

Benefit of Brief Interventions and Pharmacotherapies for Smoking Cessation in Teenagers

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Management of smoking includes approaches such as health advice against smoking, brief or intensive interventions, and pharmacotherapy. However, we do not have enough information on the use of such approaches in teenagers. School programs aimed at children and adolescents are perhaps the most widely used intervention and the one for which we have the most experience. Such programs should meet a series of well-defined criteria, but in recent years their effectiveness has been questioned. Currently, information is lacking on how effective these interventions are in young smokers who wish to stop. Several clinical guidelines recommend advice and a brief intervention in adolescents but are less specific regarding pharmacotherapy.

By integrating advice and a brief intervention into existing smoking prevention and control programs in schools, such approaches could be used to combat smoking in children and adolescents. However, the information available on the use of such interventions in children and adolescents is insufficient and more research needs to be done, particularly by health care professionals specialized in the identification of susceptible individuals and treatment of smoking.

Valor de la intervención breve y los tratamientos farmacológicos para dejar de fumar en adolescentes

El tratamiento del tabaquismo incluye conceptos como el consejo sanitario antitabáquico, la intervención breve o la intervención intensiva y el tratamiento farmacológico, pero carecemos de información suficiente acerca de su empleo en adolescentes. Los programas escolares destinados a niños y jóvenes, que son quizá los más ampliamente utilizados y los que cuentan con mayor experiencia, deben cumplir una serie de características muy bien definidas y en los últimos años se ha cuestionado su eficacia. En la actualidad no se dispone de información suficiente acerca de la eficacia de los tratamientos en niños y jóvenes fumadores que desean dejar el tabaco. Diversas guías clínicas recomiendan el consejo y la intervención mínima en adolescentes, pero se muestran menos categóricas en lo que respecta a la utilización de los tratamientos farmacológicos.

La integración del consejo y de la intervención breve en los programas de prevención y control del tabaquismo que se realizan en los centros escolares posibilitaría la utilización de este instrumento de tratamiento del tabaquismo en niños y jóvenes, aunque la información disponible acerca de este tipo de tratamientos en niños y adolescentes es insuficiente y debería ser objeto de investigación, especialmente por parte de los profesionales especializados en diagnóstico y tratamiento del tabaquismo.

Key words: Smoking. Adolescents. Prevention. Pharmacotherapy.

Palabras clave: Tabaquismo. Adolescentes. Prevención. Tratamiento farmacológico.

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Introduction

The accumulation of theoretical and practical literature on the diagnosis and management of smoking in the last 10 years has enabled the development and instigation of well-defined interventions. The current theoretical framework includes commonly accepted approaches such as health advice against smoking, a brief or intensive intervention, and pharmacotherapies. These interventions are considered in various scientific guidelines published by official institutions and scientific societies. Some of

these guidelines have been revised and fully updated intervention protocols are available.^{1,2}

Smoking and Smoking Prevention in Young People

Smoking prevention protocols designed specifically for young people are also available, although in this case the consensus is weaker. During the last decade, smoking increased among children and young people.³ It is worth mentioning that according to the Spanish National Surveys of Drug Abuse Among School Children,⁴ the mean age of experimentation decreased from 13.2 years in 2000 to 13.1 years in 2002, mainly because of a decrease among girls (13.0 years for boys and 13.3 years for girls in 2000 vs 13.0 years for boys and 13.1 years for girls in 2002). In view of this, health authorities have drawn up guidelines on smoking prevention and prompted the development of smoking prevention programs. In recent years, the benefit of such programs has been questioned, although it is hard to compare their effectiveness because of the wide range of methods used.

In a recent review, Sussman⁵ reported that the percentage of adolescent smokers who spontaneously quit smoking during a 5-month follow-up was between 0% and 11%. However, investigators who have assessed spontaneous cessation in adolescent smokers over longer periods reported lower percentages. For example, McNeill⁶ observed a spontaneous cessation rate of 3% among daily smokers during 2 years of follow-up and Stanton et al⁷ reported a rate of 5.3% in 3 years. Nevertheless, 75% of young smokers have seriously considered giving up smoking, and 64% affirm that they have made a serious effort to quit at least once in the last year and 20% report trying up to 3 times.^{8,9} Given the lack of rigorous studies, there is little evidence to support the usefulness of only providing information on the harmful effects of smoking: according to a study by Botvin et al,¹⁰ the relative risk of starting smoking in individuals who received information compared to a control group was 0.76 (95% confidence interval [CI], 0.57-1.01) and the relative risk of smoking more heavily was 0.55 (95% CI, 0.35-0.86).

A Cochrane review of the effectiveness of community-based interventions for preventing smoking in young people was inconclusive and suggested that although the usefulness of such programs can be supported by existing evidence, that evidence is still weak.¹¹ Similar conclusions were reached in a review by Thomas,¹² who assessed the effectiveness of community programs based on social influences, and more recently by the US Surgeon General,¹³ who concluded that there is no solid proof of long-term benefit.

Finally, we should mention other aspects that have been reviewed, such as the effectiveness of using the media,¹⁴ limiting access to cigarettes,¹⁵ and increasing taxes¹⁶ as approaches to prevent increased tobacco consumption among young people. Backinger et al¹⁷ concluded that educational programs to prevent adolescents from taking up smoking were effective when combined with other types of intervention such as media campaigns and no-smoking policies at school, although

such programs were ineffective on their own. In addition, Johnston et al¹⁸ found a preventive effect when combined with actions such as increasing the cost of cigarettes (they estimated that a 10% increase in the cost of cigarettes reduced the number of adolescent smokers by approximately 5%) or media campaigns. Finally, the US National Cancer Institute¹⁹ found that a variety of interventions could provide effective prevention, a view supported in a review by Lantz et al.²⁰

Although almost 50% of young smokers report withdrawal symptoms on smoking cessation²¹ and 1 to 3 out of every 5 are addicted²² even before becoming regular or daily smokers,²³ there are no reviews of the efficacy of treatment methods in children and young people.

Education programs aimed at children and young people are perhaps the most widely used and the type of intervention for which we have most experience. All are imparted in schools and involve conveying knowledge and undertaking activities designed to encourage a healthier lifestyle. For many years, different approaches have been used in the United States of America such as information models, education, social influence or public health campaigns, with moderate success and a limited duration of effect.²⁴ However, the best results were obtained for multifaceted interventions, combining activities in schools with media campaigns and interventions in the community itself.²⁵ With this approach, it was possible to reduce the number of smokers. Some authors such as Reid²⁶ have alleged that such initiatives may have a less favorable cost-benefit ratio than school programs with no community intervention. The US Centers for Disease Control have generated protocols based on the possible interventions in the form of guidelines for preventing smoking in schools²⁷ and in a meeting in Rome in 2003, guidelines were established for antismoking campaigns aimed at young people in Europe.²⁸

Signs of Withdrawal in Young Smokers

The lack of reliable information on the effectiveness of intervention protocols for smoking cessation (advice, brief or intensive intervention, and pharmacotherapy) in children and young people is understandable, though somewhat surprising. Smoking prevention programs aimed at these age groups are well defined and studied, and must meet a series of characteristics. However, there is no information on the effectiveness of treatment methods in children and young people who are already smokers and wish to quit. This might be because of the notion that those who smoke in childhood and adolescence stop and start and that nicotine addiction at these young ages is weak and does not play a major role in determining whether a person continues to smoke or quits.²⁹ However, several authors such as Rojas et al³⁰ have confirmed that withdrawal symptoms in adolescent smokers are similar to those of adults. Likewise, similarities are found for cotinine concentrations in laboratory tests³¹ and progression through stages of change until cessation.³² Furthermore, a study in adolescents found no minimum

nicotine dose or duration of use as a prerequisite for symptoms of dependence to appear.³³

Information on effectiveness of obstetricians and pediatricians giving advice against smoking in a clinical setting is limited, although such advice is included in several guidelines as a recommended activity.^{1,34} Hardly any information is available on such advice when given in a school setting, within a smoking prevention and treatment program. Still less information is available on pharmacotherapy, although some guidelines, such as those proposed by Fiore et al,¹ include use of slow-release bupropion or nicotine replacement therapy (NRT) in adolescents with nicotine dependence who wish to quit smoking.

Questions, as yet with no conclusive answers, therefore arise when assessing the value of brief or intensive intervention and pharmacotherapy in children and adolescents: What do we understand by the term brief or intensive intervention in the context of children and adolescents? What do we understand by the term pharmacotherapy? Should such interventions be used? Where should they be carried out? Do our attitudes change according to where the interventions are to be applied? Who should apply them? Does anything change according to who is responsible for the intervention? The aim of this review is to address these questions, although not to provide unequivocal answers. We will first analyze provision of advice and use of brief and intensive interventions and then deal with pharmacotherapy.

Treatment of Addiction in Young People

Advice Against Smoking

Both brief and intensive interventions, and of course, pharmacotherapy for smoking cessation, are strictly clinical concepts, applied in a clinical setting by health care professionals. These terms, or indeed any similar ones, do not exist for children and adolescents in the school setting. Should this remain so? Would it be possible for brief interventions to be performed by teaching staff? Brief interventions are defined by their own particular characteristics. That is, they are personalized (applied to a given individual), brief (they should not last more than 3 minutes), adapted to the subject's situation (stage of his or her smoking habit), and can be routinely administered.³⁵ In contrast, a school-based intervention is extended (it lasts a long time), community-based (applied in groups), and can be routinely administered. It also caters to the range of individual student needs. Could routine brief interventions possibly cater to individual needs, and, if so, could they find a place within the curriculum to support individuals with special needs? Can smokers be considered as individuals with special educational needs?

In the broadest sense, students who smoke could be considered a target group deserving of personalized attention because of their special needs. Thus, to address the individual needs of all students, advice or routine brief interventions could be integrated into the activities of school counseling services. However, in view of experience

with cross-cultural content, particularly health education content, and more specifically, smoking prevention initiatives,³⁶ this is unlikely to happen, and so it is necessary to search for valid and effective alternatives.

By integrating advice and a brief intervention into existing smoking prevention and control programs in schools, this instrument for treatment of smoking could be used in children and young people outside the limited framework of pediatric services. Obviously, these activities should be overseen by qualified professionals, regardless of whether they belong to the health or education sector. We should also ask whether clinicians would be prepared to participate in a school smoking prevention program by giving advice against smoking and by administering brief interventions to a greater extent than school counselors, for example. Of course, the willingness of a professional will not depend on the sector in which he or she works but rather how sensitive he or she is to the problem. Other factors would also have to be taken into account, such as how much time the professionals have to administer these interventions, regardless of whether they are in the health or education sector, and how much it would cost.

According to the factors mentioned above, this type of intervention could obviously be carried out in the school itself or the health center associated with the school, provided the clinicians who administer the intervention are well known to the students thanks to their frequent participation in the school program for smoking prevention. However, an intervention in the school itself would probably be more relevant to the students and therefore more effective. Well-designed studies that compare interventions by clinicians with those by teachers have so far not been performed.

Pharmacotherapy

Several clinical guidelines recommend advice and a brief intervention in adolescents but are less specific regarding pharmacotherapy. Schmid³⁷ reported that reducing the number of cigarettes smoked per day during adolescence was associated with as much as a 2-fold increase in the likelihood of achieving abstinence, and so, according to Moolchan et al,³⁸ reducing exposure to smoking in adolescents could be considered an intermediate step towards achieving nonsmoking adults.

The Guidelines for School Health Programs to Prevent Tobacco Use and Addiction, drawn up in 1999 by the US Department of Health and Human Services,²⁷ indicate that addiction in young people is similar to that in adults and that school programs should help smokers to quit immediately. Those who are unable to quit should be given the additional support necessary until they manage to do so. According to recommendation 6 of those guidelines, this type of program should support the efforts of students and all teaching staff to stop smoking, although there is no written reference to which methods should be used.

According to guidelines published by the United Kingdom Health Education Authority in 1998³⁹ and updated

in 2000, the same brief interventions offered to adults should be offered to young people, with the content adapted for that target age group. Recommendation 11 of those guidelines indicates that such an approach is supported by level C evidence.

For pharmacotherapy, the same United Kingdom Health Education Authority guidelines state that while there is no reason not to administer NRT there is still no evidence about its use in young people. Nevertheless, some formulations are excluded, essentially nasal spray and to a lesser extent nicotine patches. Later, in Section 5 of those guidelines where NRT is specifically mentioned, it is affirmed that the usefulness of this intervention is less clear in young people than in adults, but the restriction placed on use of nasal sprays and patches should not necessarily be extended to chewing gum. The guidelines therefore seem to indirectly endorse the use of chewing gum in children and young people. Furthermore, the guidelines point out that some authors consider the motivation to quit smoking in adolescents too fickle for effective nicotine treatment (level C evidence). Similar conclusions were reached by Hurt et al,⁴⁰ Hanson et al,⁴¹ and Stotts et al⁴² from studies of adolescent smokers who failed to benefit from NRT with patches. In contrast, Moolchan et al⁴³ not only found that both nicotine patches and nicotine chewing gum were well tolerated and safe, but also that patches were substantially more effective than placebo (odds ratio, 8.36; 95% CI, 0.95-73.3) when used along with cognitive-behavioral psychotherapy to help young smokers addicted to nicotine, although the CI is so broad as to reduce the statistical reliability of the effect found.

In the section dedicated to treatment of young smokers in the guidelines for clinical practice drafted in 2000 by the US Department of Health and Human Services, it is stated that smoking cessation programs aimed at young people increase the rates of spontaneous cessation, and so children and adolescents can benefit from such community and school programs.⁴⁴ Regarding the participation of clinicians, those guidelines state that clinicians should reinforce the message of such programs. The guidelines also specify that they should offer advice against smoking to adolescents. Likewise, the guidelines recommend considering pharmacotherapy in certain groups, such as adolescent smokers, and specify that treatments such as bupropion and NRT in young people should be considered carefully, but that such treatments can be used in the case of addiction and a strong will to quit smoking. Those affirmations are supported by level C evidence.

In the evidence-based recommendations for treatment of tobacco addiction published in 2001 by the World Health Organization, Section 4, dedicated to specific population groups, states that the use of pharmacological interventions shown to be effective in adults could be considered in young people with the necessary adaptation to the target population.⁴⁵

When dealing with the topic of pharmacotherapy, the Guidance on the Use of NRT and Bupropion for Smoking Cessation, published in 2002 by the British National

Institute for Clinical Excellence states that the use of NRT in smokers under 18 years old should be discussed with an expert before being prescribed, and that bupropion is not recommended for under 18s given that its safety and efficacy have not been assessed in that age group.⁴⁶

Finally, the Guidelines for Smoking Cessation, drawn up by the New Zealand National Advisory Committee on Health and Disability, indicate that treatment programs in adolescents have yet to be proved effective, and so prevention is the key.⁴⁷ However, the guidelines also indicate that treatment strategies such as counseling and behavioral interventions that have been shown to be effective in adults should also be considered in adolescents, with appropriate adaptation to the characteristics of the target population.

In Spain, none of the guidelines published to date has covered treatment of children and adolescents who smoke. There are many groups that work with adolescents and that topic is often covered in *Archivos de Bronconeumología*.⁴⁸ Also, there are various working groups within the Spanish Society for Pulmonology and Thoracic Surgery (SEPAR) with a long tradition spanning many years that have performed studies and interventions in school settings and have published many articles on the topic.⁴⁹⁻⁵⁶ Nevertheless, SEPAR itself has so far not considered drafting guidelines to establish a series of evidence-based recommendations for this type of intervention. Given the characteristics of this special population, such an intervention would be considered a specialized element of the diagnosis and management of smoking.

Conclusions

In view of the recommendations on dealing with smoking in children and young people covered in this review, some ready conclusions can be drawn. There is insufficient evidence to support or rule out use of the different therapeutic strategies available for adults. Greater consensus exists for use of advice and brief interventions than for pharmacotherapy, perhaps because behavioral interventions are free of risk whereas pharmacotherapies are not, or in other words, advice and brief interventions have a more favorable risk-benefit ratio. Nevertheless, the use of combined treatment (psychological and pharmacological) should be investigated by specialized professionals.

We can conclude that, despite the lack of conclusive evidence, school programs for preventing smoking are the only valid option for preventing cigarette consumption in children and adolescents. When treating those who already smoke, there is unanimity in recommending advice and adapted brief or intensive interventions. In contrast, there is weaker consensus, reticence even, regarding the use of pharmacological treatment, which should be reserved for cases of moderate or high nicotine addiction and a firm will to quit smoking.

Finally, we should highlight that advice and brief interventions should be included in school smoking prevention programs. The presence of such interventions should be a minimum requirement for these programs and a benchmark by which to judge their quality.

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