

Effectiveness of Two Psychological Interventions in Fostering Tobacco Smoking Cessation among Nigerian Commercial Motorcyclists in Ibadan

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Abstract This study was designed to examine the effects of covert sensitization and group therapy interventions in fostering tobacco smoking cessation among commercial motorcyclists in Ibadan metropolis. The study then adopted pre-test, post-test, control group experimental design with a 3×2 factorial matrix. The purposive sampling technique was used to select 61 participants from ten randomly selected motorcycle parks in three local government areas in Ibadan; Ibadan North, Ibadan North/West and Akinyele LGAs. The participants were randomly assigned to treatment and control groups using the ballot method. Participants in the two treatment groups were exposed to eight weeks covert sensitization and group therapy intervention programmes respectively. The results revealed that the two treatment programmes were both effective in fostering tobacco smoking cessation among the commercial motorcyclists, although the group therapy intervention was shown to be more effective than covert sensitization. It was then concluded that, clinical psychologists and other mental health care professionals would find these two approaches useful in helping smokers to quit smoking.

Keywords: Covert sensitization, Group therapy intervention, Smoking cessation, Commercial motorcyclists and addiction

Background

Tobacco smoking cessation also referred to as quitting is the action leading to abstinence from smoking. The need for smoking cessation arises from many health and social effects related to tobacco use. The prevalence rate of tobacco related morbidity and mortality is rising steadily, especially in Africa where estimates reveal 70% death rates to occur by the year 2030 if nothing is done. Currently, Nigeria is faced with a number of challenges in dealing with the health consequences of tobacco smoking, especially among some underserved and understudied populations such as commercial motorcyclists. These groups of people are highly predisposed to smoking related illness and death as a result of lack of proper knowledge about its resultant consequences. It is worthy of note that most of the commercial motorcyclists who smoke get stimulated beyond control due to the induced effect of nicotine, which is a dangerous chemical substance in tobacco that when smoked could make people drowsy, high, confused or in desired need of conquest. This could be responsible for many commercial motorcycle accidents that has either caused death or crippled a number of people, rendering them non-functional or unproductive. In congruence, Madubike and Nwagu (2001) posit that the effect of tobacco smoking among other things has torn many families apart, destroyed lives, corrupted societal values, depleted society's workforce and prevented many youths from actualizing their hopes and aspirations. Several of these behaviours are exhibited by some commercial motorcyclists who even go as far as smoking tobacco and other psychoactive substances for various reasons.

According to Muazu and Aliyu (2008), commercial motorcyclists (okada riders) have come to bridge the huge transportation gap in most cities across the country. These motorcycles are used as vehicles for hire in Nigeria. They have different names depending on the part of the country they operate in. They are popularly called 'Okada' in places like Ibadan, Lagos, etc, while in some parts of the country they are called achaba, going, hire, inaga as the case may be. However, they pose a lot of dangers to themselves, passengers and other road users. It is clear that some of these okada riders operate under the influence of cigarettes, drugs, and other psychoactive substances, which makes the quest for tobacco smoking cessation a fundamental issue of enormous concern that could improve the quality of life of people and the Nigerian society at large. A substantial body of literature has established that cessation from smoking has immediate as well as long-term health benefits for men and women of all ages, reducing risks of diseases caused by smoking and improving health in general (US Department of Health and Human Services, 2004)

Literature Review

Going by some studies on tobacco smoking, Glynn (2008) observe that, tobacco use as at 2009 had killed nearly six million people worldwide and many millions more were going to fall ill due to tobacco use. Looking at these, deaths and illnesses will cause significant economic hardship not only for the tobacco users but also for their families, employers and communities. Another study by Kitonyo (2008) observes that tobacco use is the single greatest cause of preventable death worldwide. Estimates indicate that tobacco use will kill 10 million people annually by 2030, with 70% of the deaths occurring in the developing world. According to WHO (2002), African countries are experiencing the highest increase in the rate of tobacco use amongst developing countries while consumption is increasing by 4.3 percent per year. Also, the World Health Statistics (2008) report that tobacco use is prevalent in many countries including Nigeria. Out of 1.22 billion smokers, 1 billion of them have been found to live in developing or transitional economies, while smoking rates have probably declined in the developed world (CDC, 2009). In the developing world however, tobacco consumption rose by 3.4% per year in 2002 (WHO, 2002). As at year 2000, smoking was found to be practiced by some 1.22 billion people with men smoking more than women (Centers for Disease Control and Prevention 2000). However, the gender gap was found to decline with younger age. Also, the same findings revealed that the poor developing countries are more likely to smoke than those of developed countries.

Tobacco smoking causes 13 different cancers; lung, oral cavity, nasal cavity and nasal sinuses, pharynx, larynx, oesophagus, stomach, pancreas, liver, urinary bladder, kidney, uterine cervix and myeloid leukaemia. According to the International Agency for Research on Cancer (2004), tobacco smoking accounts for approximately 30% of all human cancers in high resource countries.

Consistently, lung cancer has the highest smoking attributable fraction among all cancers induced by smoking. Duration of smoking is the strongest determinant of excess lung cancer risk in smokers, with risk increasing proportionally with the number of cigarettes smoked. Tobacco smoking raises the excess risk of all histological types of lung cancer (Ferlay, Bray, and Pisani, 2002). Again, cigarette smoking being one of the leading preventable causes of illness and premature death worldwide, people have continued to smoke irrespective of the negative health consequences such as heart disease, stroke, emphysema, and a variety of cancers. The CDC (1997) state that, part of the reason for continued cigarette smoking is the addictive nature of nicotine, a substance found in all types of tobacco products. In 1988 Surgeon General's Report

on the health consequences of smoking, nicotine was declared an addictive drug similar to heroin or cocaine. It is important to emphasize that nicotine itself is probably not responsible for most of the negative health consequences of smoking. Instead, persons who stop using nicotine-containing tobacco products experience an unpleasant withdrawal syndrome that may include such symptoms as depressed mood, disrupted sleep, irritability, frustration, anger, anxiety, difficulty concentrating, restlessness, decreased heart rate, and increased appetite or weight gain. The American Psychiatric Association (1994) observe that the extremely unpleasant nature of withdrawal from tobacco helps explain why many people who make an effort to stop smoking start up again, often within a matter of hours or days.

There are a number of methods in the management of nicotine addiction such as minimal/intensive clinical interventions, nicotine replacement therapy, antidepressants, hypnosis, use of self-help manuals and help from support groups and psychological interventions ranging from cognitive and behavioural strategies. To initiate smoking cessation and to offer practical and effective advice about smoking cessation, (Petty 1999) recommends that physicians must first inquire about a patient's smoking habits. Studies have shown (Beers and Berkow 1999) that a physician's advice to stop smoking, which requires only about 3 to 5 minutes, may achieve a quit rate of 3% to 5%. However, when the physician's advice is supported with follow-up visits, quit rates of 20% or 25% may be expected.

Moreover, a substantial body of research has established that cessation from smoking has immediate as well as long-term health benefits for men and women of all ages, reducing risks of diseases caused by smoking and improving health in general (US Department of Health and Human Services, 1990; 2004; Beers and Berkow, 1999).

Indeed, for most people, changing from being a smoker to a non-smoker is a complex and difficult journey rather than a single event. One widely used way of describing this process is the 'stages of change' or Transtheoretical Model (TTM). Prochaska and DiClemente, (1983); US Department of Health and Human Services (1994); Mayhew, Flay, & Mott, (2000) observe that the process of taking up smoking may be conceptualized as a progression through a number of stages in a continuum, during which external influences and individual characteristics interact. Summarily, these stages are: Precontemplation, contemplation and preparation, initiation, experimentation, regular smoking and established daily smoking. These stage definitions are a useful framework for thinking about the different challenges facing a smoker.

This study therefore, made use of two therapeutic interventions in fostering tobacco smoking cessation among some commercial motorcyclists in Ibadan metropolis. Covert sensitization is a form of behaviour therapy in which an undesirable behaviour is paired with an unpleasant image in order to eliminate that behaviour. Based on research which began in the 1960's, two psychologists (Cautela and Kearney, 1986) published the classic, *The Covert Conditioning Handbook*, which has been affirmed as a definitive treatise on the subject. Covert sensitisation has been used for many years in some studies and it has been found to be an effective treatment programme for smoking, alcoholism, obesity, and various sexual deviations including pedophilia and exhibitionism Moore, (2001) maintains that covert sensitisation discourages people from engaging in unwanted behaviours by creating association between those behaviours and unpleasant consequence. For this, it has been classified as a type of aversion therapy. It is further maintained that a unique feature of covert sensitisation however, is that the unwanted consequence is never actually present in therapy. This is because covert sensitisation is a form of sensitisation in which the conditioning process occurs in imagination, out of sight (therefore covert rather than overt), and sensitisation can be done by following thoughts of smoking with anxiety-arousing or disgusting thoughts (Cautela 1967). A major advantage covert sensitisation has over other aversion therapies is that; it works without consequence which has practical and ethical advantages.

The group therapy used in this study employed some forms of behavioural interventions. The form of behavioural intervention employed is the intensive clinical intervention. The US Department of Health and Human Services (2000) and Kreuter, Chheda, and Bull, (2000) highlight components of this kind of intervention to include supportive group sessions and brief advice from a health care provider which they find are important motivators for a cessation attempt.

Moreover, several studies emphasize the predictive value of self-efficacy for tobacco smoking cessation and consequently behaviour change among participants exposed to smoking cessation treatment (Carey, Snel, Carey and Richards 1989; DiClemente, Fairhurst, and Piotrowski 1995).

Consequently, smoking is a learned behavior which if not stopped progresses and leads to addiction, but a number of programmes are being designed to help smokers quit the habit. Group therapy intervention is a common method of delivering smoking cessation interventions. In group therapy interventions, members are encouraged to challenge one another to think more objectively and clearly and to practice different ways of communicating and behaving. Then, reframing of events can loosen the emotional hold of self-destructive ways of thinking and functioning. Behavioural rehearsal offers an opportunity to experiment with doing something in ways very different from present habits. Use of relaxation techniques is usually a part of this therapy process. Through learning to think differently, to relax and to respond differently, more positive feelings can be developed (Cullari, 1998). Likewise, the group psycho-education is a specific type of group therapy that focuses on educating clients about their disorders and ways of coping, which is imbibed in the group therapy intervention.

Theories are regarded as analytic events that are relevant in the exploration of observed relationship and upon which a study is anchored. The present study is anchored principally on the learning theory of smoking cessation, theories of addiction, theory of cigarette addiction, theory of triadic influence and biological models of addiction and the social cognitive theory. These theories revolve around factors responsible for tobacco use/addiction and subsequently smoking abstinence.

This study has been carried out to determine the effectiveness of covert sensitization and group therapy interventions in fostering smoking cessation among commercial motorcyclists in Ibadan.

Research Questions

1. What is the age range of the participants?
2. What is the educational level of the participants?
3. What are the religious affiliations of participants who took part in the study?
4. What is the marital status of the participants?
5. What categories of family type were the participants from?

Research Hypotheses

The null hypothesis below was tested at 0.05 level of significance.

- There will be no significant main effect of treatment on tobacco cessation among the participants.

Methods

Study Design

The study adopts an experimental design with pre-and post-tests and control group using a 3×2 factorial matrix for the treatment of tobacco smoking addictions in Ibadan metropolis.

Instruments

Two instruments were used to collect data for the study: the Kim's Smoking Cessation Motivation Scale (KSCMS), and the Tobacco Addiction Questionnaire (TAQ). The KSCMS is an adapted scale designed in a five point Likert format with response ranging from 1. Agree to 5. Disagree. It has been revalidated and also reported a two weeks test-retest reliability coefficient of 0.74. The KSCMS was used to screen participants who were willing to progress on tobacco smoking cessation.

The tobacco addiction questionnaire (TAQ) was developed by the researcher. It is made up of two sections. Section A is the demographic, containing questions on tobacco use history and medical history of the participants and Section B is made up of items determining tobacco use and the level of dependence. The questionnaire adopts a five point response format of: strongly disagree (SD), disagree (D), not sure (NS), agree (A) and strongly agree (SA). The instrument was validated using a test-retest method and its reliability coefficient is 0.73.

Procedure of Treatment

The research spanned eight weeks of eight sessions during which researcher and participants interacted. This took place in five stages: recruitment, pre-test, treatment, post-test and evaluations. The researcher gave consent forms to participants selected for the study. This was to seek their cooperation during the period of treatment. Also, to ensure regular attendance of the participants, incentives were provided. Participants were only male commercial motorcyclists in Ibadan. Two research assistants were recruited and trained for the study. The next stage was the real contact sessions with the participants, where the concepts of tobacco addiction and its effects, tobacco smoking cessation, CST, GTI were explained, relating the self-help applications in their daily lives and well-being. The grouping of these participants into two experimental groups and the control group was done. Thereafter, there was the administration of psychological tests both for the pre and post-tests.

Lesson contacts: The experimental group I was subjected to CST divided into eight sessions over eight weeks. Each session took 60 minutes. Group II was exposed to GTI, which also took eight sessions, over eight weeks; each session took 60 minutes.

Sample and sampling Procedure

The participants for this study were made up of 61 tobacco smoking male adults in Ibadan. They included young and older men, from ages 18 to 55 years. They comprised only Nigerian commercial motorcyclists selected from three randomly selected local government areas (LGAs) in Ibadan metropolis. Out of the eleven local government areas in Ibadan metropolis, six are under Ibadan less urban area, while the other five are actually in Ibadan urban area. The ballot method was used to select three local government areas out of the eleven.

Method of Data Analysis

The data were analyzed using the Analysis of Covariance (ANCOVA), to remove initial differences between the participants in the treatment and control groups. The data were analyzed at 0.05 level of significance.

Descriptive Results

Table 1.1 Ages of the Participants

AGE	Distribution	N	%	Cummulative %
Young Adults	18-35 years	38	62.3	62.3
Old Adults	36-55 years	23	37.7	100%

Table 1.2 Educational Level

Educational Level	N	%	Cummulative %
No Formal School	2	3.3	3.3
Primary school	11	18.0	18.0
Secondary school	37	60.7	60.7
Tertiary Education	11	18.0	100.0

Table 1.3 Marital Status

Marital status	N	%	Cummulative %
Married	36	59.0	59.0
Single	25	41.0	100.0

Table 1.4 Religion

Religion	N	%	Cummulative %
Christianity	27	44.4	44.4
Islam	34	55.7	100.0

Table 1.5 Employment Status

Employment Status	N	%	Cummulative %
Hired motorcyclists	26	42.6	42.6
Self employed	35	57.4	100.0

Hypothesis One

This hypothesis states there will be no significant main effect of treatment on tobacco cessation among the participants.

To test this hypothesis, analysis of covariance (ANCOVA) was adopted to analyze the post-test scores of participants on cigarette smoking cessation using the pre-test scores as covariates to ascertain if the post experimental differences are statistically significant. The summary of the analysis is presented in Table 2.1

Table 2.1 Analysis of covariance on main effects on tobacco smoking cessation among the participants

	Sum of squares	DF	Mean Square	F	P	Remark
Covariate	677.748	1	677.748	17.966	0.000	S
Pre-score	677.748	1	677.748	17.966	0.000	S
Main Effects	1507.612	4	376.903	9.991	0.000	S
Treatment Group	1497.652	2	748.826	19.850	0.000	S
Residual total	4212.262	8				

The result in Table 2.1 shows there is significant main effect of treatment on the motorcycle riders ($F(2, 49) = 19.850, P < 0.05$). The null hypothesis which states that, there will be no significant main effect of treatment on tobacco cessation among the participants was not supported by the outcome of the findings; the hypothesis is thereby rejected. Therefore, it was concluded that, there was significant main effect of treatment in the tobacco smoking cessation of motorcycle riders.

To further provide information on the cigarette smoking cessation among the three groups; CS, GTI and Control, the multiple classification analysis (MCA) was computed and the result shown below:

Table 2.2: Multiple Classification Analysis

Grand Mean	N	Mean	Unadjusted Dev'n	ETA	Adjusted Dev'n for Independent	+ Covariate BETA
30.72						
Variable + Category						
TRT GRP						
CS	21	28.95	-1.77		-2.67	
GTI	23	27.30	-3.42		-3.41	
CG	17	38.63	7.91		7.91	
				0.52		0.59
Multiple R Square						0.519
Multiple R						0.720

From the MCA Table, it is evident that the GTI had the least adjusted post-test mean score ($\bar{x} = 27.30$) followed by CS group with the adjusted post-test mean score ($\bar{x} = 28.95$), while the control group had the highest adjusted mean score ($\bar{x} = 38.63$). These values were obtained by summing the grand mean to the respective unadjusted deviations, CS ($\bar{x} = 30.72 - 1.77$), GTI ($\bar{x} = 30.72 - 3.42$) and control group ($\bar{x} = 30.72 + 7.91$). The direction of the increasing effect of the interactions on the cigarette smoking cessation are control > CS > GTI. The Table indicates that the independent variables jointly accounted for as much as 51.9 % ($MR^2 = 0.519$) of the variance in cigarette smoking cessation among the participants while the remaining 48.1% were due to pre-test measures or other unexpected sampling errors.

Discussion

This study has shown that there is significant main effect of treatment on tobacco smoking cessation among the motorcycle riders. This means that both covert sensitization and group therapy intervention were effective in fostering smoking cessation. The Multiple Classification Analysis (MCA) further indicates that GTI aided tobacco smoking cessation more than CS. The result reveals a significant difference among the groups (CST, GTI and Control) in the post-test scores on tobacco cessation ($F(2, 49) = 19.850, P < 0.05$). This result supports earlier findings of Covino and Bottari (2001) who submit that although nicotine replacement and other pharmacological treatments top the list of popular interventions for smoking cessation, approaches based on psychology also assist smokers. As regards the effectiveness of psychological interventions for smoking cessation, no single psychological approach has been found to be more superior to others; however, they agree that psychological interventions contribute significantly to successful treatment outcome in smoking cessation. A number of findings are in line with the result of this study; Bakkevig (2000) observes a statistically significant superiority of a group programme for tobacco smoking cessation over another.

Table 1.1 further reveals that CS is also effective in aiding tobacco smoking cessation, which supports prior studies Kraft and Kraft, (2005) and Adedokun, (1991). Asuzu, et al. (2003) found covert self-control effective in the management of promiscuity, which is also an addictive behaviour among adolescents. Covert sensitisation has been used for many years in some other studies, and it has been found to be an effective treatment programme for reduction in smoking behaviour (Sipich, Russell and Tobias, 2002; Gerson and Lanyon, 2007) and various sexual deviations, sexual arousal in sexual deviants, including pedophilia and exhibitionism (Moore, 2001 and Hayes, Brownell and Barlow, 2002). It is maintained that CS discourages people from engaging in unwanted behaviours by under scoring the link between such behaviours and unpleasant consequences. These studies show that CS is a rapid and cost effective form of treatment; many patients are able to eliminate the unwanted behaviour in a small number of sessions. The findings of Irvin, Bowers, Dunn and Wang (1999), are also found to be in line with the present study which is the use of aversive techniques for smoking cessation. This study therefore affirms that CS is an effective mode of intervention for the treatment of tobacco smoking and addiction which invariably, could lead to smoking abstinence from the destructive habit.

Implication of the Study

The results obtained in this study have demonstrated the effectiveness of CS and GTI in fostering tobacco smoking cessation among participants. This implies that smoking cessation is achievable and manageable. The findings therefore have implications for clinical psychologists.

psycho-oncologists, counsellors and other mental health care providers in developing psychological interventions for the treatment of tobacco addiction in smokers.

The findings of this study especially through its methodology would form a bulk of useful information for the development of tobacco cessation treatment in relevant institutions and hospitals. This no doubt would assist in checkmating smoking related ailments in tobacco smokers.

The result also has implication for facilitating tobacco smoker's development of self-help skills. Stead & Lancaster (2005) find GTI to be more effective in helping smokers quit. In GTI, a smoker can learn behavioral techniques for aiding in his/her quit attempt and foster mutual support (Skaar et al, (1997). Group therapy intervention may also give smokers who are willing the ability to learn numerous techniques for smoking cessation and benefit immensely from the group support forum.

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16th March, 2015

Dr. C.C. Asuzu and Dr. M. J. Lando
Dept. of Guidance and Counselling
Faculty of Education
University of Ibadan

Dear Dr Asuzu,

LETTER OF ACCEPTANCE

On behalf of the Editorial Committee for the Nigerian Journal of Psychology, we are pleased to inform you that your article titled:

EFFECTIVENESS OF TWO PSYCHOLOGICAL INTERVENTIONS IN PORTERING SMOKING CESSATION AMONG NIGERIAN COMMERCIAL MOTORCYCLISTS IN IBADAN (Page 288) has been accepted following the assessors' remark for publication in the up-coming edition of the journal.

We also write to acknowledge that your contribution has been duly received while we await the publication of the journal sooner with effective date as June 2015.

It is therefore our great pleasure to congratulate you.

Dr. T. Ayo Ilamied
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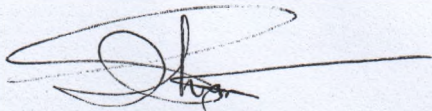
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