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PERSONALITY AND STIGMA IN LUNG CANCER PATIENTS

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SUMMARY

Background: *Stigma in lung cancer has been associated with diagnostic and treatment delay and with poor outcomes. Personality has impact on the perception of someone's life situation and interacts with psychosocial variables and coping strategies. The vulnerability to stigma is still under-researched. The aim of this study was to investigate this vulnerability by examining the associations between stigma and personality dimensions (i.e., temperament and character traits).*

Subjects and methods: *Seventy six (76) inpatients of the two teaching hospitals with the diagnosis of non-small-cell lung cancer were consecutively included in the study. Patients were assessed with self-reporting scales: Cataldo Lung Cancer Stigma Scale (CLCSS) and Temperament and Character Inventory (TCI). Sociodemographic and clinical data were also collected.*

Results: *Personality dimensions Self-directedness and Persistence showed to be significant predictors of stigma in the linear regression (R=0.519; F=3.104; P=0.007). Stigma and personality dimensions were not associated with age, gender, tumor stage and smoking status.*

Conclusion: *Stigma is associated with particular character (i.e., Self-directedness) and temperament (i.e., Persistence) dimensions. Given the negative clinical outcomes of stigma in lung cancer patients, personality should be taken into account during screening and treatment planning phases.*

Key words: *personality - temperament - character - lung cancer - stigma*

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INTRODUCTION

The public perception of lung cancer as a self-inflicted disease (Graham 2012, Marlow et al. 2015) has been gaining popularity, given the fact that smoking is the main risk factor for the development of this disease. About 80% of the disease occurs in current or former smokers (Graham 2012, Sun et al. 2007). Accordingly, such circumstances contributed to the self-stigmatization of lung cancer patients. Several studies showed that general population considers lung cancer patients as those to blame for their disease (Marlow et al. 2010, 2015). Lung cancer patients are assumed to be smokers, similar as HIV/AIDS patients are assumed to be homosexual (Hamann et al. 2013). In addition to being treated in this manner by other people, lung cancer patients can develop internalized (subjective) stigma manifested in the feelings of self-criticism, shame and guilt (LoConte et al. 2008). Although existing data is limited, the research has demonstrated associations of lung cancer stigma with diagnostic delay (Carter-Harris 2015). Besides, the research of stigma in other somatic and mental diseases showed the relationships with depression, low self-esteem and suicidality (Alderson et al. 2012). So, the stigma considerably adds to the burden of the disease, especially now when the new treatments have improved the prognosis of lung cancer (Marlow et al. 2010).

The vulnerability to stigma is still underresearched. Personality is one of the concepts associated with stigma and its health outcomes. The studies in the population with mental illness have shown that certain personality characteristics may be related to stigma introjections (Aukst-Margetic et al. 2010). Psychosocial variables and coping strategies are in the interaction with personality and influence the perception of the environment. The psychobiological model of personality, developed by Cloninger, is based on four temperament and three character dimensions: Harm Avoidance (HA), Novelty Seeking (NS), Reward Dependence (RD) and Persistence (P) as temperament dimensions, and Self-Directedness (SD), Cooperativeness (C) and Self-Transcendence (ST) as character dimensions (Cloninger et al. 1993). The temperament dimensions of personality are predominantly biologically based and involve differences in regulation of automatic emotional reactions and habits. They underlie the development of character dimensions that are more environmentally shaped (Cloninger et al. 1993). Differences in the dimensions of the psychobiological model have been associated with differences in coping with and adjustment to several chronic diseases, as well as with pain perception, which is a common problem in cancer patients (Boz et al. 2004, Battaglia et al. 1998, Aukst-Margetic et al. 2005). This psychobiological model might be of usage in treatment decisions in depressive states in

oncology patients, as studies have shown that psychotherapy and pharmacological treatments have an effect on particular dimensions of the model, e.g., Self-directedness and Harm-avoidance (Kampman & Poutanen 2011).

There is a lack of studies on the relationship between personality and stigma in patients with lung cancer. The aim of our study was, therefore, to assess the associations between temperament and character dimensions and stigma perception in lung cancer patients.

SUBJECTS AND METHODS

The study included 76 (73.7% male) patients with mean age 61.5 years, SD=8.69 (range 30-82) with non-small-cell lung cancer. They were approached in two oncology units of two large teaching hospitals, in the first week after their admission to the ward. Patients with evident psychiatric illness or dementia diagnosed by the physicians treating them, and patients unable to fill out questionnaires due to their inability to comprehend them, were excluded. Eighty seven patients who fulfilled the criteria were approached. Six patients were excluded due to incomplete filling out of the questionnaires and five patients who fulfilled the criteria refused to participate. Informed consent was obtained from the patients following the full explanation of the aim and purpose of the study. The study was approved by the ethical committees of both institutions. The adapted Croatian version of the Temperament and Character Inventory (TCI) (Cloninger et al. 1993) was used for the assessment of personality. The original was translated into Croatian following the WHO guidelines (Sartorius & Kuyken 1994). The instrument showed good reliability. It was previously validated in a domestic sample of 360 persons (Aukst-Margetic et al. 2011). The TCI is a self-report questionnaire consisting of 240 true/false response items. Only the dimensions' main scores were analyzed in this study. Cronbach's alpha coefficients of the TCI dimensions in this sample were: NS (0.55), HA (0.74), RD (0.48), P (0.44), SD (0.78), C (0.54), and ST (0.78).

Data on tumor's stage based on the TNM classification were obtained from medical records, according to which 45.6% of the patients were diagnosed with stage IV, 38.2% with stage III, and 16.2% with I/II stage of lung cancer. Moreover, 65.8% of the patients were current smokers.

The perceived lung cancer stigma was measured with 31-item Cataldo Lung Cancer Stigma Scale (CLCSS), the four-point Likert self-report inventory (from 1-strongly disagree to 4-strongly agree) with subscales: stigma and shame, social isolation, discrimination, and smoking. Statements such as "I feel guilty because I have lung cancer"; "My lung cancer diagnosis was delayed because my healthcare provider did not take my smoker's cough seriously"; and "Others assume that a patient's lung cancer was caused by smoking, even if he or she never smoked" comprise the CLCSS (Cataldo et al. 2011). The scale was adapted into Croatian following the WHO guidelines (Sartorius & Kuyken 1994) with the permission of the author. The Cronbach alpha for the scale was 0.86.

Statistical Analysis

All analyses were done with SPSS 16.0 statistical package. Once the normality of the distribution had been established, all results were presented as mean values ± SD. The t-test, ANOVA and Pearson's correlations were used for comparisons of continuous variables. Multiple linear regression analysis was undertaken with stigma included as a dependent variable and dimensions of personality were entered as independent variables. The level of statistical significance was defined as $P<0.05$.

RESULTS

The mean stigma perception was 46.19, SD=11.64 (range 31-87) with following means and standard deviations of temperament and character dimension: NS 16.29 (4.34), HA 14.47 (5.23), RD 14.27 (2.75), P 3.48 (1.52), SD 31.83 (5.68), C 31.00 (4.49), ST 16.19 (5.48).

Stigma was not associated with current smoking status, age, gender and tumor's stage, although the subscale of shame was higher in the group of smokers ($t=2.384$; $p=0.02$). Personality dimensions were also not associated with smoking status, except the dimension Cooperativeness where the association was marginal ($t=1.998$; $df=71$; $p=0.05$). They were not associated with gender, age and tumor's stage. Correlations between stigma and personality dimensions are shown in Table 1.

In the regression analysis with stigma as dependent variable and personality dimensions as independent variables, lower Self-directedness and higher Persistence showed to be unique predictors of the stigma perception of the patients ($R=0.519$; $R^2=0.269$; $F=3.104$; $P=0.007$). Results are shown in Table 2.

Table 1. Correlations between TCI dimension and CLCSS scores (Pearson's coefficients)

	NS	HA	RD	P	SD	C	ST
CLCSS	-0.052	0.215	-0.086	0.252*	-0.382**	-0.150	-0.040

Legend: CLCSS - Cataldo Lung Cancer Stigma Scale; NS - Novelty seeking; HA - Harm avoidance; RD - Reward dependence; P – Persistence; SD - Self-directedness; C-Cooperativenes; ST- Self-transcendence

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)

Table 2. Linear regression analysis for stigma as dependent variable and dimensions of personality as predictors

Variable	beta	t	p
NS	-0.090	-0.255	0.799
HA	0.206	0.739	0.463
RD	-0.080	-0.610	0.544
P	0.343	2.699	*0.009*
SD	-0.383	-2.914	*0.005*
C	-0.017	-0.122	0.903
ST	-0.138	-1.120	0.267

Legend: NS - Novelty seeking; HA - Harm avoidance; RD - Reward dependence; P – Persistence; SD - Self-directedness; C - Cooperativeness; ST - Self-transcendence; beta - coefficient; p - statistical significance; Significant associations are highlighted in *italics*

DISCUSSION

This is, to our knowledge, the first study assessing the relations between stigma and personality in the population of lung cancer patients. Personal identification of own behaviour, e.g. smoking as a lung cancer proven cause, contributes to self-rapprochement, self-criticism (LoConte et al. 2008, Aukst-Margetic et al. 2009), shame and perceived stigma (Marlow et al. 2015, Carter-Harris 2015). Patients' personality is known to be associated with such self-evaluating constructs (Aukst-Margetic et al. 2010). Health-related stigma is a specific type of perceived stigma defined as personal experience characterised by exclusion, rejection and blame which results from anticipation of adverse judgement based on a feature of identity associated with health problem or health condition (Weiss et al. 2006). The perceived stigma of lung cancer is based on personal perception of societal attitudes towards people who smoke and personal perception of having lung cancer (Cataldo et al. 2012). Previous research has shown that personality can influence our perception and evaluation of the situations (Rossi Ferrario et al. 2003) and as such is important for stigma introjection.

Contrary to a study in schizophrenia where temperament trait Harm avoidance was associated with stigma introjections (Aukst-Margetic et al. 2010), in this study perception of stigma was associated with lower character trait Self-directedness and higher temperament trait Persistence. Research on associations between stigma and personality are generally sparce. The only research that used psychobiological model, revealed Harm avoidance as the marker of stigma vulnerability, but was conducted in the population of schizophrenia patients. Harm avoidance is a known vulnerability marker of range of mental illnesses (Miettunen & Raevouri 2012). In this study we investigated a population without previous history of mental illness, but with a serious life-threatening somatic disease.

Self-directedness is one of three character dimensions that develops with personal maturation, social learning and life experiences. Higher scores reflect organized person with defined personal goals, self-determination and autonomy (Cloninger et al. 1993). It is associated with higher quality of life and subjective well-being (Ma et al. 2010, Cloninger & Zohar 2011, Josefsson et al. 2011). It was previously described as a factor of resilience to depression in lung cancer population (Kukulj et al. 2013) and, based on our current findings, is a possible resilience factor to stigmatization.

Another dimension shown to be predictor of stigma was higher Persistence, defined as a tendency to perseverate behaviour despite frustration and fatigue. Individuals high on this dimension may be industrious, diligent, hardworking, ambitious and perfectionists. It is an adaptive behavioural strategy when rewards are intermittent with stable contingencies (Cloninger et al. 1993). But, in situations that change rapidly and unexpectedly, such in facing life-threatening disease, high Persistence may be maladaptive. This is in accordance with a recent study where higher Persistence was associated with poorer smoking cessation outcomes, i.e., increased rates of smoking relapse (Lopez-Torecillas et al. 2014). It was suggested that Persistence promotes resistance to extinction of previously rewarded behaviours, which could lead to greater self-stigma due to inability to stop smoking in lung cancer patients.

Regardless of their smoking history or status, our patients reported similar level of stigmatization. Such results were shown also in some other studies (Carter-Harris 2015). Stigma is unwanted consequence of anti-tobacco campaign that showed effect of poorer psychosocial outcomes among smokers and non-smokers equally (Cataldo et al. 2012). Besides, lung cancer patients report the highest level of stigma compared to all other types of cancer (Marlow et al. 2015, Else-Quest et al. 2011). In comparisons with other cancer types, these patients experience a larger amount of psychological distress, unmet needs and greater suicidal risk (Marlow et al. 2010, LoConte et al. 2008, Aukst-Margetic et al. 2013, Cataldo & Brodsky 2013) and stigma adds to that burden. Most of lung cancers are diagnosed at an advanced stage and mortality is directly related to the stage of the disease (Luo et al. 2012). In lung cancer diagnostics, even a slight delay might have serious consequences and there are reports that show that cancer stigma might lead to the late diagnosis (Scott et al. 2015). As the new treatments showed improved prognosis and expected survival, the need to address stigma in lung cancer increased. It is essential to increase the community awareness of stigma perception in lung cancer patients, regardless of their smoking status. Improved patient-clinician communication within the context of lung cancer stigma may result in improvements in self-care management (Zolnierek & DiMatteo 2009, Chambers et al. 2015). Here, increased clinical attention (e.g., group psychoeducation and/or psychotherapy) should be directed towards patients with specific personality profiles (i.e., lower Self-directedness and/or higher Persistence) who seem to be prone to feelings of stigma introjection and self-criticism.

We must also mention some obvious methodological limitations. The data are cross-sectional and contribute no causality information. Further, the sample is rather small and therefore prevents generalizations about the level of cancer stigma to a wider population. We did not control for the influence of acute psychiatric conditions, such as depressive and anxiety symptoms, that might influence the relations between personality and stigma. Finally, more detailed examination of feelings, cognitions and behaviours related to stigma could be obtained via structured interviews with the patients.

CONCLUSION

Despite these limitations, the results of this study support our hypothesis that personality dimensions predict stigma introjection. Differences in personality profiles have potential to affect the ability of the patients to adapt to and live with a range of debilitating illnesses (Schreurs & DeRidder 1997). Those differences should be taken into account in clinical work with lung cancer patients, as self-stigma has been associated with delay in help-seeking, treatment adherence and poor outcome. Shorter versions of the Temperament and character inventory might show more practical clinical utility in screening for patients at higher risk of developing self-stigma. Future studies with larger samples are required to replicate our findings.

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Contribution of individual authors:

Study design: Branka Aukst Margetic, Suzana Kukulj & Kristina Galic;

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