Papeles del Psicólogo, 2014. Vol. 35(3), pp. 161-168
http://www.papelesdelpsicologo.es

THE PSYCHOLOGICAL TREATMENT OF TOBACCO DEPENDENCE. EFFICACY, BARRIERS AND CHALLENGES

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Smoking is the leading cause of morbidity and mortality in developed countries. More than 58,000 people die prematurely in Spain due to tobacco use. Psychology offers effective psychological treatments for tobacco dependence, but these treatments are not always used and they are not widely known about. In this article, the effectiveness of psychological treatment is analysed together with various barriers that impede its greater use, especially due to the competition with pharmaceutical products and the undervaluation of the psychological treatment by different sectors, in the same way that happens with other disorders (e.g., depression). We propose a number of strategies to improve the impact of our treatments and to make them more visible, because psychological treatment is a first line treatment for smokers.
Key words: *Tobacco, Smoking, Psychological treatment, Efficacy.*

Fumar es la primera causa de morbi-mortalidad de los países desarrollados. Más de 58.000 personas mueren prematuramente en España por fumar. La psicología dispone de tratamientos psicológicos eficaces para el tratamiento de la dependencia del tabaco, pero no siempre se usan ni se conocen lo suficiente. En este artículo se analiza la eficacia del tratamiento psicológico junto a distintas barreras que impiden una mayor utilización del mismo, sobre todo por la competencia de los fármacos y la infravaloración que se viene haciendo en distintos sectores del tratamiento psicológico, de modo semejante a lo que ocurre con otros trastornos (ej., depresión). Se proponen distintas estrategias para mejorar el impacto de nuestros tratamientos y cómo hacerlo más visible, sobre todo porque estamos ante un tratamiento de primera elección para las personas que fuman.
Palabras clave: *Tabaco, Fumar, Tratamiento psicológico, Eficacia.*

SMOKING: THE LEADING PREVENTABLE CAUSE OF MORBIDITY AND MORTALITY

Smoking is the leading preventable cause of morbidity and mortality worldwide (USDHHS, 2014). It is estimated that tobacco consumption is responsible for 5,000,000 deaths annually, a figure that could double by the year 2030 (WHO, 2009). Today tobacco accounts for 27% of all deaths in men and 6% of all deaths in women in Europe (Martín-Moreno, Soerjomataram & Magnusson, 2008) (see Table 1). In Spain, the mortality attributable to tobacco consumption is very high, at 58,573 deaths per year, representing 16.15% of all deaths (Hernández-García, Sáenz-González & González-Celador, 2010).

Furthermore, tobacco consumption is associated with the production of 35 diseases (Doll, Peto, Boreham & Sutherland, 2004). In Spain, COPD (chronic obstructive pulmonary disease), lung cancer and cardiovascular diseases are the pathologies most strongly associated with mortality in smokers (Hernández-García et al., 2010).

Why does this happen? It is mainly due to the large amount of harmful substances –some 4,000– that tobacco contains. Of these, at least 250 are damaging to health (e.g., carbon monoxide, hydrogen cyanide, formaldehyde, vinyl chloride, benzene, benzo(a)pyrene, nitrogen oxide, arsenic, cadmium, etc.) and more than 50 cause cancer. It is therefore not surprising that tobacco can cause lung

TABLE 1
ESTIMATED MORTALITY IN EUROPE DUE TO VARIOUS FACTORS

Factor	Men (%)	Women (%)
Smoking	27	6
Alcohol	11	5
Obesity	1	3
Physical inactivity	<1	5
Infection	3	4
Sunlight	1	2
Occupational exposure	3	<1
Environmental exposure	<1	<1

Source: Martín-Moreno et al. (2008, p. 1391)

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cancer and it can also increase the incidence of other cancers such as that of the larynx, the nasal cavity, the oral cavity, the oesophagus, the kidney, the pancreas, the cervix, the bladder or leukaemia (USDHHS, 2014).

In recent years, in order to control the consumption of tobacco, two very positive developments have taken place: firstly, the adoption in 2003 of the WHO Framework Convention on Tobacco Control, for the global control of smoking and, secondly, the adoption in Spain of Law 28/2005 against smoking, which has had a major impact on the population, supplemented by Law 42/2010 on healthcare measures.

Studies such as those mentioned above, together with the various campaigns that have been released and the development of rules and laws preventing people from smoking, have led to a drastic decrease in the number of smokers in developed countries. In Spain, the prevalence of smoking in 1987 was 38.4% (55.1% in males, 22.9% in females), and in 2012 it was 27% (27.9% in males, 20.2% in females).

Therefore, although the decline in consumption is clear, the harsh reality is that smoking is one of the biggest healthcare problems, and it is responsible for millions of deaths worldwide each year. All of the above justifies the need for people to stop smoking. Our obligation as psychologists is to treat people so that they can give up smoking, using the effective treatments that have been available to us for some time.

PSYCHOLOGICAL TREATMENTS FOR SMOKING CESSATION

Psychology has always been interested in the frequent and habitual behaviour of tobacco consumption. The first treatments for quitting smoking appeared with the emergence of behaviour modification techniques, around the 1960s. From then until now, interest in the psychological treatment of smoking has been maintained to the point of it becoming the treatment of choice for many smokers (e.g., pregnant women or teenagers) preferred to the various pharmacological treatments, whose advertising does not correspond to their true level of efficacy and safety.

As is the case in the treatment of any addiction (Becoña et al, 2011), the psychological treatment of a person who smokes consists of four phases: 1) preparation for the change, 2) pre-cessation, 3) psychological dishabituation where the person has to stop smoking, and 4) maintenance or relapse prevention (Collins et al., 2011).

The earliest psychological therapies shown to be effective for smoking cessation were behavioural. The first ones to be used were the aversive type (e.g., rapid smoking); these were followed by or supplemented with others such as self-observation, relaxation, stimulus control, the gradual reduction of tar and nicotine intake, etc. Years later, multicomponent psychological treatments and relapse prevention appeared (Becoña, 2006, 2010; Hartmann-Boyce, Stead, Cahill & Lancaster, 2013). Other recent treatments are contingency management incentives, cognitive emotional behavioural therapy, virtual reality, exposure therapy, behavioural activation therapy and acceptance and commitment therapy. The most relevant psychological treatments of the last two decades have been those known as the "multimodal", "multicomponent" "treatment packages" or "protocolized treatments" (Labrador, Echeburúa & Becoña, 2000).

Despite the large number of effective treatments available, we must not forget that the majority of smokers try to stop smoking by themselves. Moreover, in recent years, smokers that seek treatment for giving up smoking have a higher nicotine dependence and psychiatric comorbidity is often present, which means that these patients are more difficult to treat and it is harder for them to stop smoking (Fiore et al., 2008).

THE EFFICACY OF PSYCHOLOGICAL TREATMENT FOR TOBACCO DEPENDENCE

The efficacy of psychological treatment for smokers has been proven systematically in the last 50 years. We will briefly discuss the guide by Fiore et al. (2008) and the review by Hartman-Boyce et al. (2013) summarizing the Cochrane Collaboration reviews on existing smoking cessation treatments.

The guide by Fiore et al. (2008), a reference in many countries for determining the efficacy of the treatment of smokers, indicates an odds ratio (OR) of 1.7 for individual behavioural counselling and 1.3 for group behavioural counselling. In addition, the longer the contact time (OR = 3.2 for 91-300 minutes) and the higher the number of sessions (OR = 1.9 for 4-8 sessions, and OR = 2.3 for over 8 sessions) the more effective the treatment. Within the psychological techniques, the following have been shown to have an OR greater than 1: the gradual reduction of cigarettes (OR = 1.1), the management of negative affect (OR = 1.2), social support during the treatment (OR = 1.3), social support outside of the treatment (OR = 1.5), training in problem solving (OR = 1.5), other aversive procedures (OR = 1.7) and the technique of rapid smoking (OR = 2.0).

We should also highlight that, although there smoking

cessation drugs used in clinical settings, when self-administered the results are similar to the placebo (Pierce & Gilpin, 2002), in other words, ineffective.

Fiore et al. (2008) also indicate that self-help procedures based on psychological techniques have been widely disseminated. We have no techniques other than the psychological ones for the implementation of these procedures. Their main advantage is that they reach many people, at a low cost and with a reasonable level of efficacy (OR = 1.2).

The review by Hartman-Boyce et al. (2013) highlights within the pharmacological treatments, nicotine replacement therapy (NRT), bupropion and varenicline, which have been shown to be effective, usually together with behavioural counselling, psychological treatment, or at least clinical management by the health professional applying the treatment (RR between 1.60 and 2.27). However, several of these drugs have significant negative side effects.

Included within the behavioural interventions for smoking cessation (Table 2), are group therapy (RR = 1.98), individual counselling (RR = 1.36) and self-help procedures (RR = 1.45), among others.

As we have stressed on several occasions (Becoña, 2003, 2010), in the field of the treatment of smokers, treatment *in* groups has been consistently confused with *group treatment* or *group therapy*, especially by professionals outside of psychology. The first is characterized by a higher degree of directing and intervention from the therapist and focuses more on the individual behaviour of each member, the relationship that the group members have with the therapist being the most relevant part of the treatment. This means that each individual is the centre of treatment that the therapist carries out. In no way is the group the centre of treatment. By contrast, in *group treatment*, the influence of the group on its members is greater, the treatment is aimed at the whole group, and interactions among the members are promoted, facilitated and encouraged. While the purpose of treatment *in* groups is to maximize the effectiveness of the work of the therapist, that of *group treatment* is to enhance the therapeutic efficacy of the group processes. We have known for years that *group therapy* is completely *ineffective* for treating smokers. What is *effective* is the group application, or *treatment in groups*, using cognitive-behavioural psychological techniques. However, some publications continue to confuse group therapy with therapy in groups.

It is noteworthy that one of the major limitations of these two reviews is that they do not always indicate who the professional is that applied the treatments, because in many cases they are not psychologists. In this vein, there are two recent reviews by the Cochrane Collaboration which can lead to confusion as they compare behavioural counselling with medication. This will be discussed in the next point.

THE COMBINATION OF PSYCHOLOGICAL AND PHARMACOLOGICAL TREATMENT

Given their effectiveness, it is usual, recommended and sometimes suggested in the clinicians' guides, to add psychological treatment or behavioural counselling to

TABLE 2
MAIN RESULTS OF THE COCHRANE COLLABORATION ON BEHAVIOURAL THERAPY

Comparison	*Relative risk (RR)*
Behavioural therapies	
Additional proactive calls to quitline callers versus no additional calls to quitline callers	1.37
Telephone counselling versus no telephone counselling	1.29
Group therapy versus self-help only	1.98
Individual counselling versus minimum contact control	1.39
Mobile phone based intervention versus no intervention or less intensive intervention via mobile phone	1.71
Self-help materials versus no materials	1.45
Stage-based self-help material versus standard self-help material	0.93
Stage-based counselling versus standard advice	1.00
Motivational interviewing versus brief advice/usual care	1.27
Partner intervention versus intervention without partner support	0.99
Combining behavioural and pharmacotherapies	
Increased behavioural support + pharmacotherapy versus less or no behavioural support + pharmacotherapy	1.16
Pharmacotherapy + behavioural interventions versus usual care/ self-help/brief advice	1.82

Source: Hartman-Boyce et al. (2013)

pharmacological treatment (Ranney, Melvin, Lux, MacClain & Lohr, 2006). Moreover, almost all clinical drug trials for smoking cessation include counselling techniques derived from psychological techniques or even psychological treatment itself. This has led many clinicians to think, mistakenly, that the best solution for giving up smoking is a combination of drugs and behavioural or psychological counselling/treatment.

The review by Ingersoll and Cohen (2005) on this issue indicates that there are few studies that have analysed this issue. Of the 15 studies reviewed (11 combined first choice drugs with behavioural treatments and 4 combine drugs with behavioural treatments), it cannot be concluded that the combined treatments are more effective than the use of behavioural treatments alone. These authors indicate that "taken together, these studies suggest that some forms of counselling, such as those based on the principles of brief effective therapies, and the use of techniques of cognitive behavioural therapy, can enhance the benefits produced by the first-line medications regarding smoking cessation in smokers in the general population" (p. 1929). The problem with all of the above is that it mixes behavioural counselling, cognitive behavioural therapy, the different types of professionals who apply the treatments and different patient samples (general population, heroin addicts, primary care patients, etc.), making it difficult to compare and draw consistent conclusions. In addition, there is a major problem in the application of pharmacological treatments: the high cost. In all cases it must be the smoker who pays, unlike clinical trials that are usually free or even remunerated in part, a fact which complicates the generalization of the results to the clinical setting. To all this must be added the side effects of many medications for smoking cessation, which lead to a significant percentage of smokers who stop taking these drugs or are unable to use them.

A large number of studies indicate that there is insufficient evidence that the combination of a psychological treatment for smoking cessation and an "effective" drug for smoking cessation improves the effectiveness of psychological treatment alone (Fernández, García-Vera & Sanz; 2014, García & Sanz, 2006; Secades, Díez and Fernández, 2009). Recent studies conducted in Spain indicate that the drugs do not usually increase the effectiveness of a psychological treatment applied alone. Secades-Villa et al. (2009) compared the use of the nicotine patch added or not added to counselling, self-help and psychological treatment. The results clearly indicated that the nicotine patch did not imply greater efficacy than counselling alone (abstinence at 12 months: 12.9% counselling; 12.5% counselling + patches), self-help (27.6% self-help; 30.9 % self-help + patches) or psychological treatment (41.4% psychological treatment; 40.0% psychological treatment + patches). In the latter case, at the one year follow-up, the effectiveness of psychological treatment alone or in combination with nicotine patches was approximately the same. In the same vein, Fernández et al. (2014) also found that nicotine patches did not increase the efficacy of an effective psychological treatment for smoking cessation.

Finally, the study by Spring et al. (2007) compared euthymic smokers, with or without a history of major depression, using a group of placebo + behavioural treatment in a group and another of fluoxetine + behavioural treatment in a group. The psychological treatment included cognitive behavioural techniques, along with techniques of motivational interviewing, relapse prevention and craving management. At 6 months, in the group with a history of major depression there was 20% abstinence in the fluoxetine group and 40% in the placebo, while in the group of smokers with no history of major depression the abstinence figures were 30% with fluoxetine and 49% with the placebo. This means that with only psychological treatment there was 49% abstinence at 6 months and that fluoxetine interferes with the efficacy of this treatment. We believe that this occurs because the psychological treatment is structured, effective techniques are applied, and the treatment is adapted to the behaviour of the smoker in the phases of the smoking cessation process through which he or she passes.

WHEN IS PSYCHOLOGICAL TREATMENT THE PREFERRED CHOICE FOR SMOKERS?

Psychological treatments have been used for all types of smokers, since they are effective regardless of the level of dependence, sex, age, etc. (Fiore et al., 2008). Although the psychological treatment of smoking works for any smoker or a smoker without an associated pathology, it is true that specific interventions have been developed or analysed for specific groups of smokers who stand out due to their clinical relevance or their characteristics for which the treatment of choice is psychological. We will look at some of these cases here.

In pregnant women who smoke, the first-choice treatment is psychological (Fiore et al., 2008; Le Foll et al., 2005) and pharmacological treatments should only be used when psychological treatment fails or when the benefits outweigh the risks. Psychological treatment has

no side effects, whereas the drugs for smoking cessation sold up till now do have side effects, meaning that they are contraindicated in pregnant women.

The same applies to teenagers and young people. Although there are few teenagers who want to give up smoking (Becoña, 2006), those who have come to therapy have stopped smoking using only cognitive behavioural treatments (Sussman, Sun & Dent, 2006). The use of drugs (nicotine patches) does not increase the effectiveness of behavioural treatment applied alone (e.g., Stotts, Roberson, Hanna & Smith, 2003). The most commonly used treatments in this population are training in self-control, coping skills, problem-solving and techniques for increasing motivation to adequately address the withdrawal symptoms.

In older people, psychological treatment is often the only way to stop smoking because of the risk that the consumption of certain tobacco cessation drugs may have on some of them. Psychological treatment is effective in these patients (Fiore et al., 2008) in both health centres and hospitals. The same efficacy is found in hospital patients, although many have used behavioural health counselling or health care counselling from other professionals. The results indicate that these interventions are effective when the intervention level is high (intensity 4 in the review by Rigotti, Munafo, Murphy & Stead, 2012), which occurs in those cases in which behavioural type counselling is applied, alone or combined with other strategies, regardless of the condition for which the patients are hospitalized. Psychological treatment is especially effective in patients with coronary heart disease; in the meta-analysis by Barth, Critchley and Bengel (2006) an OR of 1.95 was obtained.

WHAT TO DO ABOUT COMORBIDITY?

Psychiatric patients who are smokers are currently a group of great interest (Tiffany, Conklin, Shiffman & Clayton, 2004). We know that people with a mental disorder are more likely to be smokers, so they should be advised to stop smoking (Ranney et al., 2006). We can apply the same treatment to these patients as to a smoker without psychiatric comorbidity, together with the patient's usual treatment.

We know that nicotine has a clear antidepressant function (Salín-Pascual et al., 1996). In a large number of studies that have been conducted in recent years, a significant relationship has been found between smoking and depression (e.g., Luger, Suls & Vander Weg, 2014) as well as the fact that in clinical programs 30 to 60% of people who come to quit smoking have had a previous history of major depression (Wilhelm, Wedgwood, Niven & Hay-Lambkin, 2006) which is associated with a worse prognosis in tobacco cessation. Hughes (2008) has suggested that there may be a common element that predisposes certain individuals to both depression and smoking, highlighting low self-esteem, low assertiveness skills or a genetic cause, amongst others. In a recent study by our group (Becoña, López-Durán, Fernández del Río & Martínez, 2014), it is the prior history of depression which explains the decrease in the efficacy of treatment in recent years.

The same occurs with anxiety disorders. For example, Johnson et al. (2000) evaluated, in a representative sample of young people in New York, the prevalence of tobacco consumption and various mental disorders at the age of 16 and later at 22. A relationship was found between smoking 20 or more cigarettes per day during adolescence and suffering different anxiety disorders in early adulthood, such as agoraphobia (OR = 6.79), generalized anxiety disorder (OR = 5.53) and panic disorder (OR = 15.58). However, no relationship was found with social anxiety disorder (OR = 0.44). This led them to conclude that being a heavy smoker during adolescence is associated with an increased risk of developing an anxiety disorder in adulthood. Conversely, adolescents with anxiety disorders do not have a high risk of becoming chronic smokers during young adulthood. In line with this, studies consistently find a relationship between smoking and having more panic attacks (Moylan, Jacka, Pasco & Berk, 2012).

In sum, the psychologist has the appropriate techniques for treating these patients with a therapy aimed at both disorders.

WHY IS PSYCHOLOGICAL TREATMENT NOT USED MORE WITH SMOKERS IF IS SO EFFECTIVE?

Ten years ago in this very periodical (Becoña, 2003), we indicated a number of barriers to the implementation of psychological treatment for the treatment of smokers, as follows: 1) the situation of clinical psychology within the health system; 2) the non-publicizing of effective psychological treatments for various disorders; 3) the publicizing, sometimes biased, of the efficacy of pharmacological treatments; 4) the interest of the pharmaceutical industry to sell their products, regardless of the existence of other alternative treatments that are equally or more effective; and 5) the desire of smokers to stop smoking with minimal effort. Today these barriers are still maintained or even increased.

Within different medical specialties, sponsored by the pharmaceutical companies that sell drugs for smoking cessation, there has been continuous, persistent and self-interested work carried out, sometimes unethically, to confuse and decaffeinate the effective psychological treatments. In Spain we have been fighting for the term "psychological support" not to be used by professionals that are not psychologists, agreeing that they would use the term "healthcare counselling" (CPNT [National Committee for Smoking Prevention], 2008). We are constantly returning to the same situation, however, since in the last consensus document of the National Committee for Smoking Prevention (Camarelles et al., 2013), psychological treatment is degraded with the use of confused concepts such as psychological support, behavioural strategies, psychosocial intervention, but without mentioning the word "psychological treatment" at any time and without the participation of a psychologist in the development of the document. The introduction of ambiguous words in the document could be interpreted as a perverse intrusion in the field of psychology.

Regarding the pharmaceutical companies, there is no doubt that their interest is to sell as much as possible, advertising their products as "quasi-miraculous", disregarding other treatments that are effective, and financing studies, conferences, meetings and even people within the field of psychology to support the use of these products (Norris, Holmer, Ogden & Burda, 2011). This leads in practice to the blocking of everything related to psychological treatment and its devaluation with the use of terms such as "support", "counselling", etc., with the idea that it is carried out by an unqualified professional (a doctor or nurse) and not a psychologist.

At the same time, the health administration has stopped investing in the treatment of smokers and psychologists have been removed from assisting smokers, with the exception of the Units of Addictive Behaviours or Drug Addictions, in which there has also been a clear reverse of the psychology movement in favour of the strong biology-based movement of the present.

We must also be self-critical from within psychology itself, which has not given this priority issue the attention it deserves at public health level. We must not forget that smoking accounts for 15% of total health spending (about 15,000 million euros each year). We often have to argue with other psychologists who claim that the most effective way to stop smoking is with combined psychological and pharmacological treatment.

Another element that remains a source of conflict in Spain is the short-sightedness of some health professionals who believe they may have a new professional field in the treatment of smokers, when it is not their area of expertise, as in the case of some pulmonologists who are not experts in addictions and yet think they can treat smokers as if their addiction to tobacco were the result of a "cerebral deregulation."

All this has had a negative impact on the implementation of psychological treatment, which is why the concept of "behavioural counselling" has been imposed in the literature. This term covers the techniques of psychological treatment, which tend to be applied by non-experts, so the efficacy of the results will be lower than if carried out by a psychologist.

Finally, we must remember that in our society people prefer magic and immediate solutions. Many people want to find the solution to their problems in a pill; the same thing occurs with the subject of tobacco.

In short, we have much to do both in society in general and within our own professional field of psychology. We must not forget that as psychologists we have developed the techniques of motivational interviewing, psychological dishabituation (behavioural treatment) and relapse prevention, key aspects in the treatment of addictions.

WHAT SHOULD WE DO TO STRENGTHEN THE APPLICATION OF PSYCHOLOGICAL TREATMENT IN SMOKERS?

In the field of psychology few issues have been easy and the effectiveness of psychological interventions on issues such as depression, schizophrenia, smoking and other addictions, among others, has not always been recognized. Our patients and users are satisfied with our interventions, even though they do not fit the idea of the "magic wand" that many pharmaceutical companies sell to smokers. With the initial message that with "one" pill they will stop smoking, it is not explained that the treatment is protracted and expensive. In practice, psychological treatment is essential and even more so due to the comorbidity that is increasingly present in smokers. In this situation, it will be difficult for psychological treatment to be advertised, but even so we have to make it known that what we do is effective and efficient.

In recent years, in most developed countries, smoking is more prevalent among people with lower levels of education and higher levels of poverty (Schroeder, 2013) and people with mental disorders. The latter have a life expectancy of 8 years less than the general population, tobacco consumption being responsible for much of this

difference, so quitting is essential to them (Taylor, McNeill, Girling, Farley, Lindson-Hawley & Aveyard, 2014). It is our duty to help them.

There are a number of steps that we believe must be taken to enhance psychological treatments in smokers:

1) Spread the word that psychological treatment for smoking cessation is an effective, rational and inexpensive treatment. There is no doubt, from what we discussed, that psychological treatment for smokers is the treatment of choice, i.e., it is effective and efficient. The fact that it is not implemented in the healthcare system prevents further knowledge of it.
2) Publicise our work and our results more, as the "competition" –the pharmaceutical industry– does every day. This is why it is necessary to disseminate more what we do, the results we get and the intense work carried out with smokers.
3) Insist that psychological treatment is very powerful, solves people's problems, reduces their suffering and, in the case of tobacco, smoking cessation increases their quality of life considerably.

Despite our long history in the treatment of smokers, after more than 50 years of effectiveness, we still have a great challenge ahead.

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