

- Title** Quit Smoking Interventions
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Aim

To assess the effectiveness, safety, economic and organizational implication of quit smoking interventions

Conclusions and results

A total of 14,571 titles were identified with 17 were identified from references of retrieved articles. After removal of 6,582 duplicates, 8,006 titles were screened and 7,172 were excluded. A total of 834 potentially relevant abstracts were retrieved in full text. After reading, appraising and applying the inclusion and exclusion criteria to the full text articles, 128 full text articles were included and 706 full text articles were excluded.

Safety: There was substantial good level of retrievable evidence to suggest that quit smoking intervention especially pharmacological therapy was safe in reducing smoking rates among various populations. The side-effects were reported to be mild and tolerable. Most frequent adverse events by treatment group were nausea (varenicline, 25%), insomnia (bupropion, 12%), abnormal dreams (nicotine patch, 12%), and headache (placebo, 10%). Safety of other behavioural or complementary and alternative therapies have not been thoroughly documented although minor adverse events related to ear acupuncture, ear acupressure, and other auriculotherapy have been reported.

Effectiveness:Community based smoking cessation programme

Multicomponent interventions in primary care were effective, safe and able to achieve greater long-term continuous smoking cessation compared to usual care and counselling alone. Its pooled odds ratio (OR) for smoking cessation was 2.2 [95% confidence interval (95% CI) 1.7, 2.8] while for provider performance in 5As delivery i.e. for "ask", "advice", "assess", "assist" (quit date), "assist" (prescribe medications) and "arrange" follow-up, the ORs were 1.79 (95% CI 1.6, 2.1), 1.6 (95% CI 1.4, 1.8), 9.3 (95% CI 6.8, 12.8), 3.5 (95% CI 2.8, 4.2) and 8.5 (95% CI 5.1, 14.2), respectively. Patients who received specialist one-to-one behavioural support were twice more likely to remain abstinent than patients seen by a general practitioner (GP) and pharmacy providers [OR 2.3 (95% CI 1.2, 4.6)]. Group-based behavioural support were three times more effective compared to seen by a GP or pharmacy providers (OR 3.4; 95% CI 1.7, 6.7) in achieving

abstinence. Proactive, population-based tobacco cessation care using proactive outreach to connect smokers to

telephone or in-person smoking cessation services was effective. Large scale distribution of free nicotine replacement therapy (NRT) resulted in successful quit rate among NRT recipients compared to non-recipients (33% versus 6%, $p < 0.0001$)

Effectiveness by different types of providers:

Physicians, nurses and psychologists were effective at helping smokers to quit. Interventions with NRT increased the effectiveness of nurses, psychologists, and providers of unknown types by almost two-folds. Pharmacist-led interventions by community pharmacists significantly impact abstinence rates in smoking cessation interventions compared to controls [Relative Risk (RR) 2.17, 95% CI 1.43, 3.31]. The use of NRT, alongside counselling, resulted in higher abstinence rates (RR 3.46, 95% CI 1.66, 7.23 versus RR 1.98, 95% CI 1.24, 3.16)

Hospital based smoking cessation programme:

Intensive counselling interventions that began during the hospital stay and continued with supportive contacts for at least one month after discharge increased smoking cessation rates after discharge (RR 1.37, 95% CI 1.27, 1.48). Adding NRT to intensive counselling significantly increases cessation rates over counselling alone, but there was insufficient evidence on adding bupropion or varenicline. Emergency department-initiated tobacco control combining motivational interviewing and booster phone calls showed a trend toward increased episodically measured tobacco abstinence up to 12 months.

Pharmacotherapy:

Nicotine replacement therapy (NRT), bupropion SR, and varenicline improve the smoking cessation rates. Nicotine replacement therapy increase smoking abstinence at six months by 53%–68%. Use of a combination of NRT products increases cessation rates more than the use of a single NRT product. Bupropion SR increase smoking abstinence at six months by 49%–76%. Head-to-head comparisons between bupropion and NRT showed equal efficacy (OR 0.99, 95% CI 0.86, 1.13). Varenicline was more effective than bupropion in smoking abstinence; OR 1.75 (95% CI 1.52, 2.01). Varenicline was more effective than: nicotine patch (OR 1.51, 95% CI 1.22, 1.87), nicotine gum (OR 1.72, 95% CI 1.38, 2.13), and 'other' NRT (inhaler, spray, tablets, lozenges; OR 1.42, 95% CI 1.12, 1.79), but

was not more effective than combination NRT (OR 1.06, 95% CI 0.75, 1.48). Combination therapy of varenicline plus NRT was more effective than varenicline alone, especially if pre-cessation treatment of nicotine patch was administered.

Behavioural and psychological interventions:

Health provider advice and counselling, group counselling, tailored self-help materials, and telephone counselling showed modest but significant increased smoking cessation at six months relative to control participants (18%–96%). Smokers who were offered cessation advice by a physician 76% more likely to have quit at six months or more than those who received no advice or usual care (RR 1.76, 95% CI 1.58, 1.96). Providing more intense adjunctive behavioural support to smokers receiving pharmacotherapy may increase cessation by 9%–24%. Combined pharmacotherapy and behavioural interventions increase cessation rates by 70%–100% compared with no or minimal treatment.

Complementary and alternative therapies:

Acupuncture and hypnotherapy may help smokers quit but OR with wide CI; acupuncture (OR 3.53, 95% CI 1.03, 12.07), hypnotherapy (OR 4.55, 95% CI 0.98, 21.01) and aversive smoking (OR 4.26, 95% CI 1.26, 14.38). Inadequate evidence to show whether hypnotherapy could be as effective as counselling treatment. There was no consistent, bias-free evidence that acupuncture, acupressure, or laser therapy compared to no intervention, sham treatment, or other interventions have a sustained benefit. Yoga and meditation-based therapies may assist smoking cessation but limited number of studies available and associated methodological problems

Other interventions:

There is beneficial impact of mobile phone-based smoking cessation interventions on cessation outcomes. Smoking quit rates for the text messaging intervention group were 35% higher compared to the control group quit rates. Limited evidence however was found in WhatsApp and Facebook online social groups and their effectiveness for smoking relapse prevention for recent quitters. A Malaysian study found smoking cessation intervention consisting of phone calls and counselling delivered during the first month of quit attempt to have significant higher abstinence rates compared to a standard care approach. Offering free NRT through a state quitline was an effective means of increasing quitline utilization and improving quit rate.

Cost effectiveness

Studies from UK, US, France, Canada and Korea had shown that nationwide quit smoking campaigns, pharmacotherapy, telephone counselling, stop smoking clinics, hospital initiated interventions were cost-effective from healthcare perspective.

Organizational

There was fair level of retrievable evidence that suggested quit smoking intervention to be feasible, acceptable and adaptable by patients as well as by the healthcare

providers. Good potential for social networking such as Facebook as an accessible, low-cost platform for engaging young adults. Mobile phone text messaging-based smoking cessation intervention appears feasible and acceptable. Practice-tailored training for general practitioners (GPs) increased the provision of quit-smoking advices (difference 0.56 advice per day; 95% CI 0.13, 0.98) and the ability and intention of providing smoking cessation care. Targeted efforts to educate and support primary care physicians may improve physician adherence to smoking-cessation practice guidelines and smoking outcomes. Practical training program to train pharmacists and nurses to give smoking cessation instructions increase significantly the confidence to give such instructions.

Recommendations (if any)

Multicomponent interventions should be utilised to achieve greater long-term continuous smoking cessation. Treatment programme consisting of combination of behavioural and psychological strategies with pharmacotherapy (varenicline, bupropion SR and NRT) should be implemented.

Methods

Relevant studies published were identified through electronic databases (Ovid MEDLINE, Embase, Cochrane Library, NHS Economic Evaluation Database, and PubMed). Limits were applied to the articles published from year 2000 onwards until October 2016 and to the study designs using meta-analysis, systematic review, clinical trials and observational studies only. Studies were selected based on inclusion and exclusion criteria and critically appraised using Critical Appraisal Skill Programme (CASP) and graded according to US/Canadian preventive services task force.

Further research/reviews required

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