

# Example of picot question: evidence- based practice research paper

[Health & Medicine](#), [Addiction](#)



## **Introduction**

Cigarette smoking has been regarded as one of the most single causes of death in developed countries. It is however the most preventable cause of deaths. Cigarette smoking account for one (1) among every five (5) deaths in the United States and more blatantly has been the major cause of premature deaths. Worldwide statistics indicates that in every single minute over ten (10) million cigarettes are purchased (Wilkes, 2008). While being a major case of health concerns, the issue has also gained momentum as a major issue of social concerns. The blaming games have been vented against key players in the health sector, the social sector and various governments. However, research studies have settled not just on the causes, but on the need to find measures for cessation for current smokers (Leeman, Huffman, & O'Malley, 2007).

Bupropion, an anti-depressant medication, has been regarded as one of the most effective methods for smoking cessations. It has been tested in clinical trials recording a significant success rate with one (1) in every five (5) smokers quitting cigarette smoking (Leeman, Huffman, & O'Malley, 2007).

While it has shown to have side effects, these clinical trials have claimed that the side effects, mostly insomnia and dry mouth, are closely related to nicotine withdrawal symptoms. As such, bupropion has proven to be a cost-effective and a safe smoking cessation technique. This medication is available in generic form, which allows insurance costs to be low and affordable to patients, if the brand name is not an option for them. Nicotine Replacement Therapy (NRT) is another cessation technique that has been widely employed to help smokers quit the habit. In fact, NRT came into use

long before bupropion was adopted as a safe and cost effective method. However, NRT is still the most sought clinical method for smoking cessation. This method applies the rationality of replacing the nicotine provided in cigarettes with skin patches, chewing gums, inhalers, tablets and nasal sprays (Wilkes, 2008). The rate of nicotine delivery to the brain and lungs by these techniques is significantly reduced as compared to cigarette smoking. Gradually, the smoker gets familiar with small amounts of nicotine and finally they come to a point where they can successfully adapt without the nicotine intake.

This paper seeks to accomplish a review of relevant literature to support and define the effectiveness of bupropion in comparison to NRT. The review will be analyzed along the PICOT question, “ In older adults with an extensive history of chronic cigarette smoking (P), would the administration of Bupropion (Wellbutrin, Zyban)(I) as compared to Nicotine Replacement Therapy (NRT) (C) be a more of an appropriate therapy for smoking cessation (O) over a period of one year(T)” . This research critique utilized four quantitative research studies. These were considered more suitable for this study due to the variables that are relevant to the issue of smoking cessation.

## **Research Critiques (Quantitative)**

The article by Zincir et al. (2013) describes research on the comparative effectiveness of nicotine replacement therapy, varenicline, and bupropion in smoking cessation. All the three intervention approaches were supplemented with motivational support to the participants.

## **Problem**

There is no clear understanding of the comparative efficacy of nicotine replacement therapy, varenicline, and bupropion in smoking cessation.

### **Sample**

The research used 300 participants (18-60 years of age) from a cigarette cessation clinic. Prior to the research, each participant was informed on common procedures and subsequently signed the consent forms (Zincir et al., 2013).

## **Purpose of the Study**

The purpose of the study is to examine the comparative effectiveness of nicotine replacement therapy, varenicline, and bupropion in smoking cessation.

## **Methodology**

Out of the 300 participants, 251 completed the study. Those participants who expressed and/or displayed any allergic reactions to the three (3) approaches were excluded. Similarly, participants with eating disorders, pregnancy and bipolar disorders were excluded. Fagerstrom nicotine dependence tests, HAD scales and semi-structured clinical interviews were used for the purpose of clinical follow-up. On the other hand, a carboxymeter was used to measure carbon monoxide levels for all the participants.

Statistical analysis utilized both descriptive, distribution, comparison and proportionality methods. For descriptive statistics, standard deviations, means, frequency values and ratios were used whereby proportionality analysis was done using the chi-square tests. The ANOVA and the Mann-

Whitney and Kruskal-Wallis tests were used for comparisons whereas distribution was measured pursuing the Kolmogorov tests (Zincir et al., 2013).

## **Data Analysis**

In terms of gender, age and education status, the results showed no significant differences between the three approaches ( $p > 0.05$ ). However, the cigarette consumption per day was higher for the NRT group ( $p < 0.005$ ). Overall, cessation rates were higher for the Varenicline group, registering seventy two and three tenths percent (72.3%) cessation rates. Cessation rates were higher for bupropion with fifty seven and one tenth percent (57.1%) versus the NRT group with fifty four and eight tenth percent (54.8%). One of the strengths of this research is that it compares three methods, in which emphasizes the importance and understanding which approach is more effective. On the other hand, the research considers conditions such as allergic reactions, bipolar disorders and pregnancy. Apart from measuring cessation rates; it also takes into account the baseline characteristics such as age and gender. It is believed that combined therapies have improved efficiency, but the study does not consider establishing the comparative benefits of combined therapies of the three approaches. The major finding in this study is that NRT is not as effective as the varenicline or bupropion therapy in smoking cessation. Overall, varenicline is more effective than the other two therapies tested. The exclusion of participants based on allergies is not completely clear. Smokers with allergies may find it difficult to quit and hence their exclusion could have resulted in overestimates of the efficacy.

## Research Critique (Quantitative)

### Problem

**There is no clear understanding of the comparative efficacy of nicotine replacement therapy and bupropion in smoking cessation.**

### Sample

Stapleton et al. (2013) study that utilized one thousand seventy one (1071) participants sought to develop a comparative effectiveness of bupropion (409 participants), NRT (418 participants) and the combination of the two approaches (244 participants) in cessation of cigarette smoking.

### Purpose of the Study

The purpose of the study is to examine the comparative effectiveness of nicotine replacement therapy and bupropion in smoking cessation.

### Methodology

The study was an open-label randomized controlled trial, which involved four (4) United Kingdom (UK) cigarette cessation clinics.

### Data Analysis

According to this study, bupropion alone showed an increased level of effectiveness in terms of cessation with a rate of twenty seven and one tenth percent (27. 9%) while the NRT showed a cessation rate of twenty four and two tenths percent (24. 2%). When the two approaches were combined, the cessation rates remained at of twenty four and two tenths percent (24. 2%) (Stapleton et al., 2013). Therefore, according to this study, bupropion has as a more effective method of smoking cessation while the effectiveness of a

combination showed no comparative benefits.

One of the strengths of this study is that it takes into consideration three (3) approaches that is, bupropion, NRT and a combination of the two methods. Combined therapy has proved to be effective in treating most drug addiction problems and as such, this was a unique step in establishing whether a combined therapy could possibly be a better option. It has been statistically proven that large sample sizes increase precision and accuracy. However, compared to NRT and bupropion, the combined approach (NRT + Bupropion) utilized a very small sample that may have hindered precise results. On the other hand, the research did not exclude conditions such as pregnancy, allergic reactions, and bipolar disorders, which significantly affect the proficiency of any of the three (3) approaches.

The descriptive statistics applicable to this research ensures effective analysis and results generation. This is because the statistics summarizes the data of the huge number of sample considered for the study. The percentages applicable adequately condense the data. The general results of the study illustrates that bupropion is the most effective smoking cessation approach.

## **Research Critique (Quantitative)**

Problem

**There is no clear understanding of the efficacy of the combination of Varenicline and Bupropion SR in smoking cessation.**

Sample

## **The study enrolled 506 adults of $\geq 18$ years age and 62% participants completed the study.**

### Purpose of the Study

The purpose of the study is to examine the efficacy of the combination of Varenicline and Bupropion SR in smoking cessation.

### Methodology

The study by Ebbert et al., (2014) examined the efficacy of the combination of Varenicline and Bupropion SR in smoking cessation. As a randomized, blinded, placebo-controlled multicenter clinical trial, the study compared the efficacy and safety of combination therapy to monotherapy with varenicline cigarette smokers over a 12-week period and with a 52-week follow-up. The study enrolled 506 adults of  $\geq 18$  years age and 62% participants completed the study. As primary outcomes, the authors measured the rates of prolonged abstinence, defined as 'no smoking from 2 weeks after the target quit date', and 7-day point-prevalence, defined as 'no smoking past 7 days', at week 12. Secondary outcomes included the same measures but at weeks 26 and 52.

### Data Analysis

In terms of primary efficacy, the combination therapy achieved rates of 53% and 56.2% in prolonged and 7-day point-prevalence, respectively. In comparison, the monotherapy produced rates of 43.2% and 48.6% in prolonged and 7-day point-prevalence, respectively. At 26 weeks, the combination therapy achieved rates of 36.6% and 38.2% in prolonged and 7-day point-prevalence, respectively, whereas the monotherapy produced rates of 27.6% and 31.9% in prolonged and 7-day point-prevalence,

respectively.

The results suggest that the combination use of varenicline and bupropion, when compared to the monotherapy with varenicline increases prolonged abstinence but not 7-day point prevalence at 12 and 26 weeks. The outcome was about the same and not significantly different at 52 weeks for both the treatments.

The study by Ebbert et al., (2014) is comprehensive in the sense that the participants were followed up for 52 weeks. Other strengths of the study include its multicenter nature, placebo-controls, and double blinding. It is hard to critique the study except that the cohort numbers in the study are large for the estimates to be precise.

## **Research Critique (Quantitative)**

Problem

**There is poor understanding of whether bupropion could attenuate smoking abstinence caused cognitive deficits.**

Sample

The study is a crossover study with a small enrollment (subjects  $n = 24$ , 13 men and 12 women) testing bupropion vs placebo on short-term quit smoking attempts. The inclusion criteria for the participants were smoking  $\geq 10$  cigarettes per day for  $\geq 1$  year, a screening carbon monoxide of at least 10 ppm and plans to quit smoking within three months of entering the study.

Purpose of the Study

## **The purpose of the study is to explore whether bupropion could attenuate smoking abstinence caused cognitive deficits.**

### Methodology

In a study aimed to explore whether bupropion could attenuate smoking abstinence caused cognitive deficits, Perkins et al., (2013) examined the decline in cognitive performance on the 1st day of an attempt, the time of high risk for relapse. The authors measured working memory with the N-back task and sustained attention using the continuous performance task, two tasks used previously to assess cognitive performance effects of other medications. Participants were introduced to working memory and sustained attention tasks prior to entering the study.

### Data Analysis

In both measures of working memory and sustained attention, bupropion administration showed significantly improved performance compared to placebo. These results suggest that bupropion can attenuate features of impaired cognitive performance caused by withdrawal on the first day of a quit attempt.

Even though the study is small, it is an interesting study in exploring cognitive aspects to the efficacy associated with bupropion. Since the study was limited to subjects who could abstain from smoking overnight, there is a potential selection bias. In addition, testing was done on a short-term and bupropion effects on cognitive performance in a real permanent quit scenario may be completely different

Further studies are required to examine the effect of bupropion on cognitive

performance in long-term use and to determine if the effect contributes to its efficacy smoking cessation.

## **Discussion & Conclusion**

Across a wide variety of quantitative and qualitative research studies, there is a general agreement that while NRT is an effective cessation technique, bupropion has been proved to have a higher success rate. Further, as Zincir et al. (2013) indicates, the effect of bupropion combination with NRT increases the cessation rate significantly. However, the success rate depends entirely on the patient, clinical guidelines and follow-up by the involved medical personnel. Nursing professionals are an excellent choice to provide the guidelines and follow-up advise to patients during the process of smoking cessation. Cessation is not only a patient-oriented activity. Rather, it is one that involves a great deal of teamwork to avoid the depressing cases of relapse (Wilkes 2008; Stead et al. 2008; Zincir et al., 2013). As a caring healthcare professional, Nurses could help in identification of team members for patients that should include family members and perhaps even friends. As such, to achieve desired results in older adults, it seems to be the choice of bupropion in favor of NRT. Bupropion has been rated as highly effective cessation for severe cases of dependence on nicotine. On the other hand, it has been found to have insignificant side-effects such as insomnia. The appearance of such side effects during the cessation process is associated with effects of withdrawal from nicotine dependence. Leeman et al. (2007) research note that bupropion's major advantage over NRT is that it is non-nicotine and it achieves better results within the first six (6) months as

compared to NRT.

The presence of nicotine in NRT is seen as a slow and damaging technique since it allows the body to continue its dependence on nicotine. Relapse rates in NRT have been associated with the patient mindset brought about by the continued use of nicotine in clinical practice; the reflection that they are undergoing treatment while continually being reliant on the same nicotine they sought for medication to end dependence. This, according to Stead et al. (2008) is the major reason the medical team involved must place guidelines and more rigorous follow-up criteria for patients who are under NRT treatment. The same necessity for the rigorous follow-up would not be required with the use of bupropion (Hughes, Stead & Lancaster, 2014). However, in both cases, follow-up is necessary. The range of intensity of this follow-up seems to be the only variation. Thus, while NRT and bupropion have proven to be the most reliable cessation techniques, when success is based on timelines, bupropion is more effective for older adults. Therefore, it is just as important for nurses and medical practitioners to conduct a thorough review of research to build evidence-based best practices pertinent in tobacco smoking addiction and cessation. Medication on its own doesn't seem to provide the desired and successful results. Rather, nurse/patient relationship seems to play a critical role in helping addicted smokers to quit their deadly habit (Zinciet et al, 2013).

All the four research studies included in the critique included bupropion in at least one arm of their study. The articles were chosen to encompass a range including comparisons of three different treatments for cessation, two combination treatments, effects on cognitive performance, short term

duration (1 day) and long-term duration (52 weeks). The results from the published studies should provide an excellent perspective to the research proposed here on bupropion involving older adults as a cohort. The results obtained in our studies can be compared and contrasted with the results from studies that involved adults of all age groups. From a nursing practice perspective, it is noteworthy that bupropion can have effects on cognitive performance in humans. If so, patients should be alerted to be aware of the potential interactions between smoking and behavior altering drugs.

## References

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