

NICOTINE DEPENDENCE AS A PREDICTOR OF ANGER, PSYCHOLOGICAL DISTRESS, AND QUALITY OF LIFE AMONG ADULT SMOKERS

^aZHANG JIAN, ^bWARDA SADIQ, ^cZAIN
ABBAS, ^dMEHNOOR SHAHBAZ, ^eSHIZHEN HU

^aCenter for Studies of Education and Psychology of Ethnic
Minorities in Southwest China, Southwest University,
Chongqing, China.

^bFaculty of Psychology Southwest University, Chongqing, China.

^cCenter for Studies of Education and Psychology of Ethnic
Minorities in Southwest China, Southwest University,
Chongqing, China.

^dThe University of Lahore, Pakistan.

^eThe hospital of Southwest University, Chongqing, China

email: ^azhangjian@swu.edu.cn, ^bwardasadiq0207@gmail.com,
^czainabbas7587@gmail.com, ^dmahi60119@gmail.com,
^e2995638579@qq.com

This work is supported by Project "Theoretical Construction and Practical Exploration of Chinese Education Modernization" (Grant No. VAA230006) and "The Historical Logic and Contemporary Value of the Spread of Chinese Sericulture as "Belt and Road" (Grant No. SWU2403008).

Abstract: The present research explored the influence of nicotine dependence on anger, psychological distress, and quality of life among adult smokers aged >20 years. A cross-sectional research design was used in the present study, and the total sample included N=300 adult smokers. The data were collected using the purposive sampling technique. Pearson correlation analysis and linear regression analysis were performed to test the hypotheses. The correlation analysis revealed that nicotine dependence was positively related to anger and psychological distress and regression results revealed that nicotine dependence is a significant positive predictor of anger and psychological distress. The present study is useful in explaining the negative effects of nicotine dependence on mental health and raising awareness of nicotine-related problems on quality of life.

Keywords: Nicotine dependence, Anger, Psychological distress, Quality of life.

1 Introduction

The reliance on nicotine is still a serious global public health issue that has a severe influence on people's physical and mental health (Kutlu, 2015). Even though most adults are aware of the adverse impact smoking has on their health, a substantial section of the population still smokes and finds it difficult to stop because of their nicotine addiction. It is necessary to appreciate the complicated impacts of nicotine dependency that extend beyond its physiological consequences to produce intervention strategies that operate and increase the general health of smokers.

This study attempts to assess the association between nicotine dependence and several psychosocial traits, including anger, psychological distress, and quality of life, among adult smokers. Nicotine dependency, characterized by a voracious desire to consume nicotine-containing items, has been associated with multiple unpleasant emotional states and low quality of life. By examining these relationships, we seek to contribute to a fuller understanding of the delicate interplay between nicotine addiction and psychological well-being. Anger is a typical emotional response among smokers, possibly amplified by nicotine withdrawal symptoms and the stress associated with addiction (Bruijnzeel, 2012).

Chronic exposure to nicotine can change neurotransmitter systems involved in regulating mood and impulse control, hence raising susceptibility to anger and irritability among persons dependent on nicotine (Wills 2021). Understanding the extent to which nicotine dependency connects to anger proneness is crucial for controlling anger-related disorders and strengthening emotional control skills among smokers (Zvolensky, 2014). Moreover, the nicotine habit is intimately related to psychological distress, covering feelings of anxiety, despair, and overall emotional instability.

The cyclical pattern of nicotine addiction, characterized by alternating periods of consumption and abstinence, can dramatically impair a person's mental health, leading to heightened levels of discomfort and exacerbating previous psychological disorders (Besson, 2016). Identifying the link between nicotine dependency and psychological pain can motivate focused interventions aimed at lowering emotional distress and promoting mental well-being in the smoking community. Furthermore, quality of life is a complete measure of individuals' total health and well-being, spanning several domains such as physical health, social interactions, and psychological functioning.

Understanding the routes via which nicotine dependency affects quality of life can inform holistic approaches to smoking cessation and boost individuals' overall health outcomes. Given the complicated interrelationships between nicotine dependency and psychological factors, investigating these dynamics is crucial for guiding personalized therapies and promoting smoking cessation attempts. By understanding the links between nicotine dependence, anger, psychological discomfort, and quality of life, this study hopes to provide crucial insights into the greater ramifications of nicotine addiction on individuals' emotional well-being and overall quality of life.

Through a thorough understanding of these relationships, public health activities may be targeted to address the complex hurdles experienced by smokers and facilitate real benefits in health outcomes and quality of life. Nicotine habit is a serious public health hazard with significant repercussions for both physical and mental health. Smoking is a primary cause of premature death globally, contributing to several health concerns such as cardiovascular ailments, respiratory disorders, and cancer (Ware, 2014).

Understanding the psychological elements related to nicotine habit can inspire tailored therapy aiming at reducing smoking prevalence and improving health outcomes. Exploring the relationship between nicotine dependency, anger, and psychological discomfort can provide insights into the underlying mechanisms driving smoking behavior and enable the construction of more successful quitting programs. Understanding the variables that influence the quality of life among smokers, particularly the significance of nicotine dependency and related psychological symptoms, is crucial for creating interventions that fulfill the holistic requirements of persons facing tobacco addiction. Existing studies have provided important insights into the individual components of this complex interplay. Still, there is a need for more detailed and region-specific research that assesses these variables simultaneously within a coherent framework.

Furthermore, much of the existing study has focused on clinical patients or certain demographic categories in populations of smokers. Additionally, there is a shortage of longitudinal studies that track changes in nicotine dependency, psychological symptoms, and quality of life over time, which could provide substantial information regarding the trajectory of smoking behavior and its impact on general well-being. Moreover, the processes behind the relationship between nicotine dependency, anger, psychological distress, and quality of life are not known. It is unknown if nicotine dependence exacerbates psychological anguish and anger or if these features contribute to the maintenance of smoking behavior through complicated biopsychosocial networks. Further work is needed to elucidate these mechanisms and uncover acceptable targets for intervention.

1.1 Background

As a major and pervasive public health problem, nicotine dependency hurts an individual's quality of life as well as their

emotional and mental health (Benowitz et al., 2010). According to previous studies, individuals who are nicotine dependent are likely to experience psychological distress, which includes signs of anxiety and despair as well as anger and impatience. Furthermore, nicotine dependency is a significant predictor of decreased quality of life, with people reporting lower levels of physical and psychological functioning. Successful prevention and intervention programs aimed at enhancing the health and well-being of people affected by this addiction depend on an awareness of the connections between nicotine dependence, quality of life, rage, and psychological anguish (Morissette et al., 2007).

Nicotine dependency is a major health issue that is associated with several unfavorable effects, such as reduced quality of life, increased rage, and psychological discomfort. According to related research, individuals who depend on nicotine are more likely to experience these adverse effects, which can have a serious influence on their general well-being. Numerous studies have evaluated the connection between nicotine addiction and these unfavorable consequences, and many have shown that nicotine addiction is a strong predictor of poor quality of life, increased rage, and psychological discomfort. For example, nicotine dependence was significantly associated with decreased quality of life in adolescents (DeFrantz et al., 2004).

A study by Mc Chargue et al. (2004) revealed that nicotine dependence was associated with increased psychological distress in adult smokers. These findings underscore the importance of addressing nicotine dependence as a means of improving overall health and well-being. Nicotine Dependence The (DSM-5) issued by the American Psychological Association states that nicotine dependence is characterized by "a collection of cognitive, behavioral, and physiological indicators that show the user is still abusing the substance despite serious issues with substance use" (American Psychiatric Association, 2013).

Dependencies on nicotine are described as "a state of neuroadaptation resulting in withdrawal symptoms upon cessation of nicotine intake, and a continued desire to use nicotine to prevent or alleviate these symptoms" (Benowitz, 2008). Nicotine dependency is defined by Benowitz (2010) as "a complex behavioral, cognitive, and neurobiological disorder that involves the continued use of nicotine in the face of its negative effects." Nicotine dependence is described by Difranza (2005) as "a chronic condition in which an individual develops a tolerance to nicotine, experiences withdrawal symptoms when nicotine is absent, and experiences a compulsion to continue using nicotine."

The complexity of nicotine dependency and its physical, psychological, and behavioral components are highlighted by these definitions and descriptions. To improve general health and well-being, it is crucial to seek support and assistance in quitting smoking or other tobacco products. The symptoms of nicotine dependence tolerance, cravings, the need to smoke, withdrawal symptoms after abstinence, and a loss of control over the frequency or length of usage, are the hallmarks of nicotine dependence (Marks, 1997).

Cravings, low mood, impatience, irritation, wrath, anxiety, difficulty concentrating, and restlessness are some of the signs of nicotine withdrawal. According to a widely used theory, young people who start smoking progress from occasional use to everyday use of cigarettes, which is sustained and becomes more common with time, leading to dependence. However, it has not been proven, that nicotine dependency must start with everyday use. The concept that dependence must be used heavily (one-half pack per day) for it to develop is based on observations of "chippers," adult smokers who have smoked up to five cigarettes per day for many years without becoming dependent.

Researchers have hypothesized that because chippers do not differ from other smokers in terms of nicotine absorption and metabolism, their consumption may be too low to result in nicotine dependence. The causes of nicotine dependence and

genetic, environmental, and behavioral elements factors all have the potential to influence the emergence of nicotine dependency. In one article, Li (2006), examined the genetics of nicotine dependency, emphasizing several genetic variations that have been linked to increased susceptibility to nicotine dependence. She noted that the development of nicotine dependency is likely influenced by complex interactions among genetic, environmental, and behavioral factors. The combination of reward deficits and excess stress in the brain is what leads to nicotine dependence, similar to other types of addiction. He contends that these shortfalls and surpluses can be influenced by genetic and environmental variables, which might result in the emergence of addiction (Koob et al., 2013).

1.2 Risk factors for nicotine dependence

Anyone who smokes or uses other forms of tobacco is at risk of becoming dependent. Factors that influence who will use tobacco include the following:

Genetic Factors. Certain genetic variations and a family history of nicotine dependence can increase the risk of NAFLD. For example, a study by Chen et al. (2016) revealed that specific genetic markers were associated with an increased risk of nicotine dependence.

Environmental Factors. Exposure to smoking at an early age, living in a household where smoking is prevalent, or having friends who smoke can increase the likelihood of nicotine dependence (Cummings, 2009; Pomerleau, 1993).

Mental Health Disorders. Individuals with certain mental health conditions, such as depression, anxiety disorders, or attention-deficit/hyperactivity disorder (ADHD), may be at a greater risk of nicotine dependence (Kutlu, 2015).

Peer Influence. Peer pressure and social norms related to smoking can play a role in the development of nicotine dependence, particularly during adolescence (Roosmalen (1989); Aloise-Young (1994).

Anger: Anger is an emotion that individuals experience in response to a perceived threat or injustice. Kassinove (2013) defines anger disorders as "a group of conditions characterized by chronic, maladaptive anger and aggression that results in significant impairment in social, occupational, and other areas of functioning". He reviews the research on the causes and consequences of anger disorders, as well as treatment approaches such as cognitive-behavioral and anger management. In an article, Lerner and Keltner (2001) explore the relationship between emotions (particularly fear and anger) and risk-taking behavior.

They suggested that anger can increase risk-taking behavior by reducing perceived risk and increasing confidence and that understanding the role of anger in decision-making can have important implications for public policy. Research has identified several key components of anger, including physiological arousal, cognitive appraisal, and behavioral expression. Physiological arousal refers to the bodily changes that occur during an anger episode, such as increased heart rate and blood pressure. Cognitive appraisal involves the interpretation of the triggering event and the evaluation of its significance. Behavioral expression refers to the outward expression of anger, which can range from verbal aggression to physical violence (Sears, 2014).

1.3 Implications for mental health

Even though anger is a common and healthy emotion, it can be harmful to one's mental health and general well-being if it persists or is unchecked. For instance, rage has been connected to a higher risk of substance abuse, sadness, and anxiety (Kassinove, 2013). According to Arslan (2010) and Kuppens (2005), persistent anger can also contribute to interpersonal problems such as relationship conflict and social isolation. In

addition, anger can support assertiveness, self-advocacy, and constructive social change when it is articulated healthily and adaptively. There are both positive and negative effects of anger on one's mental health and general well-being. Understanding the causes of anger will help us create interventions and management plans for this potent emotion healthily and adaptively (Robins, 1999).

Psychological Distress: Psychological distress is a complex and multifaceted concept that is often used interchangeably with terms like strain, stress, and distress, leading to confusion in its understanding and management (Ridner, 2004). It is associated with dissatisfaction with health care services, particularly among those who deny their psychological distress (Greenley, 1982). In patients with borderline personality disorder, psychological distress is linked to affective dysregulation, particularly the inability to label emotions and conflictive emotions (Ebner-Priemer, 2008).

The role of distress as a symptom of mental disorders or a marker of impairment is debated, with the need for a clear operational definition and method for rating its severity (Phillips, 2009). Today, psychological anguish is a serious problem, particularly for young people. Some kind of distress is reliable for the progress of development and science to push people and make them reach the peak of flourishing and live progressively to fight around the clock. An irregular state can have a dangerous effect on social, emotional, subjective, and physical health.

Future goal setting will lessen the weight of several factors, including academic, financial, social, and parental factors, to reach their objectives. Along these lines, mental inconvenience in a person's life may be portrayed as his undertaking to adjust to demonstrate difficulties using past youth obstruction frameworks, which may seem, by all accounts, to be maladaptive and socially inappropriate for the present condition (Kelly, 1977). The logical literature has discussed how controversial the status of psychological discomfort is in the field of mental nosology. From one perspective, psychological distress is perceived as a passionately unpleasant force that may have an impact on people's daily lives and social interactions (Arvidsdotter, 2016).

The concept of quality of life has been discussed and defined by various authors from different disciplines. The term quality of life (QOL) refers to a person's sense of personal well-being and comfort. QOL is an evaluation of one's current situation about various ultimate ideals and the things they regard to be fundamental in their lives (Carr & Higginson, 2001). Health-related quality of life refers to the biological, spiritual, expressive, and joint aspects of well-being, each of which has its specific scope and is influenced by the beliefs, perspectives, chances, and understandings of individuals (Testa and Simonson 1996).

QOL is a complex multidimensional impression that reflects somebody's particular, communicative, shared, and sacred safety (Ferrell, 1997). World Health Organization (WHO) - The WHO defines the quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards and concerns". Felce and Perry (1995) describe the quality of life as "the extent to which individuals can achieve and maintain their own goals, fulfill their own needs and aspirations, and enjoy the opportunities that society offers".

Hutchinson (2022) in their study of patients with chronic disease, defines the quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and about their goals, standards, and concerns". Lee, Chiu, and Tsai (2019) In their study of older adults in Taiwan, Lee, Chiu, and Tsai define the quality of life as "a broad, multidimensional construct encompassing an individual's subjective perception of various aspects of their life, including physical, psychological, social, and environmental

domains" Mokkink et al. (2018) in their systematic review of instruments for measuring health-related quality of life, Mokkink et al. define the quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and about their goals, expectations, standards, and concern".

In one study of cancer patients, quality of life was described by Penedo and Dahn (2005) as "a multifactorial construct that includes physical, emotional, social, and spiritual well-being". QOL is described as "a subjective concept that encompasses a range of factors, including satisfaction with material and social conditions, perceived control on one's life, and the extent to which a person's life is fulfilling and enjoyable" by Cummins (1997).

2 Research Objectives:

1. To examine the relationship between nicotine dependence and levels of anger among adult smokers.
2. To assess the association between nicotine dependence and psychological distress among adult smokers, including factors such as anxiety, depression, and stress.
3. To investigate the impact of nicotine dependence on the quality of life of adult smokers, considering physical health, mental health, social relationships, and overall well-being.
4. To provide insights into the implications of the findings for clinical practice, public health policies, and smoking cessation interventions aimed at improving the well-being of adult smokers.
5. To contribute to the existing literature on nicotine dependence and its impact on psychological and emotional functioning, with a focus on anger, distress, and quality of life outcomes among adult smokers.

3 Research Questions:

1. What is the relationship between nicotine dependence and levels of anger among adult smokers?
2. To what extent does nicotine dependence predict psychological distress in adult smokers?
3. How does nicotine dependence influence the quality of life among adult smokers?
4. Are there differences in the levels of anger, psychological distress, and quality of life between highly nicotine-dependent smokers and less nicotine-dependent smokers?

4 Methods

4.1 Research Design

The present study employed a cross-sectional survey research design to conduct the study through a survey method. The participants included in this study were all adult smokers from different areas.

4.2 Study Sample

The data were obtained from 300 adult smokers via the purposive sampling technique. Informed consent was also obtained from all participants before the administration of the questionnaires. Demographic information, such as age, family status, socioeconomic status, residential area, marital status, and monthly income, was obtained. Nicotine dependence was measured through the Cigarette Dependence Scale (Etter et al., 2003), anger was measured through the Novaco Anger Scale (Mills, 1998), and psychological distress was measured by the Kessler Psychological Distress Scale (Kessler. et al., 2002) and the WHO Quality of Life Scale (Burckhardt, 2003).

4.3 Procedure

A questionnaire was administered after formal informed consent was obtained from the participants. The cigarette dependence scale, Novaco Anger Scale, Psychological Distress Scale, and

WHO Quality of Life Scale were used to assess nicotine dependence, anger, psychological distress, and quality of life, respectively.

5 Results

Table 1 Psychometric properties of the scales

Scale	M	SD	Range	Cronbach's α
Cigarette Dependence	31.75	9.31	12-54	.82
Quality of Life	50.85	15.95	0-100	.83
Novaco Anger	30.45	3.06	19-40	.88
Kessler Psychological Distress	80.85	13.61	54-122	.80

Note: 1=cigarette dependence, 2= quality of life, 3=novaco anger, 4=Kessler psychological distress

Table 1 shows the psychometric properties of the scales used in the present study. The Cronbach's α for the Cigarette Dependence Scale was 82 (>80), which indicates high internal consistency. The Cronbach's α for the WHO Quality of Life Scale was 83 (>80), which indicates high internal consistency. The Cronbach's α for the Novaco Anger Scale was 88 (>80), which indicates high internal consistency. The Cronbach's α for the Kessler Psychological Distress Scale was 80 which indicates high internal consistency.

Table 2 Pearson correlation for present study variables

Variables	1	2	3	4	5	6	7	8	9
1. Nicotine Dependence	—								
2. Anger	.51*	—							
3. Psychological Distress	.41*	.55*	—						
4. General Health	-.05	.07	-.05	—					
5. Physical Health	-.07	.20*	.15*	.32*	—				
6. Psychological Health	-.02	.09	-.07	.38*	.48*	—			
7. Social Relationships	.08	.07	-.02	.25*	.47*	.45*	—		
8. Environment	.03	.15*	.09	.42*	.53*	.49*	.47*	—	
9. Quality of Life	.04	.17*	.06	.56*	.80*	.74*	.69*	.84*	—

** $p < .01$

Note: 1=nicotine dependence, 2=anger, 3=psychological distress, 4=general health, 5=physical health, 6=psychological health, 7=social relationship, 8=environment, 9=quality of life

Table 2 shows the Pearson correlations among the study variables. The findings indicate that nicotine dependence has a significant positive correlation with anger ($r=.51, p < .01$). Moreover, psychological distress ($r=.41, p < .01$) and nicotine dependence were not significantly correlated with quality of life ($r=.04, p > .01$), the general health ($r=-.05, p > .01$), physical health ($r=-.07, p > .01$), psychological health ($r=-.02, p > .01$), social relationships ($r=.08, p > .01$) or the environment ($r=.03, p > .01$).

Table 3 The regression coefficient of nicotine dependence on anger

Variable	B	β	SE
Constant	23.51***		2.84
Nicotine Dependence	.81***	.50	.09

Variable	B	β	SE
R ²	.25		

Note. N=300
*** $p < .001$.

Table 3 shows the impact of nicotine dependence on anger in adult smokers. The R^2 value of .25 revealed that the predictor variable explained 21% of the variance in the outcome variable, with $F(1,298) = 100.69, p < .001$. The findings revealed that nicotine dependence positively predicts anger ($\beta = .50, p < .001$).

Table 4 The regression coefficient of nicotine dependence on psychological distress

Variable	B	β	SE
Constant	21.91***		.92
Nicotine Dependence	.22***	.41	.03
R ²	.17		

Note. N=300
*** $p < .001$.

Table 4 shows the impact of nicotine dependence on psychological distress in adult smokers. The R^2 value of .17 revealed that the predictor variable explained 17% of the variance in the outcome variable, with $F(1,298) = 59.52, p < .001$. The findings revealed that nicotine dependence positively predicts psychological distress ($\beta = .41, p < .001$).

Table 5 Regression coefficient of nicotine dependence on quality of life

Variable	B	β	SE
Constant	82.27***		2.85
Nicotine Dependence	.06	.04	.03
R ²	.002		

Note. N=300
*** $p < .001$.

Table 5 shows the impact of nicotine dependence on quality of life in adult smokers. The R^2 value of .002 revealed that the predictor variable explained 0.2% of the variance in the outcome variable, with $F(1,298) = .490, p > .001$. The findings revealed that nicotine dependence did not significantly predict quality of life ($\beta = .04, p > .001$).

6 Discussion

This study aimed to examine the consequences of nicotine dependence on anger, psychological distress, and quality of life in adult smokers. Moreover, the study aimed to investigate demographic differences in the study, variables. First, the reliability, normality, and construct validity of the scales were ensured (See Table 1). For unstandardized items, alpha reliability is based on covariance among the items, Falk (2011). The alpha coefficients for all scales were $\geq .70$, which pointed out that the scales used in the study are reliable (Kline, 2005). The construct validity included discriminant and convergent validity (Sari, 2023).

The variable zero-order correlations were in the theoretically desired directions, which supported the scale's convergent validity (See Table 2). The first finding is that "nicotine dependence" positively predicts anger among adult smokers (See Table 3). These results are consistent with the corpus of theoretical and empirical research showing that smoking increases rage levels due to nicotine dependence. A study conducted by Kassel, Stroud, and Paronis (2003) revealed that daily smokers who reported higher levels of nicotine dependence also reported greater levels of anger than those with lower levels of dependence.

These findings are consistent with the idea that nicotine dependence can contribute to negative mood states such as

anger. Moreover, other studies have also shown a link between nicotine dependence and anger, suggesting that nicotine may increase the likelihood of anger in individuals (Cherek, Moeller, Schnapp, & Dougherty, 1997). affect the regulation model, which suggests that individuals may use nicotine to regulate negative affective states such as anger (Baker et al., 2004). According to this model, nicotine has a calming effect that can help reduce feelings of anger. A study revealed that a smoking cessation program that included anger management training was more effective at helping smokers quit than a standard smoking cessation program.

Healthcare providers may need to be aware of the potential for increased anger and irritability among smokers who are trying to quit. This approach can help them provide appropriate support and resources to help individuals manage these symptoms during the quitting process. The second finding is that “nicotine dependence positively predicts psychological distress among adult smokers” (See Table 4). These findings are in line with the existing body of theoretical and empirical knowledge, as a high level of nicotine dependence is associated with a greater level of anger among smokers. A meta-analysis published in the journal *Nicotine & Tobacco Research* examined 76 studies that investigated the relationship between nicotine dependence and psychological distress.

The analysis revealed that individuals who are dependent on nicotine are more likely to experience symptoms of anxiety and depression, as well as other forms of psychological distress than nonsmokers or occasional smokers are. The meta-analysis also revealed that the relationship between nicotine dependence and psychological distress is stronger in individuals with a history of mental health problems. The concept of self-medication, suggests that individuals may use substances such as nicotine to alleviate symptoms of psychological distress. A study by Lejuez, et al. (2008) revealed that individuals with higher levels of anxiety sensitivity were more likely to smoke cigarettes as a way of coping with their anxiety symptoms.

A study published in the *Journal of Consulting and Clinical Psychology* showed that smokers who received a cognitive-behavioral smoking cessation intervention had greater reductions in symptoms of anxiety and depression than those who received only standard smoking cessation treatment (Brown et al., 2001). Studies have consistently shown that nicotine dependence is associated with a range of negative psychological outcomes, including anxiety, depression, and stress (e.g., Prochaska et al., 2004; Morissette et al., 2006). This finding suggested that interventions aimed solely at reducing nicotine intake may not be sufficient to address the underlying emotional and psychological factors that contribute to smoking behavior.

Therefore, smoking cessation programs should take a more holistic approach, incorporating strategies that address the psychological and emotional aspects of addiction, such as cognitive behavioral therapy, mindfulness-based interventions, and stress management techniques (e.g., Flentje et al., 2018; Vidrine et al., 2016). The third finding is that “nicotine dependence does not predict the quality of life among adult smokers” (See Table 5). Based on the results of various studies examining this relationship, nicotine dependency is not related to quality of life. One such study, published in the journal *Addictive Behaviors*, found no significant correlation between nicotine dependence and quality of life among a sample of adult smokers (Davila et al., 2011).

Nicotine dependence may have negative health consequences; it may not necessarily have a direct impact on an individual's overall quality of life. Other factors, such as comorbid mental health conditions or social support, may have a stronger influence on an individual's quality of life than nicotine dependence alone. Overall, the relationship between nicotine dependence and QOL is complex and may be influenced by a variety of factors (Antic et al., 2011). QOL is a complex construct that is influenced by a variety of factors beyond

nicotine dependence, such as social support, economic status, and access to healthcare.

Therefore, while nicotine dependence may be a contributing factor to a lower quality of life, it may not be the only primary factor. Furthermore, the correlation between nicotine dependence and quality of life may be influenced by individual differences and subjective factors. For example, some individuals may prioritize the immediate benefits of smoking, such as stress relief or socializing, over the potential long-term health consequences. As a result, they may report a higher quality of life despite being nicotine dependent. Smoking and nicotine dependence have been shown to have numerous negative health effects, that can negatively impact quality of life.

These health effects include an increased risk of lung cancer, heart disease, and other chronic conditions. Therefore, it is logical to assume that nicotine dependence is related to health-related quality of life rather than only quality of life. Thus, in light of these findings, it can be inferred that public health efforts should focus on addressing the complex factors that contribute to overall well-being rather than simply focusing on reducing smoking rates (Priscilla, et al., 2011).

7 Conclusion of the Present Research

In conclusion, the research findings suggest that nicotine dependence is significantly related to both anger and psychological distress. Individuals who are dependent on nicotine are more likely to experience higher levels of anger and psychological distress. These findings highlight the impact of nicotine dependence on emotional well-being and psychological functioning. However, importantly, the research did not find a significant relationship between nicotine dependence and quality of life.

This finding suggested that while nicotine dependence may have detrimental effects on emotional and psychological aspects, it may not directly influence overall quality of life. Other factors, such as social support, physical health, and personal circumstances, may play a more significant role in determining quality-of-life outcomes. These findings underscore the importance of addressing anger and psychological distress in individuals with nicotine dependence. Interventions aimed at managing these emotional and psychological symptoms should be considered comprehensive treatment approaches for nicotine dependence. Healthcare providers and addiction specialists must provide tailored support and interventions to address these specific needs in individuals struggling with nicotine dependence.

Further research is warranted to explore the complex relationships among nicotine dependence, anger, psychological distress, and quality of life. Longitudinal studies and comprehensive assessments incorporating various factors can provide a deeper understanding of the dynamics involved. This knowledge can contribute to the development of more effective interventions and treatment strategies for individuals dealing with nicotine dependence and its associated emotional and psychological consequences.

Literature:

1. Aloise-young, P.A., Graham, J.W., & Hansen, W.B. (1994). Peer influence on smoking initiation during early adolescence: a comparison of group members and group outsiders. *The Journal of applied psychology*, 79 2, 281-7 .
2. American Psychiatric Association. (2013, May 22). *Diagnostic and Statistical Manual of Mental Disorders*.
3. Antic, N. A., Catcheside, P., Buchan, C., Hensley, M., Naughton, M. T., Rowland, S., ... & McEvoy, R. D. (2011). The effect of CPAP in normalizing daytime sleepiness, quality of life, and neurocognitive function in patients with moderate to severe OSA. *Sleep*, 34(1), 111-119.
4. Arslan, C. (2010). An Investigation of Anger and Anger Expression in Terms of Coping with Stress and Interpersonal

- Problem-Solving. *Kuram Ve Uygulamada Egitim Bilimleri*, 10, 25-43.
5. Arvidsdotter, T., Marklund, B., Kylén, S., Taft, C., & Ekman, I. (2016). Understanding persons with psychological distress in primary health care. *Scandinavian journal of caring sciences*, 30(4), 687-694.
 6. Baker, T. B., Piper, M. E., McCarthy, D. E., Majeskie, M. R., & Fiore, M. C. (2004). Addiction motivation reformulated: An affective processing model of negative reinforcement.
 7. Benowitz, N. L. (2010, June 17). Nicotine Addiction. *New England Journal of Medicine*, 362(24), 2295-2303.
 8. Benowitz, N.L. (2008). Neurobiology of nicotine addiction: implications for smoking cessation treatment. *The American journal of medicine*, 121(4 Suppl 1), S3-10.
 9. Besson, M., & Forget, B. (2016). Cognitive Dysfunction, Affective States, and Vulnerability to Nicotine Addiction: A Multifactorial Perspective. *Frontiers in Psychiatry*, 7.
 10. Brown, R. A., Niaura, R., Lloyd-Richardson, E. E., Strong, D. R., Kahler, C. W., & Abrantes, A. M. (2001). Cognitive-behavioral treatment for depression in smoking cessation. *Journal of Consulting and Clinical Psychology*, 69(3), 471-480.
 11. Bruijnzeel, A.W. (2012). Tobacco addiction and the dysregulation of brain stress systems. *Neuroscience & Biobehavioral Reviews*, 36, 1418-1441.
 12. Burckhardt, C. S., & Anderson, K. L. (2003). The Quality of Life Scale (QOLS): reliability, validity, and utilization. *Health and quality of life outcomes*, 1(1), 1-7.
 13. Carr, A. J., & Higginson, I. J. (2001). Are quality of life measures patient centred?. *Bmj*, 322(7298), 1357-1360.
 14. Chen, J., Bacanu, S. A., Yu, H., Zhao, Z., Jia, P., Kendler, K. S., ... & Chen, X. (2016). Genetic relationship between schizophrenia and nicotine dependence. *Scientific reports*, 6(1), 25671.
 15. Cherek, D. R., Moeller, F. G., Schnapp, W., & Dougherty, D. M. (1997, March). Studies of violent and nonviolent male parolees: I. Laboratory and psychometric measurements of aggression. *Biological Psychiatry*, 41(5), 514-522.
 16. Cummings, K.M., Fong, G.T., & Borland, R. (2009). Environmental influences on tobacco use: evidence from societal and community influences on tobacco use and dependence. *Annual review of clinical psychology*, 5, 433-58.
 17. Cummins, R. A. (1997, September). Self-rated Quality of Life Scales for People with an Intellectual Disability: A Review. *Journal of Applied Research in Intellectual Disabilities*, 10(3), 199-216.
 18. Davila, E. P., Zhao, W., Byrne, M., Hooper, M. W., Messiah, A., Caban-Martinez, A., ... & Lee, D. J. (2011). Health-related quality of life and nicotine dependence, Florida 2007. *American Journal of Health Behavior*, 35(3), 280-289.
 19. DeFrantz, J. R., Savageau, J. A., Rigotti, N. A., Ockene, J. K., McNeill, A. D., Coleman, M., & Wood, C. (2004, July). Trait anxiety and nicotine dependence in adolescents. *Addictive Behaviors*, 29(5), 911-919.
 20. Difranza, J.R., & Wellman, R.J. (2005). A sensitization-homeostasis model of nicotine craving, withdrawal, and tolerance: integrating the clinical and basic science literature. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*, 7(1), 9-26.
 21. Ebner-Priemer, U.W., Kuo, J.R., Kleindienst, N., & Linehan, M.M. (2008). Distress and Affective Dysregulation in Patients With Borderline Personality Disorder: A Psychophysiological Ambulatory Monitoring Study. *The Journal of Nervous and Mental Disease*, 196, 314-320.
 22. Farris, S. G., Zvolensky, M. J., Schmidt, N. B., & Hogan, J. (2015). An investigation of the role of anxiety sensitivity in smoking cessation among treatment-seeking smokers. *Addictive behaviors*, 50, 194-198. doi: 10.1016/j.addbeh.2015.06.002
 23. Etter, J. F., Le Houezec, J., & Perneger, T. V. (2003). A self-administered questionnaire to measure dependence on cigarettes: the cigarette dependence scale. *Neuropsychopharmacology*, 28(2), 359-370.
 24. Falk, C.F., & Savalei, V. (2011). The Relationship Between Unstandardized and Standardized Alpha, True Reliability, and the Underlying Measurement Model. *Journal of Personality Assessment*, 93, 445 - 453.
 25. Felce, D., & Perry, J. (1995, January). Quality of life: Its definition and measurement. *Research in Developmental Disabilities*, 16(1), 51-74.
 26. Ferrell, B. R., Grant, M., Funk, B., Otis-Green, S., & Garcia, N. (1997). Quality of life in breast cancer: Part I: Physical and social well-being. *Cancer nursing*, 20(6), 398-408.
 27. Flentje, A., Kober, K. M., Carrico, A. W., Neilands, T. B., Flowers, E., Heck, N. C., & Aouizerat, B. E. (2018). Minority stress and leukocyte gene expression in sexual minority men living with treated HIV infection. *Brain, behavior, and immunity*, 70, 335-345.
 28. Greenley, J.R., Young, T.B., & Schoenherr, R.A. (1982). Psychological Distress and Patient Satisfaction. *Medical Care*, 20, 373-385.
 29. Hutchinson, C., Cleland, J., McBain, C., Walker, R., Milte, R., Swaffer, K., & Ratcliffe, J. (2022). What quality of life domains are most important to older adults in residential care? *Journal of Aging & Social Policy*, 1-22.
 30. Kassel, J. D., Stroud, L. R., & Paronis, C. A. (2003). Smoking, stress, and negative affect: Correlation, causation, and context across stages of smoking. *Psychological Bulletin*, 129(2), 270-304.
 31. Kassirer, H., & Toohey, M. J. (2013). Anger management for offenders: A flexible CBT approach. *Forensic CBT: A handbook for clinical practice*, 137-160.
 32. Kelly, J.A., & Drabman, R.S. (1977). The modification of socially detrimental behavior. *Journal of Behavior Therapy and Experimental Psychiatry*, 8, 101-104.
 33. Kessler, R.C., Andrews, G., Colpe, et al (2002) Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, 32, 959-956.
 34. Kline, T. J. (2005). *Psychological testing: A practical approach to design and evaluation*. Sage publications.
 35. Koob, G. F. (2013). Addiction is a Reward Deficit and Stress Surfeit Disorder. *Frontiers in Psychiatry*, 4, 72
 36. Kuppens, P. (2005). Interpersonal determinants of trait anger: low agreeableness, perceived low social esteem, and the amplifying role of the importance attached to social relationships. *Personality and Individual Differences*, 38, 13-23.
 37. Kutlu, M.G., Parikh, V., & Gould, T.J. (2015). Nicotine Addiction and Psychiatric Disorders. *International review of neurobiology*, 124, 171-208.
 38. Kutlu, M.G., Parikh, V., & Gould, T.J. (2015). Nicotine Addiction and Psychiatric Disorders. *International review of neurobiology*, 124, 171-208.
 39. Lejuez, C. W., Zvolensky, M. J., Daughters, S. B., Bornovalova, M. A., Paulson, A., Tull, M. T., ... & Otto, M. W. (2008). Anxiety sensitivity: A unique predictor of dropout among inner-city heroin and crack/cocaine users in residential substance use treatment. *Behavior research and therapy*, 46(7), 811-818.
 40. Lerner, J. S., & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology*, 81(1), 146-159.
 41. Li, M. D. (2006). The genetics of nicotine dependence. *Current Psychiatry Reports*, 8(2), 158-164.
 42. Liu, H. Y., Tsai, W. C., Chiu, M. J., Tang, L. Y., Lee, H. J., & Shyu, Y. I. L. (2019). Mild cognitive impairment in combination with comorbid diabetes mellitus and hypertension is negatively associated with health-related quality of life among older persons in Taiwan. *Quality of Life Research*, 28, 1281-1291.
 43. Marks, J.L., Hill, E.M., Pomerleau, C.S., Mudd, S.A., & Blow, F.C. (1997). Nicotine dependence and withdrawal in alcoholic and nonalcoholic ever-smokers. *Journal of substance abuse treatment*, 14(6), 521-7.
 44. McChargue, D. E., Cohen, L. M., & Cook, J. W. (2004, July). Attachment and Depression Differentially Influence Nicotine Dependence Among Male and Female Undergraduates: A Preliminary Study. *Journal of American College Health*, 53(1), 5-10.
 45. Mills, J. F., Kroner, D. G., & Forth, A. E. (1998). Novaco Anger Scale: Reliability and validity within an adult criminal sample. *Assessment*, 5(3), 237-248.
 46. Mokink, L. B., De Vet, H. C., Prinsen, C. A., Patrick, D. L., Alonso, J., Bouter, L. M., & Terwee, C. B. (2018). COSMIN

risk of bias checklist for systematic reviews of patient-reported outcome measures. *Quality of Life Research*, 27, 1171-1179.

46. Morissette, S. B., Brown, T. A., Kamholz, B. W., & Gulliver, S. B. (2006). Differences between smokers and nonsmokers with anxiety disorders. *Journal of anxiety disorders*, 20(5), 597-613.

47. Morissette, S. B., Tull, M. T., Gulliver, S. B., Kamholz, B. W., & Zimering, R. T. (2007). Anxiety, anxiety disorders, tobacco use, and nicotine: a critical review of interrelationships. *Psychological bulletin*, 133(2), 245.

48. Penedo, F. J., & Dahn, J. R. (2005). Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Current opinion in psychiatry*, 18(2), 189-193.

49. Phillips, M.R. (2009). Is distress a symptom of mental disorders, a marker of impairment, both or neither? *World psychiatry: official journal of the World Psychiatric Association*, 8 2, 91-2.

50. Pomerleau, O.F., Collins, A.C., Shiffman, S., & Pomerleau, C.S. (1993). Why some people smoke and others do not: new perspectives. *Journal of consulting and clinical psychology*, 61 5, 723-31.

51. Priscilla, D., Hamidin, A., Azhar, M. Z., Noorjan, K. O. N., Salmiah, M. S., & Bahariah, K. (2011). Quality of life among patients with hematological cancer in a Malaysian hospital. *Med J Malaysia*, 66(2), 117-20.

52. Prochaska, J. J., Delucchi, K., & Hall, S. M. (2004). A meta-analysis of smoking cessation interventions with individuals in substance abuse treatment or recovery. *Journal of consulting and clinical psychology*, 72(6), 1144.

53. Ridner, S.H. (2004). Psychological distress: concept analysis. *Journal of Advanced Nursing*, 45 5, 536-45.

54. Robins, S., & Novaco, R.W. (1999). Systems conceptualization and treatment of anger. *Journal of Clinical Psychology*, 55 3, 325-37.

55. Sari, D., Widyastuti, Y., Farid, A. F., Dwiwana, M. A., & Amalia, A. (2023). Indonesian Translation and Cross-Cultural Validation of Pediatric Anesthesia Parent Satisfaction (PAPS) Questionnaire. *Cureus*, 15(3).

56. Sears, M.S., Repetti, R.L., Reynolds, B.M., & Sperling, J. (2014). A naturalistic observational study of children's expressions of anger in the family context. *Emotion*, 14 2, 272-83.

57. Testa, M. A., & Simonson, D. C. (1996). Assessment of quality-of-life outcomes. *New England journal of medicine*, 334(13), 835-840.

58. Van Roosmalen, E., & McDaniel, S.A. (1989). Peer group influence as a factor in smoking behavior of adolescents. *Adolescence*, 24 96, 801-16.

59. Vidrine, J. I., Spears, C. A., Heppner, W. L., Reitzel, L. R., Marcus, M. T., Cinciripini, P. M., ... & Wetter, D. W. (2016). Efficacy of mindfulness-based addiction treatment (MBAT) for smoking cessation and lapse recovery: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 84(9), 824.

60. Ware, J.J., & Munafo, M.R. (2014). Determining the Causes and Consequences of Nicotine Dependence: Emerging Genetic Research Methods. *Current Psychiatry Reports*, 16, 1-6.

61. Wills, L., & Kenny, P.J. (2021). Addiction-related neuroadaptations following chronic nicotine exposure. *Journal of Neurochemistry*, 157, 1652 - 1673.

62. Zvolensky, M.J., Farris, S.G., Leventhal, A.M., & Schmidt, N.B. (2014). Anxiety sensitivity mediates relations between emotional disorders and smoking. *Psychology of addictive behaviors : journal of the Society of Psychologists in Addictive Behaviors*, 28 3, 912-920 .

Primary Paper Section: A

Secondary Paper Section: AN, BB