
COMMENTARY

How Far Should we Promote Smoking Reduction in Order to Promote Smoking Cessation?

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Abstract

Smoking is the greatest preventable cause of death worldwide. In recent years considerable efforts have been devoted to reducing exposure to tobacco and related products. The ultimate aim has been to persuade people to stop smoking. It is generally recognized that smoking cessation is effective in reducing the burden of disease associated with smoking. However, smoking is an addiction to nicotine and relatively few people can quit successfully without professional help. Many do not want even to try. There is evidence that a reduction in cigarette consumption could result in improved health and provide an intermediate step before complete cessation, especially for those smokers who are not ready or willing to quit. Smoking reduction intervention with counselling and/or nicotine replacement therapy (NRT) have been shown by randomised controlled trials to be effective in reducing cigarette consumption for the general smoking population. We here present the argument that there may be a case for promoting smoking reduction both as a desirable goal in itself and as a first step towards smoking cessation.

Key Words: smoking reduction - cessation - quitting

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Introduction

Smoking is the greatest preventable cause of death in most countries of the world, and tobacco control initiatives have always focused on the reduction of morbidity and mortality due to tobacco use. Such initiatives have tended to focus on smoking prevention programs, reducing exposure to environmental tobacco smoke, and promoting smoking cessation (US Department of Health and Human Services, 1991). Although smoking cessation is the best way to prevent the health risks associated with tobacco use, only a small proportion of smokers can successfully quit (Giovino et al., 1993). The major reason for failure to quit is smokers' dependence on nicotine (World Health Organisation, 1996). Furthermore, about 60%-70% of smokers claim to have no intention of giving up smoking in the near future (Abdullah and Yam, in press; Kraft et al., 1998) and are unlikely to participate in any smoking cessation program. A few studies have shown that quitting is easier for light smokers than for heavy smokers (Paoletti et al., 1996; Zellweger, 2001), probably because they are less addicted to nicotine. Heavy smokers are also prone to relapse after quitting, and are therefore at the highest risk of developing diseases related to tobacco consumption despite their willingness to quit. However, if their exposure risk to tobacco could be reduced and sustained, the known health risks associated with tobacco

use might also be reduced (Ruiz et al., 1998). There is also evidence that reduction provides an alternative route to complete cessation, especially for those smokers who are not ready or willing to quit (Ruiz et al., 1998). Thus reduction in smoking can be a halfway step to complete cessation.

Defining Reduction in Smoking

Reduction in smoking refers to a decrease in cigarette consumption. Most studies define the success of reduction in smoking as a self-reported reduction in the daily number of cigarettes smoked by 50% or more between the baseline and follow-up (Bolliger, 2000; Bolliger et al., 2000; Bolliger et al., 2002). Some studies have verified reduction by a decrease in carbon monoxide concentration in the exhaled air or a reduced cotinine level in the serum, saliva or urine (Bolliger et al., 2000; Bolliger et al., 2002).

Does Reduced Smoking have any Health Benefits?

Several studies have investigated the health improvements associated with smoking reduction (Bolliger, 2000; Manninen et al., 1988; Pulera et al., 1997; Li et al., 1993; US Department of Health, Education and Welfare, 1990; US Department of Health and Human Services, 1979;

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Licciardone et al., 1990; Garfinkel and Stellman, 1988; Szarewski et al., 1996). These studies have shown that a reduction in smoking can result in improved health. Bolliger CT demonstrated a significant health benefit on the cardiovascular risk factors for a reduction of smoking by at least 50% (Bolliger, 2000). Bolliger et al. further reported that a reduction in smoking had a positive influence on certain cardiovascular risk markers and quality of life (Bolliger et al., 2002). Other studies reported that the improved cardiovascular risk markers that could be achieved by smoking reduction had a positive impact on mortality (Manninen et al., 1988) and reduction in cancer risks (Pulera et al., 1997). In another study giving birth to a higher birthweight baby was associated with a reduction in smoking among pregnant women (Li et al., 1993). A dose-response relationship between cigarette consumption and tobacco-related diseases has also been reported (Bolliger, 2000; US Department of Health, Education and Welfare, 1990; US Department of Health and Human Services, 1979; Licciardone et al., 1990). For example, it has been shown that individuals who smoke between twenty and forty cigarettes a day are twice as likely to develop lung cancer than those who smoke twenty or fewer cigarettes (Garfinkel and Stellman, 1988). Another study among grade 1 cervical intra-epithelial neoplasia patient reported a significant correlation between the extent of smoking reduction and the change in lesion size (Szarewski et al., 1996).

However, other studies have suggested that a reduction in smoking does not necessarily lead to a decrease in health risks. A pooled cohort study conducted between 1967 and 1988 in Denmark suggested that smoking reduction did not correlate to a decrease in death from tobacco-related diseases (Godtfredsen et al., 2002). Other studies have discussed the difficulties in measuring health risk reduction associated with reduction in smoking (Giovino et al., 1993; Hurt et al., 2000). A larger sample size and longer duration of study might be necessary to demonstrate risk reduction with reduced smoking (Giovino et al., 1993).

Does Reduced Smoking Undermine or Promote Smoking Cessation?

Smoking reduction is a therapeutical option for smokers who are unable or unwilling to quit (Bolliger et al., 2000). Smoking reduction may also encourage smokers to quit smoking altogether, which should be the ultimate goal of smoking reduction intervention (Etter et al., 2002). Glasgow et al. (Glasgow et al., 1985) and Hughes et al. (Hughes et al., 1999) argued that smokers randomised to reduction programs might be more likely to quit in the long term than smokers randomised to smoking cessation intervention programs. A study in Switzerland of 923 smokers smoking more than 20 cigarettes per day reported that a decrease of cigarette consumption by half between baseline and 3 months was associated with an eightfold increase in the smoking cessation rate at the end of study (Etter et al., 2002). In another Swiss smoking reduction study (n=400), 10% of

the smokers who were unwilling or unable to stop smoking at the baseline were abstinent at 2 years follow-up (Bolliger et al., 2000). Several other studies have also reported that smoking reduction is an effective step towards cessation (Bolliger et al., 2000; Glasgow et al., 1985; Hughes et al., 1999). There are therefore good grounds for believing that smoking reduction intervention does not undermine the ultimate goal of smoking cessation, because reduction can often be a prelude to quitting. However, at least two studies were unclear whether reduction undermines or increases cessation (Etter et al., 2002; Paoletti et al., 1996).

Strategies for Smoking Reduction

Several studies have been conducted on the effects of smoking reduction intervention among smokers in different settings. These studies (US Department of Health and Human Services, 1991; Giovino et al., 1993; World Health Organisation, 1996; Ruiz et al., 1998; Bolliger, 2000; Bolliger et al., 2000; Manninen et al., 1988) have demonstrated the positive effects of interventions on reducing smoking for a defined period of time. Most studies have suggested the use of nicotine replacement therapy (NRT) with behavioural therapy to support reduction in smoking (US Department of Health and Human Services, 1991; Giovino et al., 1993; World Health Organisation, 1996; Ruiz et al., 1998; Bolliger, 2000; Bolliger et al., 2000; Manninen et al., 1988; Fagerstrom et al., 1997). NRT use increased the reduction rate by almost threefold in three randomized controlled trials (Bolliger et al., 2000; Wennike et al., 2003; Etter et al., 2002).

A Swiss study showed that the use of NRT gums and inhalers led to a larger reduction in daily cigarette consumption than the use of patches (Etter et al., 2002). Bolliger et al. reported a significant reduction in smoking among smokers randomised to a nicotine inhaler group (9.5%) compared with members of a control group (3%) at two year follow up (Bolliger, 2000). Other studies have suggested that a larger reduction in smoking could be achieved if the smokers chose NRT products (Bolliger, 2000; Bolliger et al., 2000; Fagerstrom et al., 1997). Studies of smoking reduction have also demonstrated that NRT is safe, and has no adverse side effects (Fagerstrom and Hughes, 2002; Benowitz et al., 1998; Wennike et al., 2003).

Who will Benefit from Reduction in Smoking?

It has been suggested that smoking reduction initiatives should be aimed at smokers who are unwilling to quit, smokers who have failed to quit in cessation programs, and smokers who are highly nicotine dependent (Zellweger, 2001; Ruiz et al., 1998; Bolliger et al., 2000). Several studies have been conducted on the effect of reduction in smoking on smokers unwilling to stop smoking (Glasgow et al., 1985; Fagerstrom et al., 1997; Glasgow et al., 1983; Rennard et al., 1994), smokers who did not want to quit immediately but wanted to reduce smoking (Zellweger, 2001; Bolliger et

al., 2000; Bolliger et al., 2002), and smokers who had just relapsed after a quit attempt (Bjornson et al., 1999; Fornai et al., 1996; Becona and Garcia, 1993). These studies reported an improvement in smoking cessation among the reducers. Those who were suffering from tobacco-related diseases and were unable to quit are another important group, which could also be targeted for smoking reduction (Ruiz et al., 1998).

Why Smoking Reduction to be Promoted as a Public Health Intervention?

Because cigarettes kill about half of all smokers (Peto et al., 1994), it is the responsibility of health professionals to inform smokers about the options available to reduce risk. As reduced smoking minimises the net damage to health associated with smoking, it would be unethical not to help smokers who wish to reduce their smoking. Moreover, many smokers want to cut down their cigarette consumption rather than give up altogether. In a European study, more than 39% of respondents stated that they were trying to reduce smoking, while only 14% said they wanted to quit within the next 6 months (Kraft et al., 1998).

All this suggests that smoking reduction is rational, desirable and feasible, reduces health risks associated with smoking, and does not impede subsequent attempts at cessation. Initiatives to encourage smokers to reduce their cigarette intake may also lead them eventually to successful cessation. A significant reduction in cigarette smoking is likely to reduce harm in smokers, because many studies have shown that there are dose-dependent risk relationships between smoking and developing health problems (i.e. higher cigarette smoking represents a greater health risk). Although most of the studies on smoking reduction were carried out in Western Europe or America, there is no reason to believe that the outcome would be much different among Chinese or other Asian smokers. Telephone-based counseling (Abdullah et al., 2004a) and clinic-based smoking cessation service (Abdullah et al., 2004b) have been shown to work in Chinese settings, just as they have in European or American settings (Public Health Service, 2000). It is therefore suggested that smoking reduction should be promoted as a step towards promoting smoking cessation. However, rigorous evaluation and continuous monitoring of such services would be necessary to assess their effectiveness.

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