

The Relationship between Psychological Symptoms and Nicotine Dependence Level

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Abstract

Background and Aims: The main aim of this study is to examine whether or not nicotine dependency level differentiates in terms of psychological symptoms. Psychological symptoms can be classified under three categories: symptoms of anxiety disorders, mood disorders and psychotic disorders. Anxiety disorder includes somatization, obsessive compulsive, general anxiety and phobic symptom. Mood disorder consists of depressiveness, interpersonal sensitivity and hostility symptoms. Psychotic disorder includes paranoid thoughts and psychosis symptoms. **Method:** The study was conducted with 77 participants (28 female, 49 male) . “Fagerström Nicotine Dependence Scale” and “Brief Symptom Inventory” were used to collect data. **Results:** As a result of the study, it was found that nicotine dependency level differentiates in obsessive compulsive, general anxiety, psychosis, paranoid thoughts and insomnia and anorexia significantly and positively. Obsessive compulsive and general anxiety branch of anxiety disorder significantly increase the level of nicotine dependency. Depressiveness, interpersonal sensitivity and hostility symptoms branch of mood disorders differentiate with regard to the nicotine dependency level but this differentiation was not statistically significant. Paranoid thought, psychosis, anorexia and insomnia symptoms branch of psychotic disorders significantly differentiate with regard to the nicotine dependency level.

Keywords: Nicotine, Psychological Symptoms, and Dependence

1. Introduction

Smoking is a progressive and relapsing addictive behavior.

Even after several months of abstinence, relapse often occurs (Carmody, 1993). It is now acknowledged that smoking is maintained primarily by dependence on nicotine. Individuals who attempt to give up smoking experience an array of withdrawal symptoms (Fagerstrom, Heatherton & Kozlowski, 1990). Piper, Cook, Schlam, Jorenby & Baker (2010) found significant relations between specific anxiety diagnoses and nicotine dependence, severity of withdrawal symptoms, likelihood of cessation success and smoking cessation pharmacotherapy effectiveness. Elucidation of the contribution of environmental and inherited factors is crucial to an understanding of nicotine dependence as well as of individual differences in susceptibility to cigarette smoking (Pomerleau, Collins, Shiftman & Pomerleau, 1993). Number of cigarettes per day when smoked the most, the length of cigarette smoked and years of smoking are associated with higher life-time risks of tobacco/ nicotine dependence according to ICD-10, DSM-III-R or DSM-IV (Kawakami, Takatsuka, Shimizu & Takai, 1998).

There are individual differences in sensitivity to nicotine, starting with initial exposure. Continued exposure to nicotine is associated with a decrease in sensitivity (Pomerleau, et.al., 1993). Nicotine dependence progresses rapidly in adolescents and is most highly expressed in vulnerable people who have psychiatric illness or other substance abuse problems (Dani & Harris, 2005). Prevalence of smoking is higher among psychiatric patients compared to the public (Milani, Kharaghani, Safa, Samadi, Farhadi, et.al, 2012). Psychiatric disorders increase the risk of Nicotine Dependence. Anxiety disorder, in particular panic disorder, predicted onset of full dependence (Griesler, Hu, Schaffran & Kandel, 2011). Among US adults, 12.8% (95% confidence interval, 12.0-13.6) were nicotine dependent. Associations between nicotine dependence and mental illness were all strong and statistically significant (P.05) in the total population and among men and women and are the major consumers of tobacco products (Grant, Hasin, Chou, Stinson & Dawson, 2004; Leonard, Adler, Benhammou, Berger, Breese, et.al., 2001).

This population includes subjects with schizophrenia (Vanable, Carey, Carey & Maisto, 2003); manic depression, posttraumatic stress disorder, attention-deficit disorder, and several other less common diseases (Leonard, et.al., 2001); specific phobia, mood and anxiety disorders, Obsessive-compulsive personality disorder, antisocial personality disorder, and paranoid personality disorder, alcohol dependence (Grant, et.al., 2004); Bulimia nervosa (Lejoyeux, Kerner, Thauvin & Loi, 2006); insomnia symptoms (Babson, Feldner, Sachs-Ericsson, Schmidt & Zvolensky, 2008); depression (Khaled, Bulloch, Exner, Patten, 2009; Milani, et.al., 2012; Ong & Walsh, 2001); history of suicide attempt (Milani, et.al., 2012; Yaworski, Robinson, Sareen, Bolton, 2011). Compared to daily smokers, intermittent smokers were more likely to cite alcohol drinking, socializing, and being with other smokers as common contexts for smoking, and they are also more often cited being angry or stressed (Shiffman, Tindle, Li, Scholl, Dunbar, et.al., 2012).

Childhood trauma may be a common risk factor underlying nicotine dependence (Blalock, Nayak, Wetter, Schreindorfer, Minnix, et.al., 2011). Negative events and perceived stress are associated with higher rates of smoking and more urges to smoke even after accounting for time of day influences as well as gender, nicotine dependence, and person-level measures of stress (Todd, 2004).

Childhood and adolescent mental health and tobacco smoking are intimately intertwined (Fischer, Najman, Williams & Clavarino, 2012). Both in underage adolescent boys and girls, the greater the number of Conduct Disorder symptoms, the higher the level of Nicotine Dependence (Riala, Ilomaki, Hakko, Rasanen & the Study-70 workgroup, 2011). Young adults who were nicotine-dependent had clearly elevated rates of anxiety, depression and parasuicide (Griesler, et.al., 2011; Pedersen & Soest, 2009).

A research's data collected by examining 180 abstracts and 120 paper about suicide and smoking, indicate a) suicide is strongly associated with current smoking; b) suicide might be expected to increase during initial smoking, and c) three smoking cessation medications--bupropion, rimonabant and varenicline--have been associated with suicidality in smokers (Hughes, 2008).

2. Method

Participants and Procedure

The study was conducted on 77 participants.(28 female and 49 male).“Fagerström Nicotine Dependence Scale” and Brief Symptom Inventory “were used to collect data.

A total of 77 participants were classified into 4 groups of nicotine dependence: very low (n=37, 48%), low (n= 19, 24,7%), moderate (n=11, 14,3%), and high dependence groups (n=10, 13,0%).

Participants filled out the demographic information form, Fagerström Nicotine Dependence Scale and “Brief Symptom Inventory”. After Mahalanobis analysis that indicates the distances between each participants’ score and the mean score 8 participants were excluded from the study

2.1. Measures

2.1.1. Fagerström Nicotine Dependence Scale

Fagerström Nicotine Dependence Scale is a measure used to determine the risk of physical dependency of nicotine, the level and the severity of nicotine dependency. The scale is a self report measure with 6 items. Items of the scale are measured on a 4-point and 2-point Likert-scales. The Cronbach’s alpha coefficient of the scale was found as .056 (Uysal, Kadakal, Karşıdağ, Bayram, Uysal et. al., 2004).

2.1.2. Brief Symptom Inventory

Brief Symptom Inventory developed by Derogatis (1992:44-56) was a 53 item self-report measure for scanning various psychological symptoms. It was adapted into Turkish by Şahin & Durak (1994). The Turkish translation yielded five factors: anxiety, depression, negative self-concept, somatization and hostility. The reliability and validity analyses of the Turkish form revealed that internal consistency coefficients were ranged between 0.95 and 0.96 for the whole scale and 0.55 and 0.86 for each sub-scale (Atasayar, 2011).

3. Findings

The relationship between psychological symptoms and nicotine dependency level was shown in Table 1 (see below). According to Table 1; it was found that there was a significant positive relationship among obsessive compulsive, general anxiety, paranoid thoughts and psychosis, insomnia, anorexia symptoms and nicotine dependency level. In other words, obsessive compulsive, general anxiety, paranoid thoughts and psychosis, insomnia, anorexia symptoms were the factors of nicotine dependency level.

When the relationship between nicotine dependency level and psychological symptoms [anxiety disorders, mood disorders, psychotic disorders and additional items (insomnia, and anorexia)] was examined, it was found that the nicotine level differentiated with regard to the increased symptoms of obsessive compulsive and general anxiety symptoms (see Figure 1).

It was seen that the nicotine level differentiated with regard to the increased symptoms of depression, interpersonal vulnerability and hostility (see Figure 2).

It was indicated that the nicotine level differentiated with regard to the increased symptoms of paranoid and psychosis symptoms. In parallel to this the increased level of insomnia and anorexia lead to increased level of nicotine dependency.

4. Discussion and Conclusion

The aim of this study was to examine the relationship between nicotine dependency level and psychological symptoms. Studies carried out in Turkish samples generally dealt with the relationship between smoking and psychological factors. According to Çilli & Kaya, (2003), Nicotine Dependence in young adults is associated with a higher rate of psychiatric disorders. Student smokers had more psychotic symptoms among both genders than non-smokers (Kurcer & Canikli Yücel, 2010). The age of onset for cigarette smoking is found earlier in adolescents having social phobia (Bayramkaya, Toros, & Özge, 2005). The study which smoking characteristics were determined by demographic forms, developed by researchers, found that the total mean scores of smoker’s obsession, depression and psychosis of SCL-90 were significantly higher than smokers (Yaşan, Gürgen, Özkan, & Oto, 2008). By considering the results of above mentioned studies, the study that examine the relationship between nicotine dependency level and psychological symptoms is needed (Bozkurt Zincir, Zincir, Sünbül, & Kaymak, 2012; Çilli & Kaya, 2003).

In this study, “Fagerström Nicotine Dependence Scale” and “Brief Symptom Inventory” were used to examine whether or not nicotine dependency level differentiates in terms of psychological symptoms. The analysis revealed that the nicotine dependency level differentiated positively and significantly with regard to the obsessive-compulsive, general anxiety, paranoid thoughts, psychosis, insomnia and anorexia symptoms. In other words, the obsessive-compulsive, general anxiety, paranoid thoughts, psychosis, insomnia and anorexia symptoms are the factors of nicotine dependency level.

This result was supported by the researches in the literature (Babson, Feldner, Sachs-Ericsson, Schmidt & Zvolensky, 2008; Grant, et.al., 2004; Griesler, Hu, Schaffran & Kandel, 2011; Khaled, Bulloch, Exner, Patten, 2009; Milani, et.al., 2012; Ong & Walsh, 2001).

After a while, smoking behavior becomes a habit. It can become an obsession for the individual to smoke automatically in certain time and situations, which can be an explanation for the relationship between obsessive compulsive behavior and nicotine dependency level. This finding is supported by Lejoyeux et. al.(2006) such as Compulsive buying was significantly more frequent among nicotine-dependent subjects than controls. Other impulse control disorders were as frequent among nicotine-dependent women as in controls.

Smoking is a passive coping response. Smoking behavior as the individual's dealing method for uncertainty reduces the level of one's anxiety. In this example, the reduction in the anxiety level functions as a reinforcer. University students addicted to smoking have adopted self-confidence approach in coping with stress more than other students; and students who do not use cigarette have adopted helplessness approach in coping with stress more (Karahan & EpliKoç, 2005). Smokers with lifetime anxiety disorders also reported a strong emotional bond with their cigarettes and reported that smoking enhanced their cognitive processing. Smokers with and without histories of the different psychiatric disorders differ on dependence motives, such as the importance of environmental cues as smoking triggers and the use of cigarettes to cope with negative affect (Piper, Smith, Schlam, Fleming, Bittrich, et.al., 2010).

Depressed smokers reported more stress, less coping resources, more physical and psychological symptoms, and more frequent smoking in the presence of negative affect than did the nondepressed (Kinnunen, Doherty, Militello, Garvey, 1996). Teaching depressed smokers to manage negative mood should decrease the risk of relapse, if indeed negative mood is a direct relapse precipitant. Mood management may be useful to such smokers also by alleviating chronic or recurrent negative moods (Hall, Munoz, Reus, Sees, 1993).

Personal and perceived attitudes towards smoking (i.e. pros of quitting and social disapproval) are particularly important in the initiation of smoking cessation while nicotine dependence and self-efficacy become increasingly important as behaviour shifts towards the maintenance of smoking cessation (Schuck, Otten, Engels, Kleinjan, 2011).

Empirical studies suggest that smoking, and nicotine specifically, can be anxiolytic among individuals with tobacco dependence and an anxiety disorder, negative automatic thoughts that incorporate aspects of both tobacco use and anxiety schemata may be observed, such as "If I don't smoke, I won't be able to manage my anxiety." (Morissette, Tull, Gulliver, Kamholz & Zimering, 2007). Moreover, some studies indicated that one's dependency on smoking without taking consideration dose level is associated with reducing stress due to the expectations of smokers (Pomerleau, & Pomerleau, 1991; Shiffman, Paty, Kassel, Gnys, Zettler-Segal, 1994). However there are no studies indicated directly that stress reduction seen in smokers than non-smokers (Heishman, 1999); beside this some studies show that smoking lead to increase stress (Parrott, 1998; 1999).

Smokers who had ever had an anxiety disorder and those with two or more lifetime psychiatric diagnoses were less likely than smokers who had never had psychiatric diagnoses to be abstinent 6 months after quitting. Such smokers struggle to cope with affective distress, and smoking may constitute a more valued means of affective coping for these smokers (Piper et.al., 2010). Highly dependent smokers treated with bupropion may experience a rebound of depression symptoms after medication is discontinued (Lerman, Niaura, Collins, Wileyto, Audrian, McGovern et.al., 2004).

5. References

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Tables

Table 1. The Relationship between Nicotine Level and Psychological Symptoms

		Nicotine Addiction Score
Somatization	Pearson Correlation	,161
	Sig. (2-tailed)	,163
	N	77
Obsessive Compulsive	Pearson Correlation	,252*
	Sig. (2-tailed)	,027
	N	77
Anxiety	Pearson Correlation	,233*
	Sig. (2-tailed)	,042
	N	77
Phobic Anxiety	Pearson Correlation	,201
	Sig. (2-tailed)	,079
	N	77
Depression	Pearson Correlation	,193
	Sig. (2-tailed)	,092
	N	77
Interpersonal Sensitivity	Pearson Correlation	,196
	Sig. (2-tailed)	,088
	N	77
Hostility	Pearson Correlation	,151
	Sig. (2-tailed)	,189
	N	77
Paranoid Ideation	Pearson Correlation	,339**
	Sig. (2-tailed)	,003
	N	77
Psychoticism	Pearson Correlation	,228*
	Sig. (2-tailed)	,046
	N	77
Additional Items	Pearson Correlation	,278*
	Sig. (2-tailed)	,014
	N	77

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

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

Figures

Figure 1. The Nicotine Dependency Level in terms of Anxiety Disorder

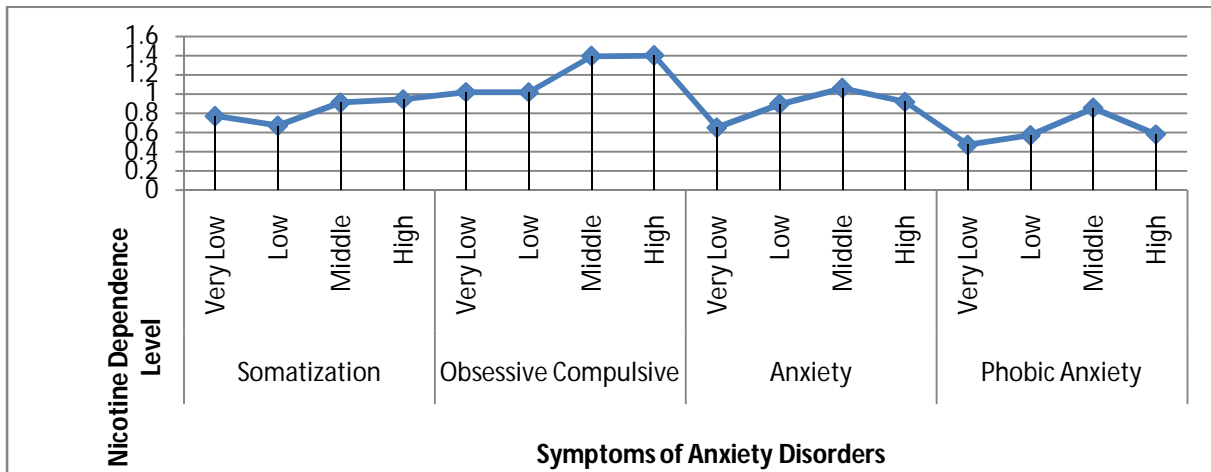


Figure 2. Affective Disorders Depending on the nicotine dependency level

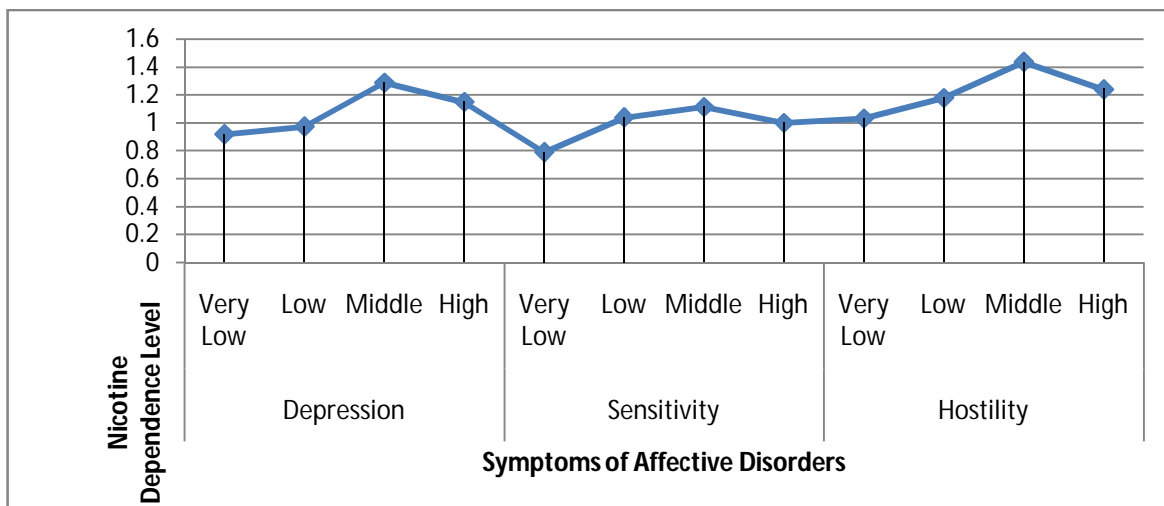


Figure 3. Psychotic disorders depending on the nicotine dependency level

