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The fallacy of “light” cigarettes:

Low tar is not low risk

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Just 40 years ago, the 1964 Surgeon General’s Report on Smoking and Health alerted the American public to the health risks of cigarette smoking. It launched a remarkably successful public health campaign that dramatically cut adult smoking prevalence, from 42.4% in 1965 to 22.8% in 2001, and recast the cultural acceptability of tobacco use.¹ Less well known is the fact that the cigarette itself has undergone major change in the past 40 years. Today’s 46.2 million American smokers buy a product very different from the cigarette sold in 1964.

In the late 1960s, tobacco manufacturers introduced “light” or “low tar” brands that yielded 7–14 mg tar per cigarette, compared to the 22 mg tar of the average cigarette sold at that time.² Later, “ultralight” brands appeared, with tar yields below 7 mg per cigarette. Today, almost 90% of cigarettes sold in the United States are in these categories.³ Better taste is not the reason why smokers buy light cigarettes. They buy them because they have the misconception that smoking lower tar products reduces their risk of lung cancer and other tobacco-related diseases.⁴ Advertisements for these brands carry the implicit and tempting message that switching to a light brand is an alternative to quitting smoking. This issue of *BMJ USA* contains an important study (p 94) that demonstrates, more definitively than previous work, the fallacy of this belief.

Studies have already shown that medium tar, filtered cigarettes are associated with less lung cancer mortality than high tar, non-filtered cigarettes, but this comparison is irrelevant today in the US, where the average tar content of cigarettes is below 15 mg.⁵ Harris and colleagues are the first to examine prospectively the relationship between risk of lung cancer death among smokers who reported smoking very low tar (≤ 7 mg) and low tar (8–14 mg) cigarettes relative to smokers of medium tar (15–21 mg) cigarettes. They found no difference among these categories in lung cancer death rates over a 6-year follow-up. Lung cancer mortality was much lower in all these categories than in smokers of high tar (> 22 mg tar) non-filtered cigarettes, confirming the results of previous studies. Equally important, lung cancer mortality was markedly reduced among former smokers compared with current smokers (even those smoking light and ultralight brands), demonstrating that switching to these brands is not a rational alternative to quitting smoking.

These findings are convincing. They are derived from a very large, well-conducted longitudinal study. A potential study limitation is the fact that smokers’ cigarette brand was recorded only once and later brand changes were not captured. To address this, the authors

restricted follow-up to 6 years, thereby reducing the possibility of misclassification of smokers who switched tar categories after entering the study. Because low tar cigarette brands became common only in the 1970s, it was impossible to compare mortality rates between participants who *exclusively* smoked very low or low tar cigarettes and those who smoked higher tar cigarettes. Instead, the study compares individuals who smoked medium tar cigarettes with those who had switched from medium to lower tar brands. It is possible that individuals who exclusively smoke lower tar brands might have lower lung cancer mortality, but determining this will require a different study and at least another decade. In the meantime, the findings of this study apply to most of today's smokers who have switched from higher tar to lower tar brands. Even the best observational data have inherent limitations, but in this case a randomized controlled trial testing these questions is not ethically feasible. The body of evidence is more than sufficient to support clinical and policy recommendations.

These findings may seem counterintuitive. Why do low tar cigarettes fail to reduce lung cancer risk if the health risks of tobacco smoking are dose related? The explanation is that low tar cigarettes do not reduce a smoker's exposure to tobacco carcinogens. When smokers switch to lower tar cigarettes, they alter their smoking pattern to maintain a desired nicotine intake, a phenomenon known as compensation.⁶ They may smoke more cigarettes per day, inhale more deeply, decrease the time between puffs, or cover the airholes in the low tar cigarette that otherwise dilute the smoke delivered to the smoker. Because of compensation, smokers of light and ultralight cigarettes can actually be exposed to equivalent or even higher doses of tar and other tobacco smoke carcinogens than smokers of medium tar cigarettes.⁷ These findings underline the inaccuracy of the current method used by the Federal Trade Commission to classify tar yields of cigarette brands and highlight the urgent need for change.⁸ They also support calls for tighter controls on the marketing of light and ultralight cigarettes.⁹

What is the message of this study for physicians in practice? Forty years ago, doctors played a major role in communicating the news from the Surgeon General to the public. Today, that information is old news. Nearly all smokers already know that smoking is hazardous, although they may not believe that their *own* smoking is dangerous or appreciate the full spectrum of tobacco-related risk.¹⁰ This paper gives doctors the opportunity to deliver fresh information about smoking that actually is news to most smokers: that light and ultralight cigarettes do not translate into less health risk and are no substitute for quitting smoking. The message should help physicians counsel the most challenging smokers: those who profess no interest in quitting. These smokers often rationalize continued smoking by choosing light cigarette brands. Physicians can address the misconception that low tar means low risk. This might spur recalcitrant smokers to reconsider their continued smoking and increase their interest in using the broad range of cessation aids that physicians can now offer.¹¹

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