Personality Traits, Identity style and Depression as predictors of smoking behavior among university students

Sana Sarfaraz Afridi and Sabeen Rahim

Shaheed Benazir Bhutto Women University, Peshawar

Present work was aimed to find the contribution of personality traits, identity style and depression in predicting cigarette smoking. Data was collected from male students of universities located in Peshawar through Beck Depression Inventory – II (BDI – II), NEO-Five Factor Inventory (NEO-FFI) and Identity Style Inventory, Revised (ISI3). A total of 300 male students were involved, out of which n=150 were smokers whereas n=150 were nonsmokers. Of the total n=150 smokers, 75 were hostelers 75 were day scholars and same as for non-smokers. The outcome indicated that those who smoked had high levels of neuroticism and they also scored high on the Beck Depression Inventory. The outcome further revealed that persons having diffused identity style had likelihood of being involved in smoking behavior. Further results exposed that the hostelers were more vulnerable to smoking behavior as compared to the day scholars.

Keywords: *Smoking, Depression. NEO-Five Factor Inventory (NEO-FFI), Identity Style*

This research is intended to explore the character of personality traits, identity style and depression in predicting cigarette smoking among students of universities located in Peshawar. In smoking cigarettes, a material is burnt off and the producing smoke huffed in to be respired and made accessible to the blood vessels. Tactics of smoking stoppage and termination are tried after understanding the psychological, emotional, communal, biological, and pharmacological processes that are contributing to the initiation of smoking habit and continuation (Leventhal & Cleary, 1980). In this perspective, it is significant to classify individual difference variables mainly personality characteristics, level of depression and identity style that gives rise to the likelihood for cigarette smoking.

Depression is a mental health problem that includes low mood, lack of attention or gratification in daily activities, appetite change , disturbances sleep or extreme lethargy, Psychomotor retardation, Guilt, unimportance, hopelessness, decreased ability to think, reason and

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Correspondence concerning this article should be addressed to Dr. Sabeen Rahim, Lecturer, Department of Psychology, Shaheed Benazir Bhutto Women University, Peshawar. Email: sabeenraheem@yahoo.com
Contribution of Author:

1. Sana Sarfaraz Afridi: initiated the research, introduction, literature review and conclusion.
2. Sabeen Rahim: methodology, analysis, and overall write-up.

emphasis, low level of energy and suicidal thoughts (American Psychological Association [APA], 2013). Depression impacts all the societies across the world and is not limited to age group; one can undergo depression at any stage of life. According to a survey, at young age the depression indicators often start that upsets regular body functions (Marcus, Yasamy, Ommeren, Chisholm, & Saxena, 2012). Cigarette smoking have direct links with depressive symptoms. Many researches has recognized depression indications as central factors of teenage smoking cigarettes (Anda et al., 1990; Fergusson, Lynskey & Horwood, 1996).

Cigarette consumers with a past of depressive disorder are prone to excessive smoking and they encounter more severe signs of smoking downside during the effort to quit. Smoking is related with negative impact. Unhappy or unsatisfied people may opt to use nicotine as they consider it a mean to overcome adverse impact, and patients with mood swing issues such as despair, are at possible risk of adverse impact (Hall, Muñoz, Reus, & Sees, 1993).

Personality is a combination of features that makes one person different from others called traits. The trait includes different personality characteristics such as inwardness, assertiveness, kindness, conscientiousness, nervousness, openness to experience and creativity. It is essential to identify and specify those traits of personality that make an individual vulnerable and prone to cigarette smoking.

The Paul Costa's and John McCrae's conception of 5 aspects of personality traits includes: Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

According to Watson and Clark (1988) individuals inordinate in neuroticism seem to experience emotional uncertainty and also report feeling worried, disappointed and gloomy. Extraversion is the inclination to be affirmative, assertive, talkative, and friendly (Tok, 2011). Those who standing high in openness to experience indicate exclusivity and novelty (Coetzer & Rothmann, 2003). Agreeableness is the inclination to be flexible, gentle, agreeable, relying on, helpful, compliant, devoted, and faithful (Coetzer & Rothmann, 2003). People with conscientiousness trait choose planned rather than random actions and are often organized, hardworking, and trustworthy. Many researchers have found a positive connection between conscientiousness and educational achievement (De Fruyt, De Bolle, McCrae, Terracciano, & Costa Jr, 2009).

Among several facts one of the truth in the course of individual development and progression, which is undoubtedly main developing process, which is the search for self-conception or gaining an individuality and uniqueness; the insight that "Who am I?", "What position do I hold?", and "Anything I lack in my lifetime?" (Tsang, Hui & Law 2012). Berzonsky (2005) focuses on social-cognitive procedures that encourage people in the community to pick different identification designs (Berzonsky & Kuk, 2005).

Berzonsky (1990) presented three identity styles, called informational identity style, normative identity style, and diffuse-avoidant identity style. Persons who develop an Informational identity processing style acutely search for and assess self-relevant content. These individuals are prepared to update their knowledge of themselves to unify opposite opinions. They figure out themselves by their concepts and purposes (Berzonsky, Macek, & Nurmi, 2003; Lutwak Ferrari &

Cheek, 1998). Those individuals who practice a Normative handling style rely more on the hopes of others and the goals and values recognized by other in their life are implemented by them. They shaped their identity in accordance   with the aspirations of their members of the family, faith, and cultural qualifications (Berzonsky, 1994). Individuals who postpone and try to escape experiencing up to identity difficulties and conflicts usually use Diffuse-avoidant identity style. Most of the time their dependency is on an exterior locus of management and define themselves by their status, admiration, or other social features (e.g., Berzonsky, 1994) and power, energy, and other self-centered principles (Berzonsky et al., 2011).

Identity styles are different in tobacco users in contrast with non-smokers, therefore, receiving additional knowledge in respect of identification style and cigarette smoking will be supportive in treatment and particularly for damage reduction techniques in smokers and also in dropping the rate of law-breaking, as addicts are involved more in unlawful activities (Midford, et al., 2016)

Literature review have recognized depressive disorders indicators as significant components of young cigarette smoking (Anda et al., 1990; Fergusson et al., 1996; USDHHS, 2004). A study was directed by Unsal and Tozun (2014) meant to find the association between consistency of smoking cigarettes and depression. Beck Depression Inventory (BDI) was used on the sample of 372 men. The outcome revealed that in male smokers the depression rate was high as compared to non-smokers.

De Wilde et al., (2013) conducted a research to find the connections among depressive signs and cigarette smoking throughout and post pregnancy by using Beck Depression Inventory (BDI) was used. The results indicated that the Tobacco users and preliminary smokers revealed more depressive signs as compared to non-smokers.

Zvolensky et al., (2015) discovered in a study that people with high levels of neuroticism personality trait are more prone to cigarettes smoking. Terracciano and Costa Jr (2004) attempted a research study to examine the organization among smoking and personality characteristics by using five factor model (FFM). Revised NEO Personality Inventory (NEO PI-R)   was used for assessing personality traits. The sample consisted of 1638 adult-elderly Americans. The conclusions established that smokers scored more on Neuroticism and low on Agreeableness and conscientiousness.

Jaiswal (2014) conducted a research on the personality traits of tobacco consumers. The scale used in this study was Eysenck's Personality Inventory. The results proved that tobacco consumers had advanced ranking on Neuroticism in association to non-consumers.

Some literature showed that diffuse-avoidance identity style was associated with greater past material use and excessive drinking in adolescents (Adams, Munro, Munro, Doherty-Poirer, & Edwards, 2005; Good, Grand, Newby-Clark, & Adams, 2008).

In a study Moltafet, Papi, Rad and Toyari (2015) sought to associate the identity styles of addicted, non- addicts and rehabilitees. The research sample consisted of 40 addicts, 40 non-addicts and 40 rehabilitees. Identity Styles Inventory-sixth grade scale was used to measure identity style. Outcome displayed that in case of informational and normative identity styles, non- users had

advanced scores and in case of avoidant/ disoriented identity style, non- users have a lesser scores as compared to dependent.

Rationale

There are several features that estimate tobacco users' activities but personality traits, identity style and depression are revealed as the noteworthy features that have been examined in regard to cigarette smoking among different areas.

The present research is destined to assess university students because they are the persons going through significant age of time i.e. from teens to adulthood which is scrutinized as one of the significant times of their length of life.

Substance abuse is most of the time related to smoking cigarettes (Eckhardt, Woodruff, & Elder, 1994) and specific personality features (Kotov, Gamez, Schmidt & Watson, 2010). By receiving the statistics of how personality is impacted by the cigarette smoking behaviour, it is helpful to an individual to boost the ability to apply more effective treatments for cigarette smoking interruption and termination.

Certain personality traits individuals are sluggish with regards to smoking cigarettes counting those who are short tempered and anxious. Those who are concerned and feel unaccompanied can naturally become annoyed and frustrated, and transfer towards smoking cigarettes. Vollrath and Torgersen (2002) found that peoples who got excessive ratings on Neuroticism and low ratings on Conscientiousness were predictable to be tobacco manipulators.

Research established that diffuse-avoidance identity style was connected with more troublesome activities in the past, material use and life-threatening drinking in juveniles (Adams *et al.,* 2005; Good *et al.*, 2008). Identity styles are different in tobacco users in contrast with non-smokers, therefore, receiving added knowledge in respect of identification style and cigarette smoking will be helpful in treatment and particularly for harm reduction practices in smokers.

At the level of life, from puberty to adulthood, learners are more anxious, worried and uneasy about extraordinary GPA's and marks, forthcoming planning for achievement goals and also some students are away from their families which often cause complications and depressive disorders (Sarokhani *et al.,* 2013). When learners get into schools, some students find it delightful but it can be stressful and hurtful for others. Students come across academic and communal requirements. They have to start groundwork for their professional careers. Depression is a third predominant problem which is the chief source of impairment (World Health Organization [WHO], 2002). Those Tobacco manipulators who have past history of depressive disorder are susceptible to cigarette smoking easily. There is a solid association between cigarette smoking and depressive disorders, so it could be helpful in educational institutions for the educators to notice and overcome those educational stressors which cause the despair in students that leads to smoking and addiction. And it is also useful for the parents to identify and overcome the stressors among students which leads towards despair and that proceeds to smoking.

Hypotheses

- Smokers will obtain high score on the Neuroticism subscale of the NEO-Five Factor Inventory as compared to nonsmokers.
- Smokers will obtain high score, on the Beck Depression Inventory as compared to nonsmokers.
- Smokers having higher scores on the Neuroticism subscale of the NEO-Five Factor Inventory will obtain higher score on the Diffuse Avoidance, subscale of the Identity Style Inventory.
- Smoking behavior (cigarettes consumption) will mediate between diffuse- avoidant identity style and depression.
- Hosteler students will be more prone to smoking than the day scholar students.
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Method

Sample

The sample (N = 300) of the study comprised male students of different university located in Peshawar having the age range of 20 -30.The 150 students were living in hostels and 150 students were day scholars and 150 students were smokers   and 150 students were non- smokers. Twenty four students among 150 smokers admitted that they also took drugs and pills along with smoking.

Instruments

NEO-Five Factor Inventory (NEO-FFI)

The NEO-Five Factor Inventory (NEO-FFI) (Costa & McCrae, 1989) is a brief version of revised NEO Personality Inventory. It is a self-reported measure having 60-item (12 items per domain) and assesses five domains of personality i.e. neuroticism, extraversion, openness, agreeableness and conscientiousness. The NEO FFI is a 5 point scale stretching from 1 to 5.The alpha coefficient reliability for each dimension of NEO-Five Factor Inventory (NEO-FFI) is .81, .82, .73, .80 and .84 respectively. The alpha reliability in the current study was .66, .62, .62, .63, .71.

Identity Style Inventory, Revised (ISI3)

The Identity Style Inventory, Revised (ISI3) was developed by Berzonsky (1992). It comprises 40 items, and processes three styles of identity processing orientation: Informational, Normative and Diffuse-Avoidant and these subscales comprise 11, 9 and 10 items respectively. The ISI3 also includes a subscale that carries an index of level of commitment to one's identity (10 items). The ISI3 is a 5-point scale stretching from 1 to 5. The alpha coefficient reliability of ISI3 is .70, .64, .76, and .71 respectively. The alpha reliability in the existing study was .74 for the Informational style, .61 for the normative style, .89 for the Diffuse-Avoidant style, and .66 for Identity Commitment.

Beck Depression Inventory (BDI –II)

Beck Depression Inventory (Beck, Brown, & Steer, 1996) is a self-reported inventory which measures existence and persistence of depressive disorder in adolescents and adults. It contains 21 items. There is a 4 point ranking range for every item that ranges from 0 – 3. The total score on the scale is 63. Score may be distributed into four levels, i-e, 0 – 13 low level of depression, 14 – 19 mild depression, 20 – 28 indicate moderate level of depression & 29 – 63 high level of depression. The alpha coefficient reliability of BDI –II in college students is .93 whereas the reliability for outpatient is .92 and in the existing work the alpha reliability of the scale was .87.

Procedure

With the approval of the Universities administration the students were connected. The Universities included University of Peshawar, Iqra National University Peshawar, Institute of Management Sciences Peshawar, University of Engineering and Technology Peshawar, Khyber Medical University, FAST University Peshawar, Agriculture University Peshawar and National College of Sciences Peshawar. Information about the purpose of the study was explained to the students' very sound. All the queries were responded undoubtedly. Printed informed consent was reserved from the participant.

Then they were requested to complete the demographic data sheet, Beck Depression Inventory–II(BDI- II) (Beck, Brown, & Steer, 1996), Identity Style Inventory, Revised (ISI3) (Berzonsky, 1992)and the NEO-five factor inventory (NEO-FFI) (Costa & McCrae, 1989). They were helped to comfortably ask concerns for any difficulties about any item or guidelines of the measures. The participants completed the answers appropriately and with great interest. At the end appreciations conveyed to the university administration and members for their collaboration and cooperation during the whole procedure.

Results

The sample of the study comprised 300 students from different universities of Peshawar.

Table 1

Mean, standard deviation and t-test analysis between smokers and non-smokers on the Neuroticism, Extraversion, Openness, Agreeableness and conscientiousness; subscale of NEO-Five Factor Inventory (NEO-FFI) *(N=299)*

Variable	Smokers (*n*= 149)		Non-smokers (*n*= 150)		*t-values*		95%CI		Cohen's d
	M	*SD*	*M*	*SD*		*p-value*	*LL*	*UL*	
Neur	40.35	5.80	34.6533	6.30961	8.132	.000	4.32	7.082	0.94
Extra	36.92	4.18	40.43	5.65	-6.09	.000	-4.64	-2.37	0.70
Open	36.49	3.69	37.18	4.20	-7.49	.137	-1.58	.217	0.17
Agre	37.26	3.77	36.90	3.63	.845	.399	-4.80	1.20	0.09
Cons	37.13	5.00	42.45	7.44	-7.27	.000	-6.76	-3.88	0.83

Note. Neur= Neuroticism Open= Openness, Agre= Agreeableness, Extra= Extraversion, Cons= Conscientiousness; M= Mean; SD= Standard Deviation; Cl = confidence interval; LL = lower limit, UL = upper limit.

Results in table 1 show that smokers obtained significantly higher mean score on the Neuroticism, subscale of the NEO-Five Factor Inventory (NEO-FFI) as compared to the non-smokers. Results also indicate that there are significant differences among the scores of the smokers and non-smokers on the two sub scales of NEO-FFI i.e. extraversion and conscientiousness. People who do not smoke scored high on extraversion and conscientiousness. However there are no differences between the scores of smokers and non-smokers on openness and agreeableness. These results support our first hypothesis.

Table 2

Logistic Regression Analysis for depression and identity styles as a predictors of the smoking behavior in university students (N=299)

Predictors	Coeff.	Standard Error	Wald χ2	p-value	*Df*	Exp(B) Odds ratio	95%CI LL	UL
Depression	0.113	0.027	17.756	0.000	1	1.119	1.062	1.179
Informative	-0.019	0.044	.180	0.671	1	0.982	0.901	1.07
Normative	-0.059	0.062	.922	0.337	1	0.943	0.835	1.064
Diffuse	0.336	0.043	60.86	0.000	1	1.399	1.286	1.522
Constant	-10.3	1.922	28.713	0.000	1	0		

Note: Coef: Coefficient expressed in logits, cl = 95% confidence level for odds ratio, Diff= Diffuse-avoidant.

The result in table 2 indicates that chances of being involved in smoking behaviour are increased by 1.119 if the person is depressed and if the person has diffuse avoidant identity style than his involvement in the smoking behavior would be increased by 1.399 while the other two identity style i.e. informative and normative didn't predict the smoking behavior. The Cox-Snell R square value is .803, which shows that variation in smoking behavior is explained by the depression and diffuse avoidant identity style.

Table 3

Mean, standard deviation and t-test analysis between smokers and non-smokers on the Beck Depression Inventory (N=298)

Variable	Smokers (*n*= 149)		Non-smokers (*n*= 149)		*t-values*		95%CI		Cohen's d
	M	*SD*	*M*	*SD*		*P*	*LL*	*UL*	
DEP	19.0745	8.73091	7.3671	6.53093	13.107	.000	9.94949	13.46527	1.51851

Note. Dep= Depression.

Result shown in the above table reveals a significance difference among smokers and non-smokers on the Beck Depression Inventory. The obtained score of the smokers is significantly higher than the non-smokers. These results support our second hypothesis.

Table 4

Mean, standard deviation and t-test analysis of smokers having high and low on Neuroticism, subscale of NEO-Five Factor Inventory (NEO-FFI) *and Diffuse Avoidant Identity Style, subscale of Identity Style Inventory. (N=149)*

Variable	Smokers having low Neuroticism (*n*= 86)		Smokers having high Neuroticism (*n*= 63)		*t-values*		95%CI		Cohen's d
	M	*SD*	*M*	*SD*		*P*	*LL*	*UL*	
Diffuse	39.127	5.3945	41.7460	3.477	-3.371(292)	.001	-4.152	-1.083	0.5771

Note. Diffuse= Diffuse-avoidant.

Table 4 reveals that smokers having high scores on the neuroticism, subscale of NEO- Five Factor Inventory achieved higher score on the Diffuse Avoidant subscale of Identity Style Inventory as compared to the smokers having low score on the neuroticism. These results clearly support third hypothesis of the study.

Table 5

The mediating role of Smoking behavior(Cigarettes Consumption) on Diffuse avoidant identity and depression (N=300)

Predictors	Model 1	Model 2	SE	95% Confidence Interval	
	B	B		LL	UL
Constant	-6.95**	-6.38**	1.63	-10.16	-.374
Diffuse Avoidant	.619**	.592**	.047	.5254	.7141
Smoking Behavior		.0847	.0933	-.0990	.2683

R2	.3640
F	167.12**
R2	.3658
F	83.92**

Note. B=unstandardized coefficient, Smoking Behavior(Cigarettes consumption), LL = lower limit, UL = upper limit.

According to the outcomes in the above table there is no indirect effect of cigarettes consumption on the depression and diffuse avoidant identity. The mediating effect was calculated by using process Macro in SPSS.

Table 6

Mean, standard deviation and t-test analysis s between hostelers and day scholars on the Smoking Consumption (N=147)

Variable	Hostelers (n= 74)		Day Scholars (n= 73)		t-values		95%CI		Cohen's d
	M	SD	M	SD		P	LL	UL	
COMP	9.27	7.443	5.76	3.56	3.63(292)	.000	1.60	5.41	0.60

Note. Comp= Smoking consumption.

Results in table 6 indicate that as compared to day scholars, hostelers obtained higher mean score on the consumption of smoking. These results support last hypothesis of the study, which stated that hostelers are more prone to smoking than the day scholars students.

Discussion

The present research intended to study relationship of cigarette smoking with personality traits, identity style and depression among male students of universities of Peshawar.

It was hypothesized that cigarette smokers will score high on the Neuroticism as compared to nonsmokers. The results supported the hypothesis that is the mean score of smokers on neuroticism is 40.355 and non-smokers is 34.653,the results further indicate that smokers and non-smokers also differ on Extraversion and Conscientiousness personality traits . The results are in congruence with past findings in this area. Zvolensky *et al.,* (2015) revealed in a study that participants with neuroticism personality trait are more prone to cigarettes smoking. Neuroticism indicates an individual's state of psychological strength and response control. Individuals high in neuroticism seem to be involved in psychological or expressive doubt and are recognized as disappointed, gloomy and aggressive. These traits lead those individuals on the road to cigarette smoking. The character changes among cigarette consumers and non-consumers are usually minor, they are noteworthy in recognizing the big amount of individuals that smoke cigarette (WHO, 2002).

Further it was hypothesized that smokers will score high on the Beck Depression Inventory as compared to non-smokers. The outcomes show that smokers got high mean score on the Beck

Depression Inventory i.e. 19.0745 than the non-consumers i.e. 7.367. Nicotine, the pharmacologically active ingredient of smoke, has leaning and straight effects on the neurotransmitters, supposed to be involved in depressive disorder. Cigarette smokers with the previous history of depressive complaint are inclined to smoke awfully and they experienced difficulty to quit smoking. Smoking has adverse effect. Unhappy and irritated people may use nicotine as they consider it a means to overcome adversity impact, and mood swing patients with problems such as depression, are at jeopardy of adverse impact (Hall et al., 1993). Acton *et al.,* (2001) performed a research on out sufferers and said non-smoker sufferers had low rate of major depressive symptoms as in comparison to sufferers who smoked.

Thirdly it was assumed that high scorer on neuroticism subscale of NEO Five Factor Inventory will also score high on the Diffuse Avoidant subscale of the Identity Style Inventory. The results indicated that smokers who scored greater on neuroticism also scored high on the diffuse avoidant i.e. 41.7460. These outcomes are similar to past findings. Hojjat et al., (2016) carried out a work and found that dependent women scored higher both on diffuse-avoidant subscales of Identity Style Inventory and on neuroticism subscale of NEO Five Factor Inventory. Diffuse-avoiders are defined to function in a relatively pleasure-seeking and self-centered style that is why neurotics score greater on diffuse-avoidant identity style Some previous work revealed that diffuse-avoidance identity style was associated with more past material use and extreme drinking in youths (Adams, Munro, Munro, Doherty-Poirer, & Edwards, 2005; Good, Grand, Newby-Clark, & Adams, 2008).

Fourthly, to explain the association among diffuse- avoidant identity style and depression it was anticipated that smoking behavior(cigarette consumption) will mediate between these two, but conclusions revealed that smoking behavior does not mediate between diffuse- avoidant identity style and depression and has no indirect influence on them. However as per findings smoking behavior (cigarette consumption) has a positive correlation with depression (r= .357, p= .000) and diffuse avoidant personality style (r= .603, p= .000), which indicates that diffuse avoidant identity style and depression are directly related with cigarette consumption. Further analysis was done to establish causal factors of the smoking behavior and it was found that if the individual is depressed and having diffuse avoidant identity style (table2) his/her chances of inclination to cigarette smoking would increase. These outcomes are similar to past findings.

People having diffuse-avoidant personalities are susceptible to function in a comparatively pleasure-seeking, self-centered style. These are the persons who delay and try to evade fronting up to identity issues and conflicts. Some studies revealed that diffuse-avoidant style was linked with drug abuse among teenagers   (Adams et al., 2005; Good et al., 2008).

It was assumed that hosteler students are more prone to smoking(table 6) as compared to day scholars students. Results confirm that the hosteler students consume more cigarettes per day as compared to day scholars. From adolescence to adulthood, scholars are more anxious, worried and tense about good GPA's and marks, for future aims achievement and also some students are away from their dear ones which often cause depression among them and depressive disorder have strong link with cigarette smoking (Sarokhani et al., 2013). Hostelers are away from their homes and relatives which create more pressure during stressful situations as they go through much stressful

state because of their studies and examinations and because of this state they start smoking to release stress and pressure.

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