

THE EFFECT OF COGNITIVE RESTRUCTURING INTERVENTION ON TOBACCO SMOKING AMONG ADOLESCENTS IN SENIOR SECONDARY SCHOOL IN ZARIA KADUNA STATE, NIGERIA

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Abstract

This study employs a quasi-experiment, non-equivalent control group, pretest-posttest design in investigating the effect of Cognitive Restructuring Intervention Program on tobacco smoking among adolescents in senior secondary school in Zaria Educational Zone of Kaduna State, Nigeria. The sample was 129 (71 male and 58 females) schooling Adolescents drawn from four schools in Zaria Educational zone. An instruction tagged cognitive behaviours intervention scale (CBIS) was adopted and used for the study. Data were analyzed using means t-test and analysis of covariance (ANCOVA). Findings indicate that cognitive restructuring intervention program (CRIP) significantly affects tobacco use-cessation. Recommendations are by made which include a call for psychologists/counselors to be employed in schools and taught how to use new skills in curtailing tobacco smoking among students.

Keywords: Cognitive restructuring intervention, tobacco smoking and adolescence in senior secondary school

Introduction

Tobacco and its uses started as far back as the history of human race. Since earliest time, man searched for herbs, roots, leaves, plant and other

substances to relieve pain, help to control diseases and for maintaining good health and well being of the body.

Oyebode (1993) defines Tobacco as any substances which when taken into the body, alters the body functions resulting in physical, psychological or behavioral changes. In the same vein, Conner (1992), stated that technically, the term Tobacco applies to any substances other than food that changes our bodily or mental functions of the living organisms in either positive or negative way (Unachukwu and Nwankwo 2003). Tobacco or Nicotiana contains two major species, these are, Nicotiana tobacco, from which tobacco products for smoking, chewing and snuffing are obtained and Nicotiana. rustria which nicotinic acid and citric acid are extracted for the manufacturing of drugs.

Tobacco use, mainly in the form of cigarette smoking is one of the major health hazard associated with smoking (cancer of the lungs, respiratory and other cardiac problems are well known (Uguru, 1996). Nicotine naturally has narcotic and addictive effects. The narcotic components give the satisfactory feelings which habituated smokers appear to have after a few puffs of tobacco while the addictive properties enslave smokers to the habit of smoking and make it considerably difficult for them to abandon the habit (Uguru, 1996). It has been estimated globally that about a third of the population, age 15 years and above, are smokers (Fausibe and Shittu, 2012).

Statement of the Problem

In the twentieth century, the tobacco epidemic was estimated to have killed about 100 million people world wide, and unless urgent action is taken, the number of death could increase to one billion in the twenty first century. By 2030, more than 80% of these deaths will be in developing countries which are now the prime target for transnational countries tobacco companies marketing expansion activities. Unfortunately, most African countries, including Nigeria have not respond appropriately, to the growing epidemic because of the revenue generated from tobacco forgetting the enormous burden of tobacco related disease on health budgets. In spite of this obvious consequence, no government has been able to ban smoking completely. The very large amount of revenue accruing to the state from taxes imposed on the manufacturers, and users of tobacco products appear to have nullified all attempts in this direction.

The sociological implication of tobacco smoking among Nigerian youth have been a major threat to the peaceful co-existence of all and sundry in Nigeria contemporary society, thereby destroying the socio-political dignity, personality and integrity of dependence on life (Fawibe and Shittu, 2012). This may be partly attributed to the parental background of a child, peer influence or overdependence among youths on drugs. This is due to

various problems such as broken homes (divorce), polygamous family, object poverty, cultural influence, parental neglect, lack of parental affection and responsibility (Unachukwu and Nwankwo, 2003). For instance a father that is a drug addicts, may be greatly influenced and “carried away” by any of his children like father, like son.

In spite of the various efforts by teachers, school psychologists, governments and non-governmental agencies, the National Drugs Law Enforcement Agency (NDLEA), Nigeria’s mass mobilization agency (MAMSER), drug-free clubs among others, the problems of tobacco smoking among youths continue to be on the increase. The use of cognitive therapy intervention programmes may be effective in reducing the scourges. Beck (2005) posits that cognitive restructuring involve the process of re-orienting one’s thought processes to reality, and of requiring one’s mind to think truthfully, factually and logically. Cognitive restructuring is a talk therapy that helps one to reframe an earlier negative or irrational belief or understanding one had about things which inhibits the behavior of set goals or which discouraged one in his/her effort to change his/her behavior in life. For the purpose of this study, cognitive restructuring describes the process of learning to refute cognitive distortion or fundamental faulty thinking of smokers with the goal of replacing one’s irrational beliefs with more accurate and beneficial ones of not smoking a cigarette. When one sets unachievable goal, for example, “I must stop smoking”, he tries to make it by all means. Cognitive restructuring can be used to help such adolescent reframe the goal to a change in behavior for a realistic goal. The prediction is that if this therapeutic technique is well applied, adolescents will become conscious of the negative values, beliefs, attitude, knowledge and practices they have which determined the goals they set and the vigor with which they pursued goal attainment in school Nkaneme and Ngwoke, 2010. The objectives are to help them refute negative values and beliefs and replace them with positive ones. That is, stop smoking completely. Ellis (2005) used rational emotive therapy to effectively treat a tobacco use cessation patients. The maintenance of the effects of Cognitive Therapy (CT) across many disorders for substantial periods beyond the cessation of treatment was supported by the meta-analyses reviewed. Significant evidence for long-term effectiveness was found for depression, generalized anxiety, panic, social phobia, OCD, sexual offending, schizophrenia, and childhood internalizing disorders. In the cases of depression and panic, there are robust and convergent meta-analytic evidence that CT produces vastly superior long-term persistence of effects, with relapse rates half those of pharmacotherapy. (Beck, Wright, Newman and Liese, 1993).

Not much can be found in Literature on how to change students attitudes, beliefs, ways and inappropriate goal expectation and to control or

stop cigarette smoking (cessation) among adolescents with tobacco smoking behavior (addicting and habits). It is against this background that this study seeks to investigate the effect of cognitive restructuring intervention programme on tobacco smoking among adolescents in senior secondary schools in Zaria Educational Zone of Kaduna State, Nigeria.

Objective of the Study

1. Determine the effect of cognitive restructuring intervention programme on students' mean score on tobacco use cessation of those exposed to treatment and those in control groups
2. Determine the interaction effect of cognitive restructuring intervention programme and gender on students' tobacco use cessation of those exposed to treatment and those in control groups

Research question

1. What is the effect of cognitive restructuring intervention programme on students' mean score on tobacco use cessation of those exposed to treatment and those in control groups?
2. What is the interaction effect of cognitive restructuring intervention programme and gender on students' tobacco use cessation of those exposed to treatment and those in control groups?

Hypotheses:

Ho1: there is no significant difference in the effect of cognitive restructuring Intervention Programme on students' mean score on tobacco use cessation of those exposed to treatment and those in control group as measured by CBIS.

Ho2: there is no significant difference in the interaction effect of cognitive restructuring intervention programme and gender on students' tobacco use cessation posttest mean score as measured by cognitive behavioural scale (CBIS)

Methodology

The study was executed using a quasi-experimental, non-equivalent control group, pretest–posttest design. The population of the study comprises Secondary School Students in Zaria Education Zone, Kaduna State, Nigeria. The sample was 129 students drawn from four schools randomly sampled from 20 schools in the Education Zone. The two schools were purposively assigned to experimental and control group. In each of the two schools, one intact stream of SSII and SSIII classes was purposefully selected for the study.

The instrument used for the study was a 13-item cognitive behavioral intervention scale (CBIS) adopted from Beck (1993 and 2005). The items were formulated to extract the values, beliefs and dispositions of subjects on tobacco use cessation accomplishment in life. Each item on the questionnaire was rated on a four point scale of strongly agree (4), agree (3), disagree (2), and strongly disagree (1). The internal consistency estimate obtained using Cronbach alpha was 0.92. The coefficient of stability obtained using Pearson's Product Moment Correlation was 0.82. Data were analyzed using analysis of covariance (ANCOVA).

Treatment procedure

The basic premise of cognitive-behavioural theory (CBT) is that people can learn new behaviors to use in response to stimuli and that the thought processes that serve as an intermediate step between the stimuli and the behavior can be altered, thereby, influencing Tobacco-use cessation.

Cognitive-behaviour theory (CBT) was developed from two theoretical streams behaviourism (behavioural theory) and cognitive theory (CT) using a theoretical model that was adopted and used as a treatment procedure as shown in the figure below

$$S \rightarrow O \rightarrow r \rightarrow R$$

S = Stimuli Control, a method whereby cues (e.g., tip sheets on refrigerators) are provided to a person as a reminder of the desired behavior (e.g., not using tobacco).

O = Organism, which is the person seeking help to quite using tobacco. More specifically, it refers to internal processes such as thoughts and feelings. Influences at this stage include techniques designed to change how a person thinks about his or her tobacco use and to train that person to think differently about engaging in this behavior. This part of the model separates CBT from strictly behavioural approaches.

R = Response. CBT seeks to modify or alter a person's responses. For example, a person can be taught new skills to help him put down a cigarette or find another activity to engage in when craving nicotine.

R = Reinforcement, which is necessary to help the person continue performing a new behavior (e.g., chewing on a toothpick) instead of the old behavior (e.g., using tobacco). Source: Beck *et al* (1993) and (2005).

The intervention programme was adopted from Beck *et al* (1993) and (2005) respectively. Each module lasted two periods of 40 minutes each. The entire programme was capped with a 20 minutes drama presentation. The plot of the drama was tobacco smokers are liable to die young: when students freely choose his/her action, he/she also chose the consequence.

Both the experimental and control group were given a reshuffled version of CBIS as the posttest in the weeks.

Results

Table 1: Means score of groups on CBIS

Groups		Pretest	Posttest	Mean gain score
Treatment	Mean	17.5625	46.0625	28.50
	N	64	64	
	Std. Deviation	8.22477	5.16974	
Control	Mean	17.6923	31.2308	13.54
	N	65	65	
	Std. Deviation	9.20754	8.36056	

Data presented on Table 1 above indicate the pretest and post test mean scores tobacco smoking cessation scores of adolescents in the treatment and control groups and the pretest–post test mean gain scores of the groups. The treatment group taught using instruction in CRIP had a pre-test score of 17.56 with a standard deviation of 8.22 and post – test mean CRIP score is 46.06 with a standard deviation of 5.17. The pre-test – post-test mean gain score is 28.50. The students in the control group had a pretest mean score of 17.70 with a standard deviation of 9.21 and post-test mean score of 46.06 with a standard deviation of 5.17. The pretest – posttest mean gain score is 13.54. The differences in the mean gain scores for the two groups which favoured the treatment groups indicated that the students exposed to CRIP benefited from the utilization of the new skills.

Table 2: Description Statistic showing treatment by gender.

Groups	Gender	Mean	SD	N
Treatment	Male	45.35	5.07	31
	Female	47.73	5.30	33
	Total	46.06	5.17	64
Control	Male	32.28	9.16	40
	Female	29.56	6.73	25
	total	31.23	8.56	65

Table 2 above indicates that male students exposed to Cognitive Restructuring Intervention Programme (CRIP) had a post-test mean score of 45.35 with an SD of 5.07 as against their male counterparts in the control group with a post-test mean score of 32.28 and an SD of 9.16. The difference in the group was 13.07. Female students exposed to instruction in CRIP had a higher posttest mean score of 46.73 with an SD of 5.30 as against the male counterparts in the control group with a post-test mean score of 29.56 with a SD of 6.73. The differences in the post-test mean score of females in the four groups is 17.17. The results show that male and female students in the treatment groups reduce rate of taking tobacco than males and female in the control groups.

Table 3. T- Statistics of effects of cognitive restructuring on Tobacco use cessation of those exposed to treatment and control groups as measured by CBIS.

Respondents	N	Mean	SD	df	t-cal	t-crit	Decision
Treatment	64	46.06	5.17	127	12.918	1.96	S
Control	65	31.23	7.65				

P < 0.05

Table 3 above shows that t-calculated value (12.918) is greater than t-table (1.96), at 0.05 levels of significance. The null hypothesis is rejected. This implies that the differences in the mean is significant between the respondents of treatment and control groups in favours of the treatment groups exposed to training in the use of cognitive restructuring intervention programmes on tobacco use-cessation as measured by CBIS.

Table 4. Summary of 2-way Analysis of Covariance (ANCOVA) on the tobacco use cessation among adolescents as measured by (CBIS)

Source	Type III sum of square	DF	Mean square	F	SF	Decision at 0.05 level
Corrected model	10278.706	4	2569.677	40.571	.000	S
Intercept	2282.132	1	2282.132	36.033	.000	S
Pretest	539.045	1	539.045	8.511	.004	S
Experimental	8682.872	1	8682.872	137.099	.000	S
Gender	232.946	1	232.946	3.678	.057	S
Experimental gender	11.542	1	11.842	.187	.666	NS
Error	7853.357	124	63.334			NS
Total	334660.000	129				NS
Corrected total	18132.092	128				

R. squared = .567 (Adjusted R squared =.553)

The data presented in table 4 above shows that treatment group as main factor had a significant effect on tobacco use cessation among adolescent students. The F-value of 22.946 is significant at .000 levels and also at 0.005 levels of significance. This suggests that the null hypothesis of no significance difference in the CRIP of students taught using the skills is rejected. In other words, there is significance in the adolescent tobacco-use cessation of the two groups in favour of those exposed to CRIP. The adjusted R-squared of 0.553 further suggests that 55% of the total variance on the dependent measures is contributed by treatment using instruction in CRIP. This evidence shows that instruction in CRIP is effective in enhancing tobacco use cessation of the students in treatment groups as compared to those in control groups.

Discussion

The results of this study show that CRIP enhanced the tobacco-use cessation among adolescent students. Those in the treatment group who received instruction on CRIP of S (stimulus control), O (organism, which is the person seeking help to quit using tobacco), R (response, CBT seeks to modify or alter a person responses and R (reinforcement which is necessary to help person continue performing a new behavior, e.g. chewing on a toothpick) instead of old behavior (such as using tobacco) has a higher significance higher in CRIP than those in the control group. The finding of this study is in line with the finding of Beck et al (1993), Beck (2005) and Beck (1985) who found that students change from the old habit of smoking tobacco to a new behavior chewing a toothpick instead. Thus the findings of this study are consistent with the explanation of the behavioural learning theory that irrational beliefs and mindsets are passively acquired (Nkaneme and Ngwoke, 2010). Therefore, when one is made to actively examine the basis of such beliefs, one would most likely refute such beliefs. Direct confrontation with reality and alternative explanation would generally erode the foundation of such primordial beliefs and lead to a change in disposition or forming new habits of quitting tobacco usage.

The same explanation applies to gender stereotypes. Gender is socially ascribed (Nkaneme and Ngwoke, 2010). While gender role stereotype is passively acquired, therefore, the non-significant main effects of gender and interaction effects of gender and Cognitive Restructuring Intervention Programmes shown in this study highlight the fact that biological differences in sexual functions do not in effect directly translate into differences in socio-cognitive traits of the sexes. Hence, cognitive restructuring can be useful tools that help to reframe the goal to a change in behavior for more realistic goals of quitting cigarette or tobacco smoking

Conclusion

Evidence from this study shows that Cognitive Restructuring Intervention Programme significantly affects tobacco use cessation among adolescents in secondary schools. Therefore, the use of cognitive restructuring training is effective in changing primordial beliefs and negative disposition about tobacco smoking. Adolescents' faulty thinking regarding smoking has been replaced by a more accurate behavior of not smoking tobacco.

In line with the findings of the study, the following recommendations are therefore made:

1. School psychologists and counsellors should employ the use of the Cognitive Restructuring Intervention Programme of (S-O-r-R) in taking prevalence apathy to bad habits and addiction associated with tobacco so

- that, students can face more challenges in schools and society in general.
2. Ministries of Education (federal and state) should, as a matter of urgency, add to their curricula the use of CRIP in addressing the problem of tobacco smoking for both the primary and post-primary schools in Nigeria and they should frequently organise lectures, rallies, seminars and film shows for Nigerian youths on the adverse effects of tobacco and teach them new skills.
 3. The National Drug Law Enforcement Agency (NDLEA) should intensify their antidrug campaigns using cognitive restructuring strategies in order to ensure a tobacco free society with a special focus on the Nigerian youths because they are future leaders

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Appendix A

Cognitive Behavioural Intervention Scale (CBIS)

The following sections provide guidance on recognizing Cognitive-Behavioural Scale Intervention programme:

A. ESTABLISH SELF-AWARENESS OF TOBACCO USE

1. Have participants record their personal tobacco-use behaviour (such as, in a diary or journal).
2. Discuss thoughts, beliefs, and reasons for using and not using tobacco (such as, the misleading influences of advertisements, the influence of peers who use tobacco).
3. Teach participants the facts about the physical and psychological effects of Tobacco use, the long-term consequences, and their Tobacco use on others.

B. Provide Motivation to Quit

4. Ask participants to identify their personal reasons for wanting to quit (such as cost, harmful effects of use, desire not to be dependent)
5. Point out discrepancies between their reasons for quitting and their reasons for continuing to use Tobacco (such as, within social groups), which may undermine the cessation attempt.
6. Help participants make a commitment to quitting Tobacco use forever. This may include decision-making activities and public or private declarations.

C. Prepare for Quitting

7. Work with participants to set a specific and reasonable quit date.
8. Help participants decide on a method of quitting (such as cold, turkey, using pharmacotherapy, tapering) and develop short and long-term goals appropriate to the method chosen.
9. Teach participants about the physical and psychological symptoms of withdrawal.

D. Provide Strategies to Maintain Abstinence

10. Use problem-solving techniques that allow participants to identify and minimize the effects of triggers that may cause them to return to Tobacco use. This process typically involves (a) identifying a danger situation for Tobacco use (b) generating several possible strategies for coping with that situation,(c) evaluating the possible coping strategies (d) planning and implementing the best coping strategies for the situation (e) evaluating the effectiveness of the chosen strategy, and (f) re-evaluating the situation and selecting other solutions if necessary.
11. Help participants develop coping skill.
12. Help participants seek social support from peers, family, and other people besides the intervention providers.
13. Build motivation for maintaining abstinence.
14. Develop a strategy for self-monitoring and reinforcement of new behaviors.