals

| | Novelty seeking | Harm avoidance | Reward dependence | Persistence | Self-directedness | Cooperativeness | Self-transcendence |
|---------------------|-----------------|----------------|-------------------|-------------|-------------------|-----------------|--------------------|
| Healthy individuals | 8.62±3.19 | 9.24±4.12 | 8.48±2.31 | 2.89±1.35 | 14.12±4.53 | 18.40±3.92 | 9.69±2.92 |
| COPD patients | 7.37±3.24 | 10.10±3.78 | 8.02±1.99 | 3.10±1.36 | 12.82±4.10 | 18.41±2.89 | 7.91±3.16 |
| <i>P</i> value | 0.015 | 0.178 | 0.192 | 0.332 | 0.064 | 0.989 | 0.00 |

The data were expressed as average ± SD.

Table 2. The average scores of personality components in COPD patients and healthy individuals in women

| | Novelty seeking | Harm avoidance | Reward dependence | Persistence | Self-directedness | Cooperativeness | Self-transcendence |
|---------------------|-----------------|----------------|-------------------|-------------|-------------------|-----------------|--------------------|
| Healthy individuals | 8.19±3.21 | 9.64±4.3 | 8.48±1.97 | 2.89±1.40 | 13.14±4.53 | 18.52±3.67 | 9.69±2.88 |
| COPD patients | 7.61±2.6 | 11.35±4.33 | 7.85±2.05 | 2.83±1.54 | 12.32±3.45 | 19.07±2.73 | 9.60±3.33 |
| <i>P</i> value | 0.419 | 0.100 | 0.064 | 0.494 | 0.865 | 0.595 | 0.027 |

The data were expressed as average ± SD.

Table 3. The average scores on personality components in COPD patients and in healthy individuals in men

| | Novelty seeking | Harm avoidance | Reward dependence | Persistence | Self-directedness | Cooperativeness | Self-transcendence |
|---------------------|-----------------|----------------|-------------------|-------------|-------------------|-----------------|--------------------|
| Healthy individuals | 9.1±3.1 | 8.79±3.9 | 8.39±2.41 | 2.95±1.25 | 14.04±4.57 | 18.27±4.22 | 9.79±2.75 |
| COPD patients | 7.21±3.62 | 9.24±3.13 | 8.56±2.4 | 3.23±1.22 | 13.17±4.49 | 17.97±2.94 | 7.92±3.08 |
| <i>P</i> value | 0.012 | 0.56 | 0.359 | 0.703 | 0.300 | 0.264 | 0.004 |

The data were expressed as average ± SD.

Results

In this study, the temperament and character were investigated in 70 patients with COPD and 91 healthy individuals in Yazd in 2013. The mean age of the COPD patients and the healthy subjects was 58.77 ± 12.49 (30-84) and 57.61 ± 12.63 (30-80) years old, respectively. The 40% of the COPD patients and 52.7% of the healthy persons were males and 60% COPD patients and 47.3% healthy persons were females. There was no significant difference for the age and gender between the two groups ($P > 0.05$). Of the 70 patients with COPD, 37 (52.9%) were smokers, 27 (38.6%) were addict, 37 (52.9%) had a risky job, and 33 (47.1%) had a normal job. The average scores on novelty seeking, harm avoidance, reward dependence, persistence, self-directedness, cooperativeness, and self-transcendence in COPD patients and healthy individuals were summarized in Table 1. The difference was significant between the COPD patients and healthy individuals regarding the novelty seeking and self-transcendence. Different indicators of temperament and character were also compared in females and males (Tables 2 and 3). For females, there was a significant difference between the COPD patients and healthy women in the self-transcendence, while for males, there was a significant difference in the novelty seeking and self-transcendence. Tables 4-6 show the differences of the temperament and character indicators at ages 30-49, 50-64, and 65-84 years, respectively. Between the COPD patients and healthy individual

group, there were significant differences for the scores of novelty seeking and self-transcendence at the ages 30-49, for the scores of novelty seeking, reward dependence and self-transcendence at the ages 50-64, and for the scores of novelty seeking and self-transcendence at the ages 50-64. The correlation between the scores of temperament and character, and the duration of COPD was summarized in Table 7. As shown in the table 7, neither the scores of self-directedness, reward dependence, and self-transcendence nor the score of harm avoidance had a significant correlation with the duration of the disease.

Discussion

This study investigated the Cloninger's temperament and character in healthy individuals and COPD patients. There are no similar studies in this field, but various studies have evaluated the personality and psychological factors in COPD patients. Shoko *et al.* investigated the depression in COPD patients and have concluded that the incidence of depression in COPD patients is approximately two times higher than that in other people (11). The harm avoidance in the present study could be considered to be equivalent to the depression factor in the study by Shoko *et al.*. The harm avoidance had no significant difference between COPD patients and healthy group, which was different from the study by Shoko *et al.* (11). In 2003, Camila *et al.* evaluated the anxiety, depression and traits of personality in 30 COPD patients. They

have shown that the anxiety and depression have a high prevalence in COPD patients. Other similar studies that investigated the depression factors in COPD patients were also not compatible with our study (17, 18). In the present study, the COPD patients were weaker than the healthy individuals in novelty seeking and self-transcendence, and it could be concluded that these patients were more similar to the healthy individuals in terms of the personality factors. COPD patients had lower self-transcendence than the healthy individuals, indicating that they physically differed from healthy subjects in their inability to adapt to conditions and problems and enhancement of self-esteem and personality (19). The comparison of personality factors between COPD patients and healthy individuals confirmed that the COPD patients had higher scores in harm avoidance than in the healthy group, but this difference was not significant. In other related studies in different diseases, harm avoidance scores in patients were higher than in normal population (20). Our results showed that the self-directedness was not related to COPD disease. This factor regulates and adapts one's behavior to fit the situation in accord with individually chosen goals and values (21, 22).

The COPD patients differed from the healthy controls in self-directedness, but this difference was also not statistically significant. In the comparison between the two groups, COPD patients had a lower score than the healthy group. Self-directedness is an ability to regulate and adapt behavior to a situation (19). The

weakness in this factor leads to behavioral maladaptation in COPD patients, but this weakness was not serious in these patients. Reward dependence is a response to rewarding symptoms and maintenance of behavior associated with reward dependence (23). The difference for this factor between the two groups was very small. Between the COPD and healthy groups, there was a significant difference in females in self-transcendence and there was a significant difference in males in novelty seeking and self-transcendence. The age had high effects on personality factors in COPD patients. This factor led to difference between COPD patients and healthy individuals in the personality factors.

Conclusion

The present study showed that the novelty seeking and self-transcendence were protection factors against COPD disease. Wider and more comprehensive investigation is necessary for affirmation of this relationship. The results of this study could be applicable for prevention of COPD disease. Also, the reward dependence factor in the ages ranging 50-64 years and self-directedness in the ages ranging 30-49 years in COPD patients was much higher than healthy individuals. Therefore, individuals' personality can make them vulnerable to COPD disease.

Table 4. The average scores on personality components in COPD patients and healthy individuals aging 30-49 years

| | Novelty seeking | Harm avoidance | Reward dependence | Persistence | Self-directedness | Cooperativeness | Self-transcendence |
|---------------------|-----------------|----------------|-------------------|-------------|-------------------|-----------------|--------------------|
| Healthy individuals | 7.82±2.18 | 9.85±4.27 | 8.51±4.10 | 2.94±3.99 | 15.37±1.48 | 18.45±2.20 | 9.91±2.59 |
| COPD patient | 8.33±3.81 | 9.17±3.107 | 9.05±1.25 | 3.16±1.38 | 12.05±4.46 | 18.2±3.17 | 9.33±2.14 |
| <i>P</i> value | 0.453 | 0.561 | 0.011 | 0.869 | 0.573 | 0.305 | 0.463 |

The data were expressed as average ± SD.

Table 5. The average scores on personality components in COPD patients and healthy individuals aging 50-64 years

| | Novelty seeking | Harm avoidance | Reward dependence | Persistence | Self-directedness | Cooperativeness | Self-transcendence |
|---------------------|-----------------|----------------|-------------------|-------------|-------------------|-----------------|--------------------|
| Healthy individuals | 9.50±3.31 | 8.65±4.30 | 9.18±1.95 | 3.00±1.39 | 14.1±4.56 | 18.37±3.93 | 9.43±2.92 |
| COPD patient | 7.68±3.41 | 10.24 ±4.31 | 7.80±1.58 | 3.56±1.12 | 13.28±3.55 | 18.72±2.92 | 7.60±3.30 |
| <i>P</i> value | 0.04 | 0.172 | 0.006 | 0.107 | 0.449 | 0.716 | 0.03 |

The data were expressed as average ± SD.

Table 6. The average scores on personality components in COPD patients and healthy individuals aging 65-84 years

| | Novelty seeking | Harm avoidance | Reward dependence | Persistence | Self-directedness | Cooperativeness | Self-transcendence |
|---------------------|-----------------|----------------|-------------------|-------------|-------------------|-----------------|--------------------|
| Healthy individuals | 8.91±3.29 | 9.12±3.67 | 7.50±2.84 | 2.66±1.34 | 12.29±4.62 | 18.37±3.98 | 9.70±2.98 |
| COPD patient | 6.44±2.69 | 10.55 ±3.69 | 7.55±2.50 | 2.62±1.44 | 12.88±4.41 | 18.22±2.75 | 7.25±3.40 |
| <i>P</i> value | 0.005 | 0.153 | 0.640 | 0.107 | 0.873 | 0.925 | 0.009 |

The data were expressed as average ± SD.

Table 7. Correlation between personality components and COPD duration

| Personality components | r | P value |
|------------------------|--------|---------|
| Novelty seeking | -0.033 | 0.791 |
| Harm avoidance | 0.195 | 0.115 |
| Reward dependence | -0.117 | 0.343 |
| Self-directedness | -0.159 | 0.200 |
| persistence | 0.062 | 0.618 |
| Cooperativeness | -0.216 | 0.078 |
| Self-transcendence | -0.114 | 0.356 |

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