



## Smoking Cessation Interventions; Behavioural interventions

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### Abstract

Tobacco dependence is a chronic condition that usually requires repeated intervention.

Effective interventions exist that can produce long-term cessation at up to double the rate achieved by smokers without treatment. Because of the potential health benefits and availability of effective interventions every smoker should be offered effective intervention. The identification of smoking status and the provision of brief advice independently increase cessation rate compared to no intervention and should be routine as part of each contact with health services. Interventions involving individual, group or proactive telephone counseling are more effective than no intervention. There is a strong dose response between the intensity (number and length of sessions) of tobacco cessation counseling and its effectiveness.

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### Magnitude of the problem

International studies indicate that one in two people who smoke long term die early due to smoking, with half of these deaths occurring in middle age<sup>(1)</sup>. As well as causing premature death, use of tobacco greatly diminishes quality of life<sup>(2)</sup>, and this affects family, friends and colleagues, as well as smokers themselves.

Tobacco smoking also places a huge financial drain on the community. Saudi Arabia currently imports more than 20,000 million cigarettes annually, costing \$351.8 million (ranked 10th in the world in terms of expenditure on cigarettes)<sup>(3)</sup>. These costs do not include health care expenditure, lost productivity, costs of tobacco addiction prevention and treatment as well as a number of other indirect costs, which bound to be high.

### **Health effects of smoking**

Tobacco smoking is a major risk factor for a range of diseases and disabling conditions. These include cardiovascular disease and stroke and many cancers, including cancers of the lung, throat, cervix, bladder and tongue<sup>(4)</sup>. Smoking adversely affects male impotence, and women who smoke can suffer reduced fertility and/or menstrual problems. Smoking during pregnancy increases risks of miscarriage, premature labour, stillbirth, complications during labour and low-birth weight babies<sup>(4)</sup>.

Tobacco smoke also affects the health of non-smokers. Passive smoking (environmental tobacco smoke) can cause cardiovascular disease, lung cancer, respiratory tract irritation, and an increased risk of bronchitis, pneumonia, asthma onset in children and increased frequency and severity of asthma symptoms and sudden infant death syndrome<sup>(4,5)</sup>.

### **Smoking rates and trends in smoking in Saudi Arabia**

Tobacco use is surprisingly prevalent, given the public's awareness of those dangers. Smokers represent 21 per cent of the male population over 15 years of age.

The highest rate of smoking is amongst 21 to 40 year olds (67%). The majority of smokers (59 per cent) smoke more than 20 cigarettes per day, and 25 per cent smoke 10 to 19 cigarettes per day. Twenty one per cent of smokers had smoked for 20 years or more<sup>(6)</sup>.

The proportion of regular smokers declined in most western countries with the introduction of guidelines for health clinicians and patient-centered activities<sup>(7)</sup>.

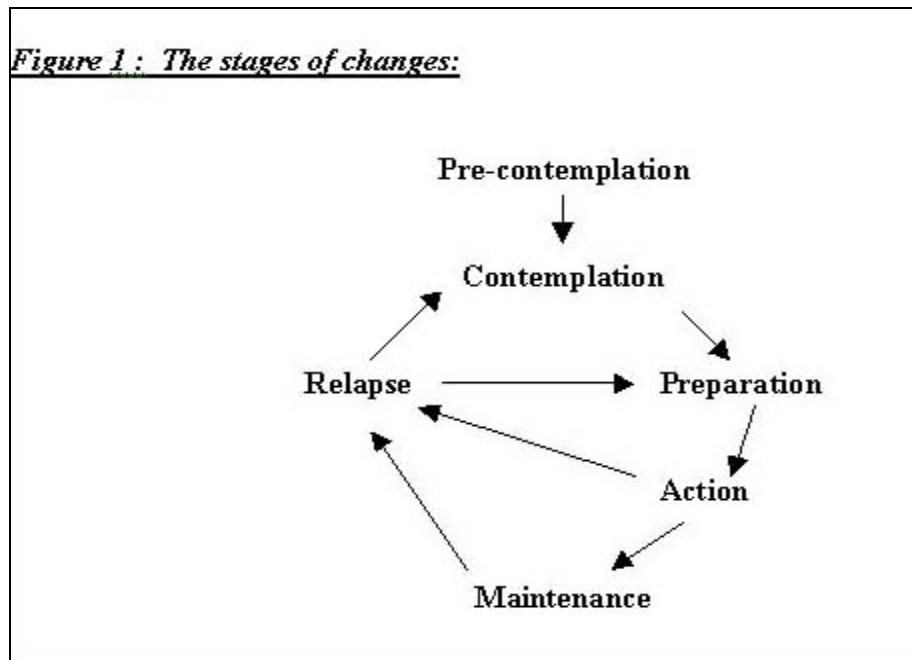
### **Nicotine dependence**

Nicotine is the primary substance found in tobacco that causes dependence on cigarette smoking<sup>(8)</sup>. Nicotine reaches the brain very quickly and rapidly accumulates there once absorbed. It works by stimulating release of dopamine, the chemical responsible for positive mood. The acute effects of nicotine dissipate quickly, causing decreased positive mood. As nicotine deprivation occurs, cravings occur causing the smoker to want another cigarette to maintain the pleasurable effects and to prevent withdrawal symptoms such as insomnia, anxiety, anger, restlessness and increased appetite. Withdrawal symptoms commonly occur within 12 hours of cessation, peak at three to four days, but may persist for several weeks<sup>(9)</sup>.

### **The process of smoking cessation**

Tobacco dependence is a chronic condition that for the majority of smokers requires repeated and persistent effort to overcome. Theoretical analysis of smoking cessation suggests that it is a process, not a single event<sup>(10)</sup>.

Stage of change theory (*Figure 1*) suggests that smokers move from being content to smoke, thinking about quitting, planning to quit, attempting to quit, maintaining cessation or relapsing to smoking. Smokers may cycle through some or all of the stages many times before they achieve long-term cessation.



North American surveys suggest that two thirds of smokers are interested in quitting but only 20 per cent are planning to quit in the next month<sup>(11)</sup>. Overall, almost 50 per cent of smokers try to quit each year<sup>(12)</sup> but 75 to 80 per cent of smokers that try to quit relapse within six months and 90 per cent within 12 months<sup>(13)</sup>. Those who quit for longer may relapse at any time, even after years<sup>(14)</sup>.

Despite the difficulty of quitting, three to five per cent of smokers quit each year for a year or longer. Self-reported data from the US in 1997 suggest that 50 per cent of people who ever smoked successfully quit smoking<sup>(9)</sup>. In the past, up to 90 per cent of smokers who successfully quit smoking did so 'on their own'. Current estimates are that 20 to 35 per cent of quit attempts in the United States are associated with medication use or other forms of assistance<sup>(15,16)</sup>. The success rate of those who use some form of assistance is double (20% vs. 8%) that of those who try to quit 'on their own'<sup>(16)</sup>. these forms of assistance are Behavioural interventions, Pharmacological aids or some other forms of interventions.

We will discuss each of these interventions separately. In this review we will concentrate on the behavioural interventions.

## **Behavioural interventions**

They consist of: self-help intervention, minimal clinical intervention and intensive clinical intervention.

### **1. Self help interventions for smoking cessation**

Self-help cessation materials are a common component of most smoking cessation interventions, ranging from brief clinical interventions to community campaigns, but their effectiveness is not often evaluated due to practical difficulties in 'real world settings'. In particular, there are difficulties with follow-up of recipients and in disentangling the effects of a self-help resource from the effects of other cessation intervention components<sup>(9,17)</sup>.

There are also difficulties in generalizing about the efficacy of a particular method due to the lack of standardization of content (e.g. self-help manuals<sup>(18)</sup>).

Most commonly, self-help materials are printed leaflets or manuals, although use of audiotapes and videotapes is also well established. The new generation of self-help materials is computer-based on CDs or internet websites or linked to television programs.

Other forms of behavioural interventions that are predominantly self-help are client-initiated telephone quit lines and Quit-and-Win competitions. Quit-line services provide a contact point for provision of written self-help materials and may also employ counsellors to assist and support people during cessation attempts. The quit-line number is promoted extensively. The key elements for an effective quit-line are public access, quit smoking resources and information, counselling, training of counsellors and referral services<sup>(19,20)</sup>. Quit-lines are difficult to evaluate using randomized, controlled methods because self-selection by users is part of the method and identification and enrolment of suitable controls is difficult.

Well-promoted quit-lines should be developed to support self-help cessation attempts.

Evidence proved that generic self-help materials alone are of small benefit compared to no intervention as provision of self-help materials of any type compared to no intervention, produced a small but significant increase in the odds of quitting at six months or more (OR= 1.23, 95% CI 1.01, 1.51)<sup>(17)</sup>.

There is not enough evidence from comparative studies to recommend one or more types of self-help intervention over others<sup>(17)</sup>. Materials tailored to the characteristics of individual smokers (especially stage of change) were more effective than standard materials in achieving sustained cessation at six months (OR 1.51, 95% CI 1.13, 2.02)<sup>(17,20,21)</sup>.

A brief leaflet is sufficient to support pharmacotherapy or smoking cessation advice from a health professional. Therefore, self-help materials should be tailored to the needs and cessation stages of individual smokers and selected population groups (pregnant women, asthmatics and adolescents).

## **2. Minimal clinical intervention**

Minimal clinical intervention, or brief advice by health professionals could have a great influence on Saudi smoking cessation levels, but has been underused.

Australian doctors identify two thirds of their patients who smoke but advise only half of these (34%) to quit<sup>(22,23)</sup>.

Dentists also have high potential to provide advice on smoking cessation. Nurses usually have frequent, more extended contact with clients/patients, therefore are well placed to provide cessation advice. The US<sup>(12)</sup>, and UK<sup>(24)</sup> smoking cessation guidelines for health professionals recommend that all clinicians strongly advise their patients to quit smoking.

Minimal clinical intervention consists of brief cessation advice from health care providers delivered opportunistically during routine consultations to smokers whether or not they are seeking help with stopping smoking. Brief opportunistic advice typically involves asking patients about their current smoking, advising them to stop, offering assistance either by providing further advice, a referral to a specialist service, or recommendation of, or a prescription for, pharmacotherapy, and arranging follow up where appropriate. This approach has been described as the 5As interventions ([Table 1](#)). The duration of each session of minimal intervention is usually three to five minutes, and certainly less than ten minutes<sup>(25)</sup>.

Barriers to the provision of smoking cessation advice by all health professionals should be identified and addressed. 'Lack of time' for example is often cited as a barrier to provision of advice, yet the evidence confirms that clients can effectively be encouraged, advised and supported to quit within as little as 3-5 minutes of a health professional's time. Lack of perceived skills or training is another cited barrier, but existing evidence is mixed regarding the added benefit of intensive cessation skills training. Lack of immediate relevance is another barrier for health care providers who do not perceive a direct link between smoking and the reason for presentation of their client/patient. However, smoking has such a diversity of health effects that most health professionals will see clients who have some smoking related health problem or complication that is relevant to their consultation.

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**Table 1 : Minimal Clinical Interventions involve (5As):**

**Ask** about tobacco use – doubles the rate of clinicians' intervention .

**Advise** to quit – (brief advice 3-5 min by doctor increase abstinence rate by 10.2%at  $\geq 5$  months (vs. 7.9% without advice) .

**Assess** *willingness to quit– as motivation and readiness to quite increased abstinence rate .*

**Assist** in quitting – by a quit plan (STAR-P)

- Set a quit date
- Tell family ,friends and coworkers about quitting and request support.
- Anticipate challenges e.g. nicotine withdrawal Sx.
- Remove tobacco products from your environment (home, car, work).
- By recommending **Pharmacotherapy**.

**Arrange** follow-up

Scheduling follow-up visits improves cessation rate and prevent relapse .

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### **3. Intensive clinical intervention**

Brief advice from a health care provider is recognized as an important motivator for a quit attempt<sup>(9,26)</sup>. However, the 5As approaches to minimal intervention stress the importance of assisting clients to make a cessation attempt. This may include more intensive behavioural therapy .A range of more intensive behavioural methods has been used in clinical settings to support patient attempts at smoking cessation.

These include:

- Individual counseling
- Supportive group sessions
- Aversion therapy

### **Individual behavioural counseling**

Intensive interventions by health care providers are usually defined as those that take more than ten minutes per session <sup>(12,27,28)</sup>. The distinction between minimal and more intensive intervention becomes somewhat blurred when the clinician provides continuing support of short duration per session.

Individual counseling was limited to counseling provided by specialist counselors and not by health care providers during usual care. Counseling was also required to be of at least 10 minutes duration. The counseling interventions typically included the following components:

- Review of the participant's smoking history and motivation to quit;
- Help in identification of high-risk situations and smoking cues; and
- Generation of problem-solving strategies to deal with high-risk situations.

Counselors may also have provided non-specific support and encouragement and as well as written materials, video or audiotapes.

The effect of intensive counseling compared to minimal counseling by a doctor was greater amongst trials with patients with, or at high risk of, smoking related disease <sup>(29)</sup>.

General practitioners appear to be more willing to give advice to stop smokers with smoking related diseases <sup>(30)</sup>. This is despite evidence that smokers with smoking related diseases do not respond better to such advice than others <sup>(31)</sup>.

### **Supportive Group Sessions**

Group therapy offers individuals the opportunity to learn behavioural techniques for smoking cessation, and to provide each other with mutual support. Groups may be led by professional facilitators, clinical psychologists, health educators, nurses, doctors, or successful peers. They may be conducted in different settings and may vary in intensity, number and duration of sessions as well as total duration.

Suggested components of a best practice group cessation clinic program include:

- Setting a specific quit date;

- Learning to interrupt the conditioned responses that support smoking by self-monitoring;
- Making plans for coping with temptations to smoke following cessation; and
- Providing follow-up contact and social support for quitting and continued abstinence<sup>(32)</sup>.

Other optional components are:

- Instructions for effective use of NRT.

Attendance rates of smokers invited to participate in group cessation programs reviewed by Stead and Lancaster (2000)<sup>(33)</sup> varied from 8 to 88 per cent. Group therapy can be an effective cessation method that should be available for those who are willing to participate.

### **Aversion therapy**

Adding an unpleasant (aversive) stimulus to an attractive behaviour reduces the attractiveness and may extinguish the behaviour (34). Aversion therapy pairs the pleasurable stimulus of smoking a cigarette with an unpleasant stimulus, with the aim of extinguishing the urge to smoke.

The most frequently examined procedure has been rapid smoking. 'Rapid smoking' usually consists of asking subjects to take a puff every six to 10 seconds for three minutes, or until they consume three cigarettes or feel unable to continue. This is repeated two or three times, and subjects are asked to concentrate on the unpleasant sensations it causes. Explanation and supportive counseling is usually provided with application of the rapid smoking technique.

Other aversive techniques include rapid puffing (smoke not inhaled), smoke holding, excessive smoking, paced smoking, self-paced smoking, focused smoking, covert sensitization, symbolic aversion, electric shocks administered by therapist or subject, and behavioural treatments with bitter pills. Each of these methods is described in more detail by Hajek and Stead (2000)<sup>(34)</sup>.

There is no evidence of benefit from aversion methods other than rapid smoking techniques<sup>(34)</sup>. Aversion therapy techniques are outdated and not recommended in most countries.

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