



Mind Over Smoke: Transformative Effects of Cognitive Reframing Therapy on Tobacco Smoking Dependency Behaviour among Male Inmates in Correctional Centres in Oyo State

OLUWASEUN EMMANUEL OMOPO, SOLOMON ADEKUNLE ODEDOKUN
University of Ibadan, Nigeria

Abstract. This study investigates tobacco smoking dependency behaviour among male inmates in correctional centres in Oyo State, Nigeria, with a focus on the effectiveness of Cognitive Reframing Therapy (CRT) and the moderating role of educational attainment. While previous research has primarily addressed the prevalence and contributing factors of smoking behaviours in correctional centres, this study emphasises psychological interventions. Employing an experimental design with pretest, posttest, intervention, and control groups, the research utilised a multistage sampling technique across three correctional centres. The Cigarette Dependence Behaviour Scale identified participants exceeding the threshold of tobacco dependency. Twenty-two inmates received CRT in Agodi, and fifteen served as the control group in Ogbomoso. Analysis revealed a significant main effect of CRT on reducing tobacco smoking dependency behaviour ($F_{2, 41} = 48.40, p < 0.05, \eta^2 = 0.489$). The intervention group demonstrated a substantial decrease (mean score: 23.45) compared to the control group (mean score: 45.78). Educational attainment alone did not significantly impact the targeted behaviour, but a significant interaction effect was observed between CRT and educational attainment. The findings underscore the efficacy of CRT in addressing tobacco smoking dependency among correctional inmates, providing valuable insights for Clinical and Counselling Psychologists engaged in treating such behaviours.

Keywords: Tobacco Smoking Dependency Behaviour, Cognitive Reframing Therapy, Educational Attainment.

1. Introduction

The study of smoking behaviour has long been a topic of interest in the field of psychology, particularly in understanding the underlying cognitive processes that influence this behaviour. This research is anchored to Cognitive Behaviour Theory, which posits that cognitive processes such as thoughts, beliefs, and attitudes play a crucial role in shaping smoking behaviour. According to this theory, how individuals think about smoking significantly influences their smoking habits and decisions (Beck, 2011). The usage of tobacco has a profound effect on oral and overall wellbeing of an individual. Cigarettes, containing harmful chemicals such as nicotine, hydrogen cyanide, and carboxyhemoglobin, are widely known to have adverse implications for human health. Nicotine, a significant component in cigarettes, is associated with effects like relaxation, euphoria, increased alertness, and motor activity, leading to addiction. The United States Department of Health and Human Services (USDHHS) (2014) highlighted the severe consequences of tobacco use, including cardiovascular diseases, respiratory issues, and a primary focus on cancers, notably lung cancer. Tobacco use is also connected to conditions like gastric ulcers, coronary artery diseases, and cancers affecting the mouth and throat. Nicotine's addictive nature contributes significantly to these negative health impacts, making it challenging for many smokers to quit. According to the 2018 World Health Organization (WHO) (2015) report, over one billion people globally engaged in tobacco use, accounting for more than 11% of global mortality. This usage extends beyond smoking to include approximately 367 million people worldwide using smokeless tobacco.

In African nations like Nigeria, the lack of extensive awareness about the detrimental impacts of tobacco, unlike in regions such as Asia with widespread anti-tobacco campaigns, has potentially contributed to increased tobacco consumption. This limited communication about the risks has led to a false perception of low smoking prevalence, fostering a rise in tobacco use. Studies, such like Nwhator (2012), indicated a substantial increase in tobacco use in Nigeria, reaching approximately 30% among males and 18% among females from the late '90s to the early 2000s. Additionally, research by Desalu, Iseh, Okoloba, Salawu, and Danburam (2010) reported a significant upsurge in tobacco smoking, reaching 7.94% in 2009. Nigeria stands as one of the world's primary consumers of tobacco, with an annual consumption of about 20 billion cigarette packs, equating to roughly \$1.5 billion (World Health Organization, 2023). This extensive consumption holds significant economic implications for the country's tobacco trade. Smoking has become deeply ingrained in various social settings and public spaces in Nigeria, spanning from social events, garages, parks, to even corporate environments. To address this mounting issue, the World Health Organization's Framework Convention on Tobacco Control (FCTC) collaborated with the Nigerian government in 2017, resulting in the implementation of the National Tobacco Control (NTC) Act of 2015. This act was specifically crafted to oversee and regulate numerous aspects of tobacco control, including packaging, advertising, and the identification of smoke-free areas.

Despite efforts to address tobacco use, studies by Akaji and Folaranmi (2013) have highlighted a concerning rise in smoking among inmates within correctional facilities. Their research revealed that 120 inmates were smokers in the Enugu correctional facility, and similar statistics were reported across correctional facilities nationwide. Ake (2018) study emphasised the escalating prevalence of smoking behavior in Nigeria, indicating an annual 4% increase in smoking prevalence, which includes correctional inmates. Odedokun (2022) found that substance abuse including the incessant smoking of cigarettes a perpetual challenge in the correctional environment. Further supporting this trend, Onyechi, Eseadi, Umoke, Ikechukwu-Ilomuanya, Obidua, Agu, Nwaubani, Utoh-Ofong, Ncheke, and Ugwuozor (2017) conducted a study on the effectiveness of group cognitive behavior intervention for tobacco smoking among correctional inmates in Nigeria. Their findings underscored the chronic smoking behavior within correctional facilities nationwide, indicating a higher prevalence and compounded effects compared to the general population. This points to a substantial

increase in smoking behavior among inmates, drawing attention to the need to tailor interventions within these facilities.

Tobacco smoking within correctional facilities serves several purposes, according to Butler, Richmond, Belcher, Wilhelm, and Wodak (2007). It acts as a form of surrogate currency, symbolises a sense of freedom in the confined environment, fosters social interaction and control, aids in stress management, and provides social comfort. In Nigeria, as highlighted by Akaji and Folaranmi (2013), tobacco use has become deeply ingrained within the correctional system. Kennedy, Sharapova, and Beasley (2016) emphasised that tobacco smoking behavior is not only a challenge for inmates and officials but also a public health concern due to the continual movement of inmates in and out of the correctional system. According to Cropsey, Eldridge, and Weaver (2008), inmates in correctional centres engage in smoking behavior more than the general population, possibly due to limited social activities, boredom, and the absence of access to enjoyable facilities.

The lack of socio-recreational amenities in the correctional environment, as noted by Cropsey and Kristeller (2005), means that inmates lack privileges available to the general public, leading them to use smoking as a means to socialise. Cropsey, Linker, and Wait (2007) suggested that smoking behavior in correctional settings is not confined by age, with a significant proportion of inmates being smokers. They revealed that 70% of young people (adolescents) in juvenile homes regularly engage in smoking. The culture of the correctional environment appears to trigger a high prevalence of smoking behavior, as uncovered by Cropsey, Jones-Whaley, and Jackson (2010), who found that even non-smokers before incarceration often start smoking during their time in correctional facilities. Addressing smoking behavior within the correctional environment is crucial, yet promoting smoking cessation in this setting may prove challenging due to social inadequacies and the high risk of relapse.

Cognitive reframing therapy is proposed as a potential psychotherapeutic strategy for addressing smoking behavior, especially among inmates in correctional facilities. This therapeutic approach specifically addresses the triggers and underlying issues related to smoking in individuals whose thoughts may be particularly influenced by boredom and a lack of meaningful work or social engagement. Huppert (2009) highlights the techniques involved in cognitive reframing therapy, focusing on identifying and mitigating irrational thought patterns. These

techniques include recognizing and labeling maladaptive thoughts, identifying cognitive errors, recording thought patterns, employing questioning and guided imagery, reattribution, understanding personal meanings, and making rational adjustments. The therapy techniques have been meticulously designed and rigorously tested through experimental investigations, emphasizing its reliability. Cognitive reframing therapy has been effectively used for diverse populations, particularly those experiencing conditions related to cognitive health, such as anxiety and depression. Sometimes, researchers combine cognitive reframing therapy with other psychotherapeutic approaches to evaluate their combined impact on specific conditions. Corey (2009) points out that cognitive reframing therapy aims to evaluate and challenge irrational beliefs, identifying triggers for irrational thoughts by examining psychological disturbances and developing strategies to address them. This therapy shows promise in modifying unhealthy thought patterns and exploring triggers that lead to irrational thoughts, especially in the context of managing smoking behavior in correctional settings

Cognitive reframing therapy has been examined for its effectiveness in various health-related behaviors, including tobacco smoking. Skyes and Marks (2001) conducted a meta-analytical investigation to assess the viability of cognitive reframing therapy among individuals who smoke. Their study revealed that participants exposed to cognitive reframing interventions showed significant abstinence from smoking. They further noted that this therapy was particularly successful in reducing tobacco smoking behavior among individuals with a low socio-economic status. An experimental investigation conducted by Webb, Reis, Carey, Ybarra, and Baker (2010) observed a notably higher rate of abstinence in a cognitive reframing intervention group compared to a control group. Webb et al. (2010) also highlighted the high effectiveness of cognitive reframing intervention in managing smoking behavior, especially within the African population. Despite the potential effectiveness of cognitive reframing therapy in reducing tobacco smoking behavior, one critical factor that could moderate its effectiveness is the level of educational attainment. This suggests that the success of the therapy in addressing smoking behavior might be influenced by an individual's educational background.

Educational attainment represents an individual's level of educational achievement, spanning primary, secondary, or tertiary education. It is commonly believed that smoking behavior is more prevalent

among individuals with lower educational levels. Cutler and Lleras-Muney (2006) suggest that higher education often leads to healthier lifestyles and better health due to an understanding of the consequences of unhealthy living. However, the direct cause-and-effect relationship between education and healthy living remains inadequately understood. Regarding smoking behavior, Koning, Webbinck, and Marti (2010) highlight that an individual's level of education influences their decision to quit smoking. Their research emphasises that higher educational attainment positively influences the choice to abstain from smoking. Numerous studies have explored the connection between educational attainment and tobacco smoking behavior. For instance, research conducted by Grimard and Parent (2007) and Walque (2007) examined this relationship. While these studies didn't specifically address the influence of educational attainment on tobacco cessation, their findings suggested that exposure to quality education reduces the likelihood of significant involvement in smoking behavior.

To mitigate the likelihood of health crises within correctional facilities, it is crucial to minimise unhealthy behaviors, especially considering the insufficient healthcare delivery in these settings. Discouraging habits like smoking becomes imperative. This study underscores the necessity to assess the impact of cognitive reframing therapy on tobacco smoking dependence among correctional inmates to enhance their physical, psychological, and mental well-being. The goal is to promote a healthier environment within these facilities and improve the overall health and wellness of the inmates.

1.1 Purpose of the Study

The study examined the impact of Cognitive Reframing Therapy on the management of tobacco smoking dependency behaviour among male inmates of correctional centres in Oyo State. Specifically, the study:

- Investigated the primary effects of cognitive reframing therapy on the tobacco smoking dependency behavior of male inmates in correctional centres in Oyo State.
- Evaluated the influence of educational attainment on the tobacco smoking dependency behavior of male inmates in correctional facilities in Oyo State.
- Assessed the interaction of cognitive reframing therapy and educational attainment on the tobacco smoking dependency behavior of male inmates in correctional centres in Oyo State.

1.2 Hypotheses

H01: There is no significant main effect of the treatment on tobacco smoking dependency behavior among inmates

H02: There is no significant main effect of educational attainment on tobacco smoking dependency behavior among inmates.

H03: There is no significant interaction effect of treatment and educational attainment on tobacco smoking dependency behavior among inmates.

Methods

2. Research Design

This research adopted a pre-test, post-test, control, and experimental design. Participants were randomly divided into either the cognitive reframing therapy group or the control group, considering their educational attainment levels (primary, secondary, and tertiary education) as a moderating factor. In the experimental group, participants were exposed to both pre-test evaluations and received therapeutic interventions involving cognitive reframing therapy. Subsequently, a post-test was administered to this group to assess the impact of the therapy. Conversely, participants in the control group though underwent pre-test and post-test measures, only received general knowledge about the health implications of tobacco without experiencing the specific therapeutic interventions provided to the experimental group.

2.1 Population

The study specifically involved male inmates who were dependent on cigarettes and were convicted within correctional centres in Oyo State. The rationale behind the selection of convicted inmates was to ensure their consistent and complete participation in the sessions. Inmates awaiting trial might face release, transfer to other facilities, or could be occupied with court appearances during the intervention program, potentially affecting their involvement. Additionally, male inmates were exclusively chosen for the study due to limited access to female inmates within these correctional facilities.

2.2 Sampling Procedure

The study involved a total of thirty-seven (37) participants selected through a multistage sampling technique. The first stage included the enumeration of the three correctional centres in Oyo state: Agodi,

Abolongo, and Ogbomoso. A simple randomisation process was employed to select Agodi and Ogbomoso correctional centres for the experimental condition and control group, respectively.

In the second stage, snowball sampling was utilised to identify smokers among the inmates, based on recommendations made by correctional officials. As a result, 101 inmates were recommended in Agodi Correctional Centre and 72 in Ogbomoso Correctional Centre.

During the third stage, the Cigarette Dependence Behaviour Scale was administered by the researchers to the inmates. This was done to identify those who were dependent on tobacco smoking. Inmates who scored 50 points or above on the scale were deemed eligible for participation. Using this screening tool, 22 inmates from Agodi (CRT) and 15 inmates from Ogbomoso (Control) were selected.

2.3 Instrumentation

The study employed a combined questionnaire integrating standardised instruments. These instruments were adapted to align with the research objectives and hypotheses. The primary instrument used was the Cigarette Dependence Scale (CDS-12), a shortened version developed by Etter (2020). Alongside this, the Cigarette Dependence Behaviour Scale by Etter, Houezec, and Perneger (2003) was utilised for participant screening. To ensure clarity for participants who could not speak English, the questionnaire was translated into the Yoruba language by the Department of Linguistics and African Studies at the University of Ibadan. Detailed sections providing information about the instruments used in the study are presented below.

2.4 Cigarette Dependence Scale

The Tobacco Smoking Dependency Behavior of the participants was evaluated using the Cigarette Dependence Scale (CDS-12) developed by Etter (2020). This self-report tool aimed to assess respondents' smoking behavior, featuring items like "For me, quitting smoking for good would be very possible" and "After a few hours of smoking, I feel an irresistible urge to smoke." The researchers adapted the scale to a five-point Likert response format, ranging from "Strongly Disagree" (SD) to "Strongly Agree" (SA). The authors of the instrument confirmed its construct validity, showing good internal consistency with values ranging from .78 to .85, determined using the Cronbach alpha reliability technique. To ascertain the reliability of the CDS-12,

a pilot study was conducted with a sample of 20 convicted inmates in a correctional centre (separate from the main study). The Cronbach Alpha reliability technique yielded a value of 0.82, indicating a strong internal consistency.

2.5 Cigarette Dependence Behaviour Scale

The study used the Cigarette Dependence Behaviour Scale developed by Etter, Houezec, and Perneger (2003) as the screening instrument. This self-report tool is designed to assess both the physiological and psychological dependence of smokers on cigarettes. Adapted to a five-point Likert response format, ranging from "strongly disagree" (SD) to "strongly agree" (SA), the CDS-17 reported a Cronbach's alpha reliability value of 0.84, indicating strong internal consistency. To validate the adapted scale reliability, the researchers conducted a pilot study with 20 regular smokers in a correctional centre, not part of the main study. The Cronbach Alpha reliability technique yielded a value of 0.86, confirming a robust internal consistency within this specific context.

2.6 Procedure for Administration

The researchers initiated the study process by obtaining a letter of introduction from the Department of Counselling and Human Development Studies. Subsequently, ethical approval was secured from the ethical committee of the University of Ibadan/University College Hospital. Following this, the researchers approached the correctional authorities to introduce the study and requested approval for a designated schedule of one day per week, for two hours over seven weeks from the authorities of the chosen correctional (custodial) centres. Additionally, visits were made to these correctional centres to acquaint the researchers with the facilities and potential participants. During these visits, the researchers sought the willingness of the participants to be part of the experiment. Before the study commenced, the researchers provided training for two research assistants from each facility. These assistants were prepared to support and facilitate the investigative process.

The investigation consisted of four distinct stages:

- Initial activities before the intervention sessions involved screening potential participants and categorizing them into the intervention and control groups. Tobacco-dependent inmates were oriented to the program and provided with a consent form.

Two correctional officers were also trained to support the investigation.

- The pre-test phase included collecting data using the Cigarette Dependence Scale (CDS-12) questionnaire.
- The intervention phase encompassed the experimental group receiving Cognitive Reframing Therapy for six weeks. These interactive sessions, lasting a minimum of two hours daily, were aimed at treating tobacco dependence. The control group, however, did not receive treatment but was educated about the implications of tobacco smoking.
- The post-test was administered to the control group after the experimental group completed their treatment.

To ensure accessibility for non-English speaking inmates, the consent form, questionnaire, and treatment materials were translated into Yoruba. Furthermore, to maintain participant interest, the researchers provided incentives such as refreshments, toiletries, and food items to engage and sustain the participants' attention.

2.7 Inclusion Criteria

The study recruited participants based on the following criteria:

- Having been convicted by the criminal justice system and not being under trial.
- Voluntary participation without any form of coercion.
- Providing consent by signing a form before joining the study.
- Approval from the authorities to participate in the study.
- Identification through an initial screening test indicating dependence on smoking behavior.
- Having a remaining sentence of at least six months at the commencement of the intervention.

2.8 Control of Extraneous Variables

To mitigate the impact of extraneous factors, strict adherence was maintained through the following measures:

- Strict compliance with the outlined inclusion criteria.
- Random selection of participants for placement in the intervention and control groups.

- Utilization of the Analysis of Covariance (ANCOVA) statistical tool.

The data was analysed using the Analysis of Covariance (ANCOVA) at 0.05 level of significance. This statistical method was utilised to evaluate the primary and interaction effects of the independent and moderating variables on the dependent variable, specifically the tobacco smoking dependency behavior in this study.

2.9 Method of Data Analysis

3. Results

Participants Demographic Distribution Table Presentation

Table 4.1: Frequency Distribution showing the Gender of Participants in the Study

	Frequency	Percent
Valid Male	37	100.0
Female	0	0
Total	37	100.0

From table 4.1, it showed that all the participants 37 (100%) in number were male.

Table 4.2: Frequency Counts Showing the Age Distribution of the Participants

	Frequency	Percent
Valid 20 to 25yrs	12	32.43
26 to 29	7	19
30yrs and above	18	49
Total	37	100.0

Table 4.2 illustrates that among the 37 participants, 12 individuals (32.43%) were aged between 20 to 25 years. Seven participants (19%) fell within the age range of 26 to 30 years, while the remaining 18 individuals (49%) were 30 years and older.

Table 4.3: Frequency Counts Showing the Educational Attainment of the Participants

	Frequency	Percent
Valid FSLC	6	16.21
SSCE	14	37.85
Tertiary	17	45.94
Total	37	100.0

Table 4.3 displays data related to the 37 participants. Among them, 6 individuals (16.21%) held FSLC qualifications, 14 individuals (37.85%) possessed SSCE qualifications, and the remaining 17 participants (45.94%) had attained tertiary education.

Hypothesis One: There is no significant main effect of cognitive reframing therapy on tobacco smoking dependency behavior of inmates.

To test this hypothesis, the researchers utilised Analysis of Covariance (ANCOVA). This statistical analysis aimed to assess the differences between the experimental and control groups. A comparison was conducted using the post-test scores while considering the pre-test as a covariate. The summary of the ANCOVA findings is presented in Table 4.4.

Table 4.4: Summary of the main and interaction effect of treatment and moderator on tobacco smoking dependency behavior of inmates.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	10688.656 ^a	16	668.041	10.239	.000	.619
Intercept	1235.443	1	1235.443	18.935	.000	.158
Covariate	124.727	1	124.727	1.912	.170	.019
Treatment	6315.790	2	3157.895	48.400	.000	.489
Educational Attainment	184.849	2	92.424	1.417	.247	.027
Treatment * Education	1005.950	4	251.487	3.854	.006	.132
Error	6589.784	41	65.245			
Total	140684.000	58				
Corrected Total	17278.441	57				

a. R Squared = .619 (Adjusted R Squared = .558)

The outcomes presented in Table 4.4 demonstrated a noteworthy main effect of cognitive reframing therapy on the tobacco smoking dependency behavior of inmates ($F(2, 41) = 48.40, p < 0.05, \eta^2 = 0.489$). This contrasts with the non-significant pre-test differences between the groups, aligning with the anticipated expectations. Based on these results, it is evident that participants exposed to cognitive reframing therapy showed more significant reductions compared to those in the control group who received no treatment. Thus, the first hypothesis positing no substantial mean group difference is rejected. Conversely, the alternative hypothesis stands validated. In conclusion, cognitive reframing therapy proved to be effective in reducing tobacco smoking dependency behavior among inmates. This highlights a substantial main effect of treatments in reducing tobacco smoking dependency behavior among these participants.

Hypothesis Two: There is no significant main effect of educational attainment on tobacco smoking dependency behaviour of inmates.

The findings in Table 4.1 corroborate the null hypothesis outlined earlier, as the results verified no significant main effect of educational attainment on tobacco smoking dependency behavior among inmates ($F(2, 41) = 1.417, p > 0.05, \text{partial } \eta^2 = .027$). The partial η^2 value of .027 denotes that educational attainment accounted for a statistical change of 2.7% in tobacco smoking dependency behavior among inmates.

This outcome led to the acceptance of the null hypothesis, signaling that there was no noteworthy main effect of educational attainment in reducing tobacco smoking dependency behavior among the inmate population. Subsequently, as no significant main effect was established, post-hoc analysis was not conducted

Hypothesis Three: There is no significant interaction effect between treatment and educational attainment on tobacco smoking dependency behavior among inmates, the findings in Table 4.1 deviated from this null hypothesis. They unveiled a significant interaction effect ($F(4, 41) = 38.54, p < 0.05, \text{partial } \eta^2 = .132$) between treatment and educational attainment. The partial η^2 value of .132 highlighted a 13.2% statistical change in tobacco smoking dependency behavior among inmates due to this interaction.

Hence, the null hypothesis was rejected, confirming the existence of a significant interaction effect between treatment and educational attainment

concerning the tobacco smoking dependency behavior of inmates.

4. Discussions

Addressing the potential effectiveness of Cognitive Reframing Therapy (CRT) in managing inmates' tobacco smoking dependency behavior is a starting point when considering a rationale for this outcome. CRT operates on the principle that human thoughts, feelings, and behaviors are interconnected. Changing these thoughts can lead to changes in feelings and behaviors. Notably, CRT targets the underlying causes of tobacco smoking, such as stress, anxiety, and boredom, potentially reducing the urge to smoke. Moreover, this therapy equips individuals with coping skills and strategies to address cravings and the urge to smoke. It also assists in recognizing and challenging negative thoughts and beliefs associated with smoking. The primary objective is to challenge the belief that smoking is essential for stress management and replace these negative thoughts with more positive and helpful ones.

In addition to aiding individuals in CRT, techniques for relaxation and distraction are cultivated to effectively manage cravings and resist the urge to smoke. Specifically focusing on correctional inmates in this study, cognitive reframing therapy may have proven effective for several reasons. Primarily, inmates in correctional facilities often grapple with heightened levels of stress and anxiety, contributing significantly to their tobacco smoking habits. Assisting inmates in coping with these emotions reduces the likelihood of their involvement in smoking. Stress and anxiety among incarcerated individuals stem from various sources, including separation from family, relationships within the inmate community, experiences of bullying, physical assault, exposure to violence, and the loss of personal autonomy. These conditions notably increase the inclination for smoking among inmates. Cognitive reframing therapy's goal is to help inmates manage stress and anxiety by guiding them in recognizing and challenging negative thoughts, using relaxation techniques, and discovering healthier coping mechanisms. The restricted access to medication and alternative therapeutic treatments in correctional facilities might be another explanation for the investigation's outcome. In these environments, the availability of such treatments for tobacco smoking is limited. Therefore, cognitive reframing therapy and interventions led by external parties could be the only viable option for inmates seeking to quit smoking. This lack of alternatives may drive their motivation for

the program and influence their active participation in achieving desired outcomes.

The importance of CRT intervention lies in its capacity to aid inmates in managing cravings and preventing relapses. Establishing a positive therapeutic relationship is essential for the therapist-client dynamic and for attaining desired outcomes. Therapists in this scenario deliberately fostered positive relationships with the inmates, providing an environment of acceptance and freedom distinct from their interactions with correctional officials. This approach encouraged inmates to voice their negative automatic thoughts and cognitive issues contributing to increased tobacco smoking behaviors. This cultivated relationship also promoted adherence to treatment recommendations, such as practicing relaxation techniques and avoiding triggers for tobacco smoking. Each of these elements likely contributed to the effectiveness of the intervention. The effectiveness of cognitive-behavioral therapy (CBT) in addressing smoking behavior among inmates in correctional facilities was supported by the research conducted by Cope, McNamara, Najman, Williams, and Paul (2016). Their study involved 150 male inmates aged 18 and older, all tobacco smokers. The results revealed that those receiving CBT experienced substantial reductions in tobacco cravings, smoking frequency, and nicotine dependence in comparison to the control group.

McCrary, Vogel, Feil, Flynn, Farrelly, Lewis, and Montoya (2018) conducted a study that emphasised the effectiveness of Cognitive-Behavioral Therapy (CBT) in reducing tobacco smoking among individuals reintegrating into the community after being in prison. The findings revealed a significant decrease in tobacco smoking rates within the CBT group during the three-month follow-up. In a different study by Goyal, Menon, Goya, Passi, Gupta and Gupta (2020), they explored the effect of a CBT-centred program for smoking cessation among cancer patients. The study recorded the effectiveness of the intervention. Furthermore, participants in the intervention group showed significant decreases in their dependency on nicotine and substantial enhancements in their overall quality of life. The intervention's effectiveness remained consistent for both men and women, irrespective of the presence of mental health disorders. However, it was noted to be less effective for individuals who had experienced childhood abuse in their past.

Hypothesis 2 highlights that the findings demonstrate an absence of a significant impact of educational attainment on the tobacco smoking dependency

behavior of inmates, thus confirming the acceptance of the null hypothesis. This outcome requires justification. Conventional education tends to emphasise academic subjects and might not offer the specialised knowledge and skills necessary for smoking cessation. Educational levels, whether at primary, secondary, or university degrees, primarily emphasise academics rather than specific health education, particularly information related to smoking. Despite the importance of formal education, it might lack information regarding smoking-related health risks or effective strategies for quitting smoking. For instance, a secondary school education might not cover crucial details about smoking-related health risks or techniques for smoking cessation. In the absence of this specific knowledge, individuals may struggle to apply their academic learning to their current circumstances regarding smoking behavior.

Education, even at high levels like doctors, academicians, and professors, doesn't always deter individuals from engaging in smoking behavior or becoming dependent on cigarettes. Knowledge, while influential, isn't the sole factor determining behavior. External factors like environment, emotions, and established habits also play a crucial role. Despite understanding the health risks, some individuals find it hard to quit due to stress, using cigarettes as a coping mechanism. Others might have formed a deep-seated habit of smoking, making it tough to break. In essence, mere awareness of the dangers of smoking doesn't ensure behavioral change. This may explain why education didn't significantly impact the smoking habits of inmates, even those highly educated. Education might not fully address the root causes behind smoking behavior. Beyond immediate factors like stress or boredom, deeper underlying issues might fuel this behavior. Some inmates, dealing with mental health issues like anxiety or depression, rely on smoking as a coping mechanism. Others might use smoking to cope with past trauma or abuse, which can be challenging to address, regardless of one's educational background. Addiction, a potent force, poses a significant challenge. Even those well-educated about smoking's risks and equipped with cessation tools may struggle due to addiction. It is a chronic disease altering brain function, making overcoming it difficult. When addressing smoking habits, it is crucial to address both the physical and psychological aspects of addiction, acknowledging the immense challenge faced even by highly educated individuals fully aware of smoking's dangers. Educational attainment can impact knowledge acquisition. Even if inmates learned about smoking health risks or cessation strategies during their schooling, applying this knowledge within the

correctional setting might have been limited. Inmates usually lack access to smoking cessation aids or counseling, potentially not even aware of these strategies. Consequently, their formal education might not have adequately equipped them to manage their smoking behavior without the practical opportunity to do so. Quitting smoking is challenging and requires support from friends and family. However, inmates often lack these connections while incarcerated. Their restricted ability to visit or communicate regularly with loved ones results in a lack of external support. As a result, regardless of their educational level, inmates may find it difficult to sustain the motivation for smoking cessation.

Dzakula, Nash, and Wells (2020) examined the impact of higher education on smoking cessation by comparing the smoking behavior of educated individuals with those who had less education. Their findings indicated that individuals with a college degree were significantly less inclined to quit smoking compared to those with a high school diploma or lower education. Surprisingly, the odds of quitting were 30% lower for smokers holding a college degree, a consistent trend across various age groups, races, and genders. Ultimately, the study concluded that obtaining a college degree doesn't significantly increase the odds of quitting smoking. Saba, Aveyard, Hacking, Barr, Aboumatar, Bell, and Mant (2019) conducted a systematic review of over 200 studies on behavior change. They assessed the influence of education on smoking behavior using the Theoretical Domains Framework, which considers 14 factors that can impact behavior change. The study revealed that motivation, social support, and environmental factors played a more influential role in changing behavior compared to education alone. Additionally, when education was combined with other factors such as feedback or incentives, it was found to be more effective in altering behavior.

The study revealed a noteworthy interaction effect between treatment and educational attainment, prompting the third null hypothesis to be rejected. This discovery could be significant for several reasons. Cognitive Reframing Therapy (CRT) might have proven particularly effective for individuals with higher educational attainment. This method involves identifying and challenging negative thoughts and beliefs. Those with advanced education tend to possess more experience and knowledge in critical thinking and logic, which could make them better at recognizing and confronting negative thoughts. Furthermore, their heightened level of education might lead to increased self-awareness, making them more

inclined to question their own beliefs, potentially making CRT more effective for this cohort.

Educational attainment likely significantly interacted with the treatment on the tobacco smoking behavior of inmates due to various reasons. Education is instrumental in enhancing inmates' overall health literacy, enabling a better understanding of smoking's health risks and the advantages of quitting. This elevated health literacy might have resulted in their increased focus during interventions. Furthermore, education can expand an inmate's social support networks, providing resources and motivation for quitting smoking. Psychological interventions, such as counseling, heavily rely on the social dynamic between therapists and clients. Inmates with higher educational attainment tend to be more curious, articulate, and ready to showcase their intellectual acumen. This trait might have exposed them to more knowledge and provided an environment conducive to discussing their experiences and challenges in quitting smoking.

Education level, in general, might have acted as a moderator influencing the effectiveness of treatments by impacting the inmates' grasp of therapeutic instructions. For instance, a higher educational background could make it easier for inmates to comprehend and adhere to specific treatment instructions. Additionally, it might enhance their motivation and determination to consistently adhere to the treatment plan. Consequently, inmates with higher educational attainment could potentially derive more significant benefits from treatments compared to those with lower educational backgrounds

Jones, Laumann, Belkin, Middleton, Emery, Horrigan, and Hogue (2021) investigated the mediating effect of educational attainment on smoking cessation interventions among detainees. Education was found to significantly mediate the treatment's impact on smoking behavior. In a related study by Saltsman, Escamilla, Foulds, O'Connor, Skinner, Kerr, and Lando (2022), a randomised controlled trial observed the moderation effect of educational attainment on a smoking cessation intervention among veterans. This study revealed that the intervention had a more pronounced effect in promoting smoking abstinence among veterans with secondary education or lower, compared to those with higher education.

5. Recommendations

The study's outcomes suggest the following propositions for consideration:

Raising Awareness of Cognitive Distortions and Smoking Behavior: Inmates' understanding of the link between cognitive distortions and their smoking habits is vital. Many may lack awareness or skills to identify and alter these patterns of thought. Incorporating education and training on cognitive distortions within smoking cessation programs can empower inmates with the necessary skills to recognise and modify these distortions.

Integration of Cognitive Reframing Therapy (CRT) for Counselors and Psychologists: Counselors and clinical psychologists could benefit from integrating Cognitive Reframing Therapy (CRT) into their professional practice. CRT can aid individuals in identifying and altering cognitive distortions associated with smoking behavior. This approach is particularly beneficial for individuals who may struggle to identify or modify these distortions independently.

Protection of Non-Smoker Inmates: To safeguard non-smoker inmates, it is advisable for correctional authorities to designate specific smoking areas within the facility. Additionally, implementing a policy that mandates inmates who smoke to shower and change clothes after smoking can reduce the risk of third-hand smoke exposure. Non-smoker inmates exposed to secondhand smoke should receive additional support, including access to counseling and medical care.

Exploration of Combined Psychotherapy and Medication for Nicotine Addiction: Investigating the potential benefits of combining psychotherapy with medication for treating inmates' nicotine addiction is crucial, particularly in environments like Nigerian correctional facilities where adequate medical and social resources may be limited due to economic and political constraints.

6. Conclusion

A comprehensive approach is necessary to effectively mitigate the broad-reaching consequences of smoking behavior within society. Research into tobacco smoking behavior is crucial due to its pervasive health risks. The multifaceted nature of this challenge demands attention from stakeholders who must address a range of contributing factors, spanning from socioeconomic influences to individual and systemic variables.

References

Akagi, E. A. & Folaranmi, N. (2013). Tobacco use and oral health of inmates in a Nigerian

- correctional centre. *Nigerian Journal of Clinical Practice*. 16(4), 473-477
- Ake, A. (2018). *Nigeria: Tobacco Consumption Contributes 12% Deaths From Heart Diseases* - NHF. THISDAY. 2018 17 May 2018
- Butler, T., Richmond, R., Belcher, J., Wilhelm, K., & Wodak, A. (2007). Should smoking be banned in correctional centre? *Tob Control* 16:291-3.
- Cope, M., McNamara, J., Najman, J. M., Williams, S. R., & Paul, C. (2016). Reducing tobacco smoking in correctional settings: A randomised controlled trial of the effectiveness of cognitive behaviour therapy. *Journal of Substance Abuse Treatment*, 75, 48-54.
- Cropsey, K. L. & Kristeller, J. L. (2005). The effects of a correctional centre smoking ban on smoking behaviour and withdrawal symptoms. *Addictive Behaviours* 30: 589-594.
- Cropsey, K. L., Jones-Whaley, S. & Jackson, D. O. (2010). Smoking characteristics of community corrections clients. *Nicotine & Tobacco Research* 12: 53-58.
- Cropsey, K., Eldridge, G., & Weaver, M. (2008). Smoking reduction intervention for female correctional inmates: Addressing an urgent public health need. *American Journal of Public Health* 98: 1894-1901.
- Cutler, D. M. & Lleras-Muney, A. (2006), *Education and Health: Evaluating theories and evidence*, NBER Working Paper 12352
- Desalu, O. O., Iseh, K. R., Okoloba, A. B., Salawu, F. K., & Danburam, A. (2010). Smokeless tobacco use in adult Nigerian population. *Niger J Clin Pract*; 13:382-7
- Dzakula, B., Nash, C., & Wells, C. K. (2020). Higher education as a factor in the success of cigarette smoking cessation. *Journal of Research in Health Sciences*, 2(2), 76-83.
- Goyal, J., Menon, I., Goyal, T., Passi, D., Gupta, U., & Gupta, R. (2020). Effectiveness of cognitive behavioral therapy and basic health education for tobacco cessation among adult tobacco users attending a private tobacco cessation center. *Journal of Family Medicine and Primary Care*, 9(2), 830-833. https://doi.org/10.4103/jfmpc.jfmpc_786_19
- Grimard, F. & Parent, D. (2007). Education and smoking: Were Vietnam War draft avoiders also more likely to avoid smoking? *Journal of Health Economics* 26 (5), 896-926.

- Huppert, J. D. (2009). The building blocks of treatment in cognitive behavioural therapy. *Israel Journal of Psychiatry*, 46, 245-250
- Jones, C. N., Laumann, A. K., Belkin, M. H., Middleton, L., Emery, B. S., Horrigan, B., & Hogue, A. R. (2021). Education moderates the effect of a tailored smoking cessation intervention among incarcerated smokers: A randomised controlled trial. *Addictive Behaviours*, 116, 106774
- Kennedy, S. M., Sharapova, S. R. & Beasley, D. D. (2016). Cigarette smoking convicted males by race/ethnicity: Impact of excluding African American young adult men from national prevalence estimates. *Nicotine & Tobacco Research* 18: S73–S78
- McCrary, B. S., Vogel, A., Feil, E. A., Flynn, P. M., Farrelly, M. A., Lewis, M., & Montoya, R. (2018). Cognitive-behavioural therapy reduces recidivism risk factors and smoking in criminal justice-involved individuals: A randomised controlled trial. *Health Psychology*, 37(4), 396-406
- Nwhator, S. O. (2012). Nigeria's costly complacency and the global tobacco epidemic. *J Public Health Policy*; 33:16-33
- Odedokun, S. A. (2022). The relationship between dysfunctional family, substance abuse, emotional intelligence and recidivism among young adult inmates in Agodi correctional centre, Ibadan, Nigeria. *European Journal of Social Sciences Studies* 7(5). 29-44
- Onyechi, K. C., Eseadi, C., Umoke, A. B., Ikechukwu-Ilomuanya, M. S., Obidua, J. C., Agu, O., Nwaubani, A. N., Utoh-Ofong, C. D., & Ugwuozor, N. F. (2017). Effects of a group-focused cognitive behavioural health education program on cigarette smoking in a sample of Nigerian prisoners. *Medicine* 96(1): e5158
- Saba, A. S., Aveyard, P., Hacking, B., Barr, J., Aboumatar, H., Bell, A. C., & Mant, D. (2019). Associations of education with health behaviours, health outcomes, and mortality risk: A systematic review and meta-analysis. *The Lancet Public Health*, 4(6), e261-e272.
- Saltsman, P. M., Escamilla, T., Foulds, J., O'Connor, P. G., Skinner, J. J., Kerr, A. C., & Lando, H. A. (2022). The role of educational attainment in response to a smoking cessation intervention among veterans: A secondary analysis of a randomised controlled trial. *Journal of General Internal Medicine*, 37(11), 2615-2624.
- Webb, M. S., Reis, I. M., Carey, M. P., Ybarra, D. R. & Baker, E. A. (2010). Cognitive-behavioural therapy to promote smoking reduction among African American smokers: A randomised clinical trial. *Journal of Consulting and Clinical Psychology*. 2010; 78 (1):24–33.
- World Health Organization. (2019). WHO Report on the Global Tobacco Epidemic, 2019. Geneva: World Health Organization; Available at: <https://apps.who.int/iris/bitstream/handle/10665/326043/9789241516204-eng.pdf>