

Characteristics and Perceptions of Nicotine Patch Users

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Background. Although transdermal nicotine patches are frequently prescribed to aid in smoking cessation, little information exists about their use in general medical practice. In clinical studies, nicotine patches have been found to be effective when used in conjunction with nonpharmacologic interventions, such as physician counseling and follow-up visits. This study examines the characteristics and perceptions of patients regarding treatment with nicotine patches.

Methods. Patients filling or refilling prescriptions for a nicotine patch at 17 pharmacies were asked to complete a questionnaire.

Results. Seventy-six questionnaires were returned. Thirty-six percent of the respondents first learned about the nicotine patch from the media, 32% from friends, family, or co-workers, and 25% from their physicians. Most respondents (87%) had requested the patch, whereas only 9% had been asked by their prescriber to try the patch. Most of the surveyed smokers were highly motivated to quit, and 86% smoked at least one pack per day. Eighty percent indicated they had re-

ceived a clear message from their physicians to quit, 56% said their physician had counseled them about relapse, and 55% had follow-up arranged. A quit date had been set by 37%, and only 24% reported the use of self-help materials. Approximately one half of smokers (54%) who had started using the patch indicated that they continued to smoke.

Conclusions. Most respondents were good candidates for the nicotine patch based on how much they smoked and their motivation to quit. Direct-to-consumer advertising may have influenced many smokers to request treatment with the patch. Physicians should recognize that some persons may use the patch as a "quick fix," as very few respondents used the number of nonpharmacologic interventions that have proved useful in nicotine patch clinical trials. Physicians should follow the progress of patch users to ensure that they completely stop smoking during treatment.

Key words. Nicotine; tobacco use disorder; cutaneous administration; substance dependence; smoking cessation. (*J Fam Pract* 1994; 38:459-464)

Four transdermal nicotine delivery systems (patches) have recently been approved in the United States for use as aids in smoking cessation therapy. Since the nicotine patches have been released, there has been an intensive direct-to-consumer advertising campaign by the manufacturers through television and print media.¹ The resulting demand for these products shortly after release was tremendous, in some instances outpacing manufacturers'

production capability.² Two of the nicotine patches were among the top 100 prescription products dispensed in 1992.³

Nicotine patches are approved for use as part of a comprehensive behavioral smoking cessation program.⁴⁻⁷ They are designed to reduce the severity of withdrawal symptoms that occur when nicotine-dependent smokers stop smoking.⁸ Smokers who are nicotine dependent and are motivated to quit are considered good candidates for nicotine patch therapy.^{8,9} Placebo-controlled trials have demonstrated that these products are effective at increasing long-term (6 months or longer) abstinence rates from cigarette smoking.¹⁰⁻¹³ These studies used a variety of nonpharmacologic interventions. Two studies used a combination of brief advice and

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counseling, educational reading materials, a quit date, and follow-up visits, all of which are strategies that can easily be applied in general practice.^{10,11} Unfortunately, when nicotine replacement products are used with little or no additional nonpharmacologic therapy, discouraging results have been reported.^{5,14,15} Analyses of clinical trials suggest that the more intensive the nonpharmacologic components, the higher the abstinence rates after nicotine replacement or placebo use.^{8,9,16}

There is little information available about how nicotine-replacement products are being used in general medical practice. An analysis of nicotine-gum prescribing in a health maintenance organization (HMO) found that few patients used the gum as recommended, probably accounting for the low quit rate.¹⁷ Because of the widespread use and cost of nicotine patches and the important role primary care physicians play in smoking cessation, it is important for physicians to understand how patients use nicotine patches. The purpose of this study was to examine the characteristics and perceptions of patients regarding smoking cessation treatment with nicotine patches.

Methods

During a 3-month period between July and October 1992, pharmacists in 18 pharmacies agreed to ask patients with a new or refill prescription for a nicotine patch (Habitrol, Nicoderm, Prostep, Nicotrol) to participate in a survey research project if they had not already done so. The pharmacies included 10 independent and 8 chain pharmacies in the Portland, Oregon, metropolitan area. Each pharmacy was given numbered packets, which consisted of a 33-item survey, a brief consent form, and a postage-paid envelope.

Each patient willing to participate completed and returned to the pharmacist a consent form that explained the study and asked for the respondent's first name and telephone number. If a patient refused to participate, the pharmacist was asked to record the refusal. Willing participants were given a questionnaire that contained questions about demographics, smoking habit, level of nicotine addiction (Fagerstrom questionnaire¹⁸), previous attempts to quit smoking, level of motivation and confidence, reasons for wanting to quit, how they learned about the patch, whether they requested the patch, prescriber's advice and follow-up, and whether other nonpharmacologic therapy for smoking cessation was being used. Participants were asked to complete the questionnaire before leaving the pharmacy, or, if this was not convenient, to complete the questionnaire at home and return it by mail. If the questionnaire was not received in

3 weeks, the participant was telephoned and asked to complete and return it. Every 3 weeks during the study, the investigators contacted the pharmacists to discuss progress with the project and to provide encouragement. Neither the pharmacists nor the patients received any compensation for participation.

Results

One hundred fifteen questionnaires were distributed to patients at 17 pharmacies. Sixty-two questionnaires were returned initially, and after 49 of the remaining 53 patients had been contacted by telephone (four could not be reached), 14 additional questionnaires were received, for a total return of 76 (66%). The number of questionnaires distributed by each pharmacy ranged from 1 to 29, with a median of 5.5. Four patients refused to participate in the study when asked by a pharmacist.

The age range of the respondents was 22 to 79 years, with a median age of 43 years. Fifty-eight percent were women, and 91% had achieved the educational level of high school graduate or higher. The most common method of payment for the nicotine patch was self-pay by the patient (66%), followed by partial payment by insurance or an employer (22%). Only 12% reported that their prescription costs were fully covered by insurance or welfare.

When asked, "How did you first learn about the nicotine patch?" 36% indicated the media (television, magazines, or newspapers); 32%, friends, family, or co-workers; 25%, their physician; and 5%, other health care workers. When asked to choose which best applied to them, 87% reported asking their physician for the nicotine patch, whereas only 9% were asked to try it by their prescriber (4% chose "other"). Most of the patch prescriptions were written by family physicians (57%) and internists (28%). At the time their questionnaires were completed, 29% of the respondents had not started using the patch, 20% had used it for 1 week or less, 25% had used it for a period of between 1 week and 1 month, 20% were in their 2nd or 3rd month of use, and 5% had been using the patch for more than 3 months.

Seventy-two of the respondents (95%) indicated that they were regular cigarette smokers before receiving the nicotine patch, 4% used chewing tobacco or snuff, and 1% smoked pipes or cigars. One subject commented that the main reason for using the patch was to quit chewing nicotine gum. The remainder of the results reported in this section were obtained from the 72 respondents who were regular users of cigarettes before receiving the patch.

The smoking characteristics of the cigarette users are

Table 1. Smoking Characteristics of the 72 Cigarette Users

Smoking Characteristic	Mean (Range)
Number of cigarettes smoked per day before the patch	27.5 (0 to 60)*
Age when started smoking, years	16.7 (9 to 34)
Duration of smoking, years	27.4 (5 to 60)
Number of prior quit attempts	3.4 (0 to 20)
Fagerstrom score†	6.4 (3 to 10)
Desire to quit (5-point scale in which 1 = "don't want to quit" and 5 = "really want to quit")	4.5 (2 to 5)

*The respondent reporting zero cigarettes may have already quit before receiving the patch.

†A Fagerstrom score was not calculated for three respondents because of incomplete information.

shown in Table 1. Forty-six percent had a Fagerstrom score of 7 or greater, which is indicative of a high level of nicotine dependence,¹⁸ and 86% reported smoking 20 or more cigarettes per day. Most (76%) smoked their first cigarette of the day within 30 minutes of awakening, which is considered a good indicator of physical nicotine dependence.¹⁹ All but 10 of the smokers (86%) had tried to quit previously, and about one half of them (47%) had tried using the nicotine gum in their previous attempts to quit. Interestingly, even though nicotine patches had been available for less than a year, 14% of the smokers had used them before their current attempt at quitting. Of those who had tried to quit before, 71% reported that their longest period of refraining from smoking was less than 6 months.

A majority (90%) of respondents reported a desire to quit smoking, whereas 9% were unsure whether they wanted to quit. Fifty percent expressed confidence in their ability to quit smoking. All smokers reported that their main reason for using the nicotine patch was "to quit smoking completely." No one reported use of the patch to "cut down on smoking" or to "keep me from smoking when it is inconvenient or it is not allowed." The reasons smokers gave for wanting to quit are shown in Table 2. Every smoker provided at least one reason for wanting to quit.

Eighty percent responded that their physician had given them "a clear message that she/he believes you should stop smoking," and 56% responded that their physician had discussed things that could cause them to start smoking again (eg, alcohol use, coffee use, stressful situations). Approximately one half (55%) were scheduled for follow-up with their physicians to talk about how they were doing with the nicotine patch. All of the seven respondents who had been asked to try the patch

Table 2. Reasons Smokers Gave for Wanting to Quit Smoking

Reason	Percent of Smokers
Worried about future health	82
My family wants me to quit	61
Worried about effects of smoke on those around me	51
Physician's advice	41
My friends want me to quit	34
Current health problems caused by smoking	25
Smoking not permitted at work/school	16
Other	9

NOTE: Percentages add up to more than 100 because respondents were permitted to list more than one response.

by their prescriber had follow-up arranged, as compared with only 49% (30 of 61) of those who had asked their physician for the patch.

Table 3 shows methods smokers used in addition to the patch to assist with quitting. Approximately one third of respondents (37%) used a quit date, and only 24% had read self-help materials. Very few (7%) indicated that they were using their "doctor's counseling and support." Smokers who first learned about the patch from a health care worker reported a higher number of nonpharmacologic interventions, such as a clear message to quit, advice about relapse, follow-up, a quit date, self-help materials, and counseling and support, as compared with interventions reported by those who first

Table 3. Methods Smokers Were Using in Addition to the Nicotine Patch to Help Them Stop Smoking

Smoking Cessation Method	Percent of Smokers
Using substitutes (eg, candy, toothpick)	47
Setting a quit date	37
Reading self-help materials	24
Attending group counseling sessions	8
Physician's counseling and support	7
Hypnosis	6
Acupuncture	4
Calling stop smoking advice line	4
Other	10

NOTE: Percentages add up to more than 100 because respondents were permitted to list more than one response.

learned about the patch from other sources (intervention means, 3.1 and 2.4, respectively).

When asked about the total length of time they expected to be using the patch, responses ranged from 2 to 52 weeks, with a median of 8 weeks. For 51% of the respondents, the expected duration of use was within the range given in the manufacturer's package insert. Only 24% gave an expected duration that was being actively promoted by the manufacturer of the patch they were using (10 weeks for Nicoderm, 12 for Habitrol, and 6 for Prostep).

Of the 50 smokers who had started using the patch, 23 (46%) indicated they were no longer smoking. There was no difference in the frequency of using a quit date among the nonsmokers as compared with those who continued to smoke (30% and 32%, respectively). Of 18 smokers using the patch for longer than 1 month, 10 (56%) reported that they continued to smoke.

Discussion

In general, the persons surveyed in this study appeared to be good candidates for nicotine replacement therapy. Although only about one half of the smokers were rated as highly nicotine dependent by the Fagerstrom questionnaire,¹⁸ most would have met one of the following criteria for nicotine replacement recommended by Fiore et al⁸: smokes 20 or more cigarettes per day; smokes the first cigarette within 30 minutes of awakening; experienced a strong craving for cigarettes during the first week following previous attempts to quit. The respondents were highly motivated, as evidenced by their strong desire to quit and their ability to provide meaningful reasons for wanting to quit. Further evidence of high motivation is that most were paying some or all of the cost of the patches. Motivation is considered an important predictor of successful smoking cessation.²⁰

All respondents in our survey reported that their main reason for using the nicotine patch was to quit smoking completely. This is in striking contrast to a recent survey of nicotine gum users, which found that over one half used the gum primarily to reduce the number of cigarettes smoked rather than to quit completely.¹⁷ This might be explained in part by the difference in nicotine delivery between the gum and the patch, since the gum might be better suited to providing a rapid delivery of nicotine when smoking is inconvenient or prohibited.

Our data suggest that prescribers are making progress with the use of nonpharmacologic components of smoking cessation therapy, but there is still considerable room for improvement. Almost all smokers reported

that they were receiving some level of nonpharmacologic therapy. However, few appeared to be using the level of nonpharmacologic interventions that has proved useful in clinical trials. It is encouraging that 80% of the smokers had received a clear message to quit smoking. This is one of the most cost-effective interventions available,²¹ and it was cited by over 40% as a reason for wanting to quit. More than one half had been counseled on factors associated with relapse and indicated that follow-up was arranged. Relapse is a major problem with smoking cessation therapy,⁸ and the amount and duration of follow-up is directly related to successful smoking cessation.²² The use of a quit date and self-help materials was much less common. The low rate of use of self-help materials is surprising, considering that the patient starter kits provided by all nicotine patch manufacturers contain a variety of patient educational support materials, and many organizations have resource materials to assist physicians and patients with smoking cessation.⁸ Self-help materials may have been well suited for the motivated and educated respondents in this study.

Many respondents reported that they continued to smoke after starting the patch. Continuing to smoke while on nicotine replacement is counterproductive to smoking cessation.^{23,24} Concern has been raised about a possible increased risk of cardiovascular events in patients who smoke and use the patch concurrently.²⁵ It is important that prescribers follow their patients who are using nicotine-patch therapy to ensure that they do not continue to smoke. In patients who are using the patch but still have difficulty giving up smoking, increasing the dose of nicotine replacement at 1 week has been shown to increase the rate of abstinence.¹¹ If patients have not completely stopped smoking within 30 days of starting the nicotine patch, use of the patch should be discontinued.⁴⁻⁷

The influence of direct-to-consumer advertising was apparent. Most patients first learned about the nicotine patch from the media or from friends, family, or coworkers, which may partly explain why 87% of our respondents asked their prescriber for the patch. It appears that many appropriate candidates for nicotine patch therapy decided to seek treatment, which is what a Food and Drug Administration advisory committee hoped would occur when it recommended allowing direct-to-consumer advertising for these products.²⁵ Unfortunately, some prescribers may not have taken full advantage of this opportunity to help their patients quit smoking. Concern has been raised about nicotine-patch advertising, which may cause patients and possibly prescribers to view this treatment as a "quick fix."²⁵

Our data suggest that smokers who learn about the patch from a health care worker use a higher level of

nonpharmacologic interventions than those who learn about the patch from other sources, such as the media or friends, family, and co-workers. Prescribers who are unable or unwilling to provide the necessary components of smoking cessation therapy should be encouraged to refer patients to providers or programs that do. Requiring information in product advertising that stresses that the patch by itself is ineffective and emphasizes the need for concurrent nonpharmacologic treatment may promote more effective use of nicotine patches and possibly greater patient acceptance of the nonpharmacologic aspects of treatment. As new products for smoking cessation, such as the investigational nicotine inhaler, are released in the future, direct-to-consumer advertising is certain to be an issue.²⁶

There are several limitations to interpreting our data. First, there may be some selection bias present. Because we had a 34% nonresponse rate, responders may differ from nonresponders in motivation and other characteristics as well. In addition, it is possible that the pharmacists may have approached only selected individuals rather than surveying all patch users since there was no compensation for participation. We were in regular contact with each of the pharmacists, however, and do not believe this was the case. Almost all the pharmacists indicated that the volume of nicotine patch prescriptions had dropped off dramatically during the study. Our survey methodology may also have overrepresented patients who had been using the patch for a longer period, even though 75% of our respondents had used the patch for 1 month or less.

Second, there may be inaccuracies in the patient self-reported data, especially in the responses to questions pertaining to patient perceptions of nonpharmacologic therapy. For example, only 7% of respondents indicated they were using their "doctor's counseling and support." This does not seem consistent with the other prescriber activities reported and may represent poor patient understanding of this item. To minimize inaccuracies associated with patient recall, only patients for whom the patch was being currently prescribed were surveyed. Future studies using chart reviews and physician interviews along with patient survey data would more clearly describe how the nicotine patches are being used for smoking cessation. Finally, the small sample size limits generalizability.

Conclusions

The survey respondents in this study seemed to be good candidates for nicotine-patch therapy. Direct-to-consumer advertising may have influenced many of the

smokers to request the patch from their prescribers. Although most respondents received some aspects of nonpharmacologic therapy, there is considerable room for improvement in the use of these treatment modalities. It is important that patients and prescribers not view the nicotine patches as a "quick fix." Providing a clear message to quit, setting a quit date, providing patient education and relapse prevention strategies, and arranging follow-up may improve the likelihood that a smoker will benefit from nicotine patch use.

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