

Individual behavioural counselling for smoking cessation (Review)

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ABSTRACT

Background

Individual counselling from a smoking cessation specialist may help smokers to make a successful attempt to stop smoking.

Objectives

The objective of the review is to determine the effects of individual counselling.

Search strategy

We searched the Cochrane Tobacco Addiction Group Specialized Register for studies with counsel* in any field. Date of the most recent search: December 2004.

Selection criteria

Randomized or quasi-randomized trials with at least one treatment arm consisting of face-to-face individual counselling from a healthcare worker not involved in routine clinical care. The outcome was smoking cessation at follow up at least six months after the start of counselling.

Data collection and analysis

Both authors extracted data. The intervention and population, method of randomization and completeness of follow up were recorded.

Main results

We identified 21 trials with over 7000 participants. Eighteen trials compared individual counselling to a minimal behavioural intervention, four compared different types or intensities of counselling.

Individual counselling was more effective than control. The odds ratio for successful smoking cessation was 1.56 (95% confidence interval 1.32 to 1.84). In a subgroup of three trials where all participants received nicotine replacement therapy the point estimate of effect was smaller and did not reach significance (odds ratio 1.34, 95% confidence interval 0.98 to 1.83). We failed to detect a greater effect of intensive counselling compared to brief counselling (odds ratio 0.98, 95% confidence interval 0.61 to 1.56).

Authors' conclusions

Smoking cessation counselling can assist smokers to quit.

PLAIN LANGUAGE SUMMARY

Individual counselling can help smokers quit.

Individual counselling is commonly used to help people who are trying to quit smoking. The review looked at trials of counselling by a trained therapist providing one or more face-to-face sessions, separate from medical care. All the trials involved sessions of more than 10 minutes, with most also including further telephone contact for support. The review found that individual counselling could help smokers quit, but there was not enough evidence about whether more intensive counselling was better.

BACKGROUND

Psychological interventions to aid smoking cessation include self-help materials, brief therapist-delivered interventions such as advice from a physician or nurse, intensive counselling delivered on an individual basis or in a group, and combinations of these approaches. Previous reviews have shown a small, but consistent, effect of brief, therapist-delivered interventions (Silagy 2004). The effect of self-help interventions is less (Lancaster 2002a). More intensive intervention in a group setting increases quit rates (Stead 2005).

In this review, we assess the effectiveness of more intensive counselling delivered by a smoking cessation counsellor to a patient on a one-to-one basis. One problem in assessing the value of individual counselling is that of confounding with other interventions. For example, counselling delivered by a physician in the context of a clinical encounter may have different effects from that provided by a non-clinical counsellor. One approach to this problem is to employ statistical modelling (logistic regression) to control for possible confounders, an approach used by the US Public Health Service in preparing clinical practice guidelines (AHCPR 1996; AHRQ 2000). An alternative approach is to review only unconfounded interventions. This is the approach we have adopted in the Cochrane Tobacco Addiction Review Group. In this review, we therefore specifically exclude counselling provided by doctors or nurses during the routine clinical care of the patient, and focus on smoking cessation counselling delivered by specialist counsellors. We define counselling broadly, based only on a minimum time spent in contact with the smoker, not according to the use of any specific behavioural approach.

OBJECTIVES

The review addresses the following hypotheses:

1. Individual counselling is more effective than no treatment or brief advice in promoting smoking cessation.
2. Individual counselling is more effective than self-help materials in promoting smoking cessation.
3. A more intensive counselling intervention is more effective than a less intensive intervention.

Studies comparing different counselling approaches are also included here if they are not covered by other Cochrane reviews of specific interventions. Comparisons between individual counselling and behavioural therapy conducted in groups are now covered in the Cochrane review of group behavioural therapy (Stead 2005)

CRITERIA FOR CONSIDERING STUDIES FOR THIS REVIEW

Types of studies

Randomized or quasi-randomized controlled trials with a minimum follow up of six months, where at least one treatment arm consisted of an unconfounded intervention from a counsellor.

Types of participants

Any smokers, except pregnant women. (Smoking cessation interventions in pregnancy are addressed by a separate review, Lumley 2004). Trials recruiting only children and adolescents are also excluded.

Types of intervention

We defined individual counselling as a face-to-face encounter between a smoking patient and a counsellor trained in assisting smoking cessation. This review specifically excludes studies of counselling delivered by doctors and nurses as part of clinical care, which are covered in separate reviews (Rice 2004; Silagy 2004). It also excludes interventions which address multiple risk factors in addition to smoking.

Types of outcome measures

We used sustained abstinence, or multiple point prevalence, where available. We included studies using self report with or without biochemically validated cessation, and performed sensitivity analyses to determine whether the estimates differed significantly in studies without verification.

SEARCH METHODS FOR IDENTIFICATION OF STUDIES

See: Cochrane Tobacco Addiction Group methods used in reviews.

We searched the Tobacco Addiction Group Specialized Register for studies with counsel* in title, abstract or keyword fields. We also checked previous reviews and meta-analyses for relevant studies, including all studies in the US guidelines (AHCPR 1996; AHRQ 2000). Date of most recent search December 2004.

METHODS OF THE REVIEW

Both authors extracted data. The principal outcome was cessation rates. The information extracted included descriptive information (the population and intervention studied), method of randomization and allocation concealment, completeness of follow up, and whether self-reported cessation was validated. Participants lost to follow up were assumed to be continuing smokers.

We summarized individual study results as an odds ratio, calculated as:

(number of quitters in intervention group/ number of continuing smokers in intervention group) / (number of quitters in control group/ number of continuing smokers in control group).

Where appropriate we performed meta-analysis using a Mantel-Haenszel fixed-effect method to estimate a pooled odds ratio with 95% confidence intervals (Greenland 1985). This replaces the Peto method for pooling data used in previous versions of the review (Yusuf 1985), but does not change the estimated effects substantially. The amount of statistical heterogeneity between trials was estimated using the I^2 statistic (Higgins 2003). Values over 50% can be regarded as moderate heterogeneity, and values over 75% as high.

In order to include any cluster-randomized study that reported an odds ratio adjusted for clustering, we also conducted a secondary meta-analysis using the generic inverse variance method for pooling the odds ratios from studies.

We made the following comparisons:

- Individual counselling versus no treatment, brief advice or self-help materials
- More intensive versus less intensive individual counselling
- Comparisons between counselling methods matched for contact time

DESCRIPTION OF STUDIES

There are 21 studies included in this review, with over 7000 participants.

Eighteen studies compared individual counselling to a minimal level of behavioural intervention. Support offered to the control comparison group ranged from usual care to up to 10 minutes of advice, with or without the provision of self-help materials. All the interventions classified as individual counselling involved more than 10 minutes of face-to-face contact. Eight used a single session (Dornelas 2000; Glasgow 2000; Molyneux 2003; Rigotti 1997, Simon 1997; Stevens 1993; Weissfeld 1991; Windsor 1988) but all of these included further telephone contact except Molyneux 2003 and the low intensity condition tested by Weissfeld and colleagues.

Within this group of studies, nicotine replacement therapy was systematically provided to all participants in three trials. Fiore 2004 compared individual counselling and nicotine patch to two less intensive conditions; nicotine patch with or without a single telephone counselling session and tailored materials. Simon 2003 compared nicotine patch and an in-hospital session plus five telephone counselling calls to nicotine patch and a single 10 minute

in-hospital session. Jorenby 1995 used two different doses of nicotine patch (collapsed in the analysis) crossed with three levels of behavioural support (minimal, individual or group) in a factorial design. The individual counselling group was compared with a minimal support condition that was given a self-help pamphlet by a physician and thereafter had weekly assessments but no further counselling.

In one trial (Simon 1997) smokers randomized to receive counselling were given a prescription for nicotine gum if there were no contraindications. Although 65% in the counselling condition used gum compared to 17% of the control group, its use was not significantly associated with quitting.

In the control interventions, provision of written materials was generally confounded with brief advice. No trials directly addressed whether providing counselling in addition to a structured self-help programme increased efficacy. Therefore in the meta-analysis we have not distinguished between brief advice, usual care or provision of self-help materials as the control intervention with which counselling is compared.

Effect of intensity of counselling

We consider separately three studies that compared intensive counselling to less intensive intervention which still involved more than 10 minutes of face-to-face contact. The first of these, Weissfeld 1991, compared two intensities of counselling with a control; both intensities are combined versus control in the first analysis but compared in this analysis. The second, Alterman 2001, compared three intensities of counselling as an adjunct to nicotine patch therapy. The lowest intensity intervention, used as a control in this comparison, was a single 30-minute session with a nurse practitioner. The medium intensity programme was a four session advice and education intervention from a nurse practitioner who reviewed self-help materials and monitored nicotine patch use. The high intensity intervention added a further 12 sessions of cognitive behavioural relapse prevention therapy from a counsellor. The third study, Lifrak 1997, used a similar intensive intervention with 16 sessions, compared to a control similar to the Alterman 2001 medium intensity programme.

Comparisons between counselling methods

Schmitz 1999 compared two counselling approaches. Both interventions used six one-hour sessions. The first used a coping skills relapse prevention model. It was compared with a health belief model which focused on smoking-related health information, the relationship with coronary disease and the benefits of quitting.

Study populations

Nine of the studies recruited medical or surgical hospital inpatients (Dornelas 2000; Molyneux 2003; Ockene 1992; Pederson 1991; Rigotti 1997; Simon 1997; Simon 2003; Stevens 1993), or outpatients (Weissfeld 1991). One recruited some inpatients (Schmitz 1999). Three other studies recruited drug and alcohol dependent veterans attending residential rehabilitation (Bobo 1998; Burling

1991; Burling 2001). The remaining studies recruited smokers in primary care clinics (Fiore 2004), primary care and local community (Aleixandre 1998), local community and university (Alterman 2001), at a periodic healthcare examination (Bronson 1989), at a Planned Parenthood clinic (Glasgow 2000), community volunteers (Jorenby 1995; Lifrak 1997), and employees volunteering for a company smoking cessation programme (Windsor 1988). Lack of interest in quitting was not an explicit exclusion criterion in any study, but the level of motivation to quit smoking was sometimes difficult to assess. One trial enrolled all smokers admitted to hospital (Stevens 1993), whilst one enrolled 90% of smokers approached (Rigotti 1997). In one large study in primary care 68% of smokers agreed to participate and 52% met inclusion criteria and were recruited (Fiore 2004). In other studies a larger proportion of eligible smokers may have declined randomization because of lack of interest in quitting.

Two studies recruited only women: Schmitz 1999 recruited 53 women hospitalized with coronary artery disease (CAD) and 107 volunteers with CAD risk factors. Glasgow 2000 recruited 1154 women attending Planned Parenthood clinics, who were not selected for motivation to quit.

Intervention components

The counselling interventions typically included the following components: review of a participant's smoking history and motivation to quit, help in the identification of high-risk situations, and the generation of problem-solving strategies to deal with such situations. Counsellors may also have provided non-specific support and encouragement. Some studies provided additional components such as written materials, video or audiotapes. The main components used in each study are shown in the 'Table of Included Studies'.

Intervention providers

The therapists who provided the counselling were generally described as smoking cessation counsellors. Their professional backgrounds included social work, psychology, psychiatry and health education. In one study, the therapist for some of the sessions was a nurse practitioner (Alterman 2001), and in another the therapists were research doctors or nurses trained in counselling.

We excluded one study that provided motivational interviewing as part of an intervention to reduce passive smoke exposure in households with young children (Emmons 2001). Cessation was a secondary outcome and there was no significant difference in quit rates, which were not reported separately by group. A sensitivity analysis of including this study assuming equal quit rates did not alter the review results.

Other studies which were identified as potentially relevant but did not meet the full inclusion criteria are listed with their reasons for exclusion in the table of excluded studies.

METHODOLOGICAL QUALITY

Only three of the studies described a method of randomization which could ensure that treatment assignment was blind until after allocation (Simon 1997; Weissfeld 1991, Windsor 1988). In other trials the method of randomization was not described. One of the included studies has been described as a randomized trial (Meenan 1998). The primary report (Stevens 1993) makes it clear that the intervention was delivered to one of two hospitals, alternating on a monthly basis for 14 months. This design was used to avoid control patients hearing the intervention given to others in shared rooms. All eligible smokers in the intervention hospital were regarded as participants whether or not the intervention was delivered, thus avoiding selection bias, and the intervention was not provided by hospital staff. There were no significant differences between intervention and usual care groups at baseline; there were however a larger number of patients in the usual care group. As it seems unlikely that there would have been a high risk of systematic bias from this design, we included the study and performed sensitivity analysis.

One study (Bobo 1998) used cluster randomization of 12 residential centres, and reported the outcome as an odds ratio adjusted for the effect of clustering. We include this in a secondary analysis using odds ratios pooled with the inverse variance method.

Biochemical validation of self-reported non-smoking was obtained for all those categorized as quitters in 11 studies (Alterman 2001; Burling 2001; Fiore 2004; Glasgow 2000; Jorenby 1995; Molyneux 2003; Ockene 1992; Rigotti 1997; Simon 2003; Weissfeld 1991; Windsor 1988). Self report was confirmed by a significant other for all quitters in one study (Dornelas 2000) and for 6/29 quitters in a second (Simon 1997). In two studies, only a sample of respondents was tested (Pederson 1991; Schmitz 1999). Quit rates were based on self report alone in four studies (Aleixandre 1998; Bronson 1989; Lifrak 1997; Stevens 1993). One study had no self-reported long-term quitters (Burling 1991).

One study (Fiore 2004) excluded randomized participants who failed to collect their free supply of nicotine patches, and as a consequence also did not receive any additional behavioural components to which they were allocated. The proportions excluded were similar in all the intervention groups, so we have used the denominators as given.

RESULTS

Counselling versus minimal contact control

Pooling seventeen studies of counselling, including one (Burling 1991) in which there were no quitters, results in an odds ratio (OR) for the estimated effect of 1.56 (95% confidence interval (CI) 1.32 to 1.84, Mantel-Haenszel fixed-effect model), with no evidence of significant heterogeneity. The estimate remains similar if the trial without randomization (Stevens 1993) is excluded

(OR 1.56, 95% CI 1.30 to 1.88). Including one cluster-randomized trial (Bobo 1998) and pooling odds ratios using the inverse variance method gives similar results (OR 1.50, 95% CI 1.27 to 1.77). Sensitivity analysis including only the ten trials with complete biochemical validation of self-reported cessation did not alter the results. The subgroup of three studies where counselling was tested as an adjunct to nicotine replacement therapy had a smaller estimated effect which did not reach significance (OR 1.34, 95% CI 0.98 to 1.83), although direct comparison did not detect a significant difference between the odds ratios of the two subgroups.

Intensive versus brief counselling

In an analysis combining three studies, there was no evidence of benefit from more intensive compared to brief counselling, although the confidence intervals are wide and do not exclude the possibility of a clinically useful dose-response effect (OR 0.98, 95% CI 0.61 to 1.56). This estimate is also sensitive to the way in which the three intervention arms in one study (Alterman 2001) are included. In this study the low intensity intervention of a single counselling session as an adjunct to nicotine patch therapy produced a 12-month quit rate of 25%, whilst the moderate intensity intervention with three further sessions had an unexpectedly low quit rate of only 11%. The most intensive intervention, which added 12 cognitive behavioural relapse prevention sessions with a therapist, had the highest quit rate, 33%. In the analysis shown we compare the two intensive interventions to the single session. Comparing the high intensity to the medium intensity interventions, which match most closely the two arms of the Lifrak 1997 study, would, both separately and when pooled with the other two studies, support a significant benefit from increased contact (pooled OR 1.94, 95% CI 1.15 to 3.26).

Comparison between counselling approaches

Schmitz 1999, comparing a relapse prevention approach with a health belief model, showed no significant difference, but with wide confidence intervals (OR 0.93, 95% CI 0.39 to 2.23).

DISCUSSION

There is consistent evidence that individual counselling increases the likelihood of cessation compared to less intensive support. Whilst most of the trials were undertaken in hospitalized smokers, counselling was also effective in a workplace setting (Windsor 1988) and amongst community volunteers.

These results are consistent with the conclusions of the review undertaken for the updated US Public Health Service practice guidelines (AHRQ 2000). These included an analysis of 58 trials where treatment conditions differed in format (self help, individual counselling with person-to-person contact, pro-active telephone counselling or group counselling) and estimated an odds ratio (OR) for successful cessation with individual counselling compared to no intervention of 1.7 (95% confidence interval (CI) 1.4 to 2.0)

(AHRQ 2000 Table 17). Individual counselling in their categorization would have also included counselling from a physician. When they separately analyse the effect of different providers of care the estimates suggest that non-medical care providers (a category including psychologists, social workers and counsellors) are similarly effective compared to a no-provider reference group (OR 1.7, 95% CI 1.3 to 2.1) as physicians (OR 2.2, 95% CI 1.5 to 3.2) (AHRQ 2000 Table 15).

There was no evidence of significant heterogeneity between the odds of quitting in the different trials. Absolute quit rates varied across studies but this is likely to be related to the motivation of the smokers to attempt to quit and the way in which cessation was defined. Cessation rates were generally higher in trials where nicotine replacement therapy (NRT) was also used (Alterman 2001; Jorenby 1995; Lifrak 1997; Simon 2003) and amongst patients with coronary artery disease (Ockene 1992). Quit rates tended to be lower in studies recruiting hospitalized patients unselected for their readiness to quit (Rigotti 1997; Stevens 1993). All these features of a trial are likely to affect absolute quit rates, confounding a possible effect of the exact content of the intervention. The following description of the intervention used in the Coronary Artery Smoking Intervention Study (CASIS) (Ockene 1992) is broadly typical of the interventions used: "The telephone and individual counseling sessions were based on a behavioral multicomponent approach in which counselors used a series of open-ended questions to assess motivation for cessation, areas of concern regarding smoking cessation, anticipated problems and possible solutions. Cognitive and behavioral self-management strategies, presented in the self help materials, were discussed and reinforced". Although we cannot exclude the possibility that small differences in components, and in the therapists' training or skills, have an effect on the outcome, it is not possible to detect such differences in the meta-analysis.

Most of the counselling interventions in this review included repeated contact, but differed according to whether face-to-face or telephone contact was used after an initial meeting. There are too few trials to draw conclusions from indirect comparisons about the relative efficacy of the various contact strategies. Again, the homogeneity of the results suggests that the way in which contact is maintained may not be important. A separate Cochrane review of telephone counselling suggests that support can be effective without face-to-face contact (Stead 2001).

The three trials that directly compared different intensities of individual support did not show strong evidence of a dose-response effect. There was variation between the studies in absolute quit rates; 6% in both treatments groups in a Veterans Medical Centre (Weissfeld 1991), compared to 36% versus 28% (Lifrak 1997) and from 11% to 33% (Alterman 2001) amongst community volunteers given counselling as an adjunct to nicotine replacement. Although the relative difference is small, an absolute increase in long-term quit rates in the order of six percentage points, as seen

in Lifrak 1997, would be a clinically useful benefit if this size of effect was shown to be robust in other studies. Some caution is needed because the size of the treatment effect was due in part to a rather low quit rate from the moderately intense intervention in Alterman 2001.

In one study a population recruited in primary care who were willing to accept treatment but were not treatment seekers were offered individual counselling in addition to an eight-week course of NRT. This did not significantly increase quit rates over use of NRT alone although the confidence intervals did not exclude a useful benefit. Compliance with the counselling was moderate, with two-thirds attending at least one session but only 41% attending all four. Attending more sessions was associated with higher quit rates (Fiore 2004). In a separate group of participants allowed to choose the level of psychosocial support, the largest proportion opted for counselling. Their quit rates were almost identical to those included in the review who were randomly assigned.

The failure to detect a significant incremental benefit of counselling when provided in addition to NRT should not be interpreted as evidence that counselling is not effective in this context. It may however indicate that the relative additional benefit is smaller when the quit rates in the control group are already increased by the use of an effective pharmacotherapy. Average quit rates in both intervention and controls in this subgroup were higher than in the intervention and controls not receiving pharmacotherapy, and the absolute difference in quit rates was similar in the two subgroups. As already noted though, direct comparison of quit rates requires caution because of multiple differences between trials. It is also possible that there is no true difference between this subgroup of trials and the others and that the smaller estimated effect and lack of significance is a chance finding. We did not prespecify a subgroup analysis based on use of pharmacotherapy, and it does not contribute to heterogeneity between the results.

AUTHORS' CONCLUSIONS

Implications for practice

Counselling interventions given outside routine clinical care, by smoking cessation counsellors including health educators and psychologists, assist smokers to quit.

Implications for research

Individual counselling is an established treatment for smoking cessation. Identifying the most effective and cost-effective intensity and duration of treatment for different populations of smokers is still an area for research. However differences in relative effect are likely to be small, especially when counselling is used alongside pharmacotherapy. Small trials are unlikely to provide clear evidence of long-term efficacy.

POTENTIAL CONFLICT OF INTEREST

None known.

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* Indicates the major publication for the study

T A B L E S**Characteristics of included studies**

Study	Alexandre 1998
Methods	Country: UK Recruitment: hospital Randomization: in blocks of 9, concealment not described. 274 smokers (182 in relevant arms) admitted to medical and surgical wards, smoked in last 28 days 60% M, av age 60, median cigs/day 17, 81% had previous quit attempt 1. Choice of NRT products (15mg 16 hour patch/ 2mg or 4mg gum, 10mg inhalator/ 2mg sublingual tablet, 0.5mg spray), Brief (20min) bedside counselling from a research doctor or nurse. 2. Brief counselling only 3. Usual Care, no smoking advice (not used in meta-analysis) Level of support: low Continuous abstinence at 12m Validation: CO <10ppm New 2004 update. 63% chose patch, 13% inhalator, 11% gum, 8% tablets and 1% nasal spray, 4% declined use Setting: Primary care clinic, Spain Recruitment: clinic & community volunteers Randomisation: Method not stated
Participants	54 smokers (excludes two post-randomization drop-outs, allocation NS) 65% female, av. age 36, av. cpd 24-27

Characteristics of included studies (Continued)

	Therapist: unclear, primary care clinic staff
Interventions	1. 'Advanced', 4 x30 min over 4w, video, cognitive therapy, social influences, relapse prevention 2. 'Minimal' 3 min advice immediately after randomization
Outcomes	Abstinence at 12m Validation: no biochemical validation
Notes	
Allocation concealment	B – Unclear
Study	Alterman 2001
Methods	Setting: cessation clinic, USA Recruitment: community volunteers Randomization: 'urn technique', allocation concealment still unclear
Participants	240 smokers of more than 1 pack/day 45-54% F, av.age 40, av. cpd 27
Interventions	All included 8w nicotine patch (21 mg with weaning) 1. Low intensity. Single session with nurse practitioner (NP). 2. Moderate intensity. 4 sessions with NP. 3. High intensity. As 2. + 12 sessions cognitive behavioural therapy with trained therapist within 15w.
Outcomes	Abstinence at 1 yr Validation: urine cotinine < 50ng/ml, CO <= 9ppm
Notes	3 vs 2+1 in intensive versus minimal intervention, but sensitivity analysis. Quit rates significantly lower in 2 than 1 or 3
Allocation concealment	B – Unclear
Study	Bobo 1998
Methods	Setting: 12 residential centres for alcohol/drug treatment, USA Recruitment: inpatient volunteers Randomisation: cluster-randomized. Matched pairs of centres allocated by coin toss
Participants	(50 participants in each of 12 sites) 67% male, av.age 33 50% smoked >1 pack/day Therapists: centre staff for 1st session, trained counsellors for telephone sessions
Interventions	1. 4 x10-15min sessions. 1st during inpatient stay. 3 by telephone, 8, 12, 16w post-discharge. 2. No intervention. Participants were not blind to condition
Outcomes	Abstinence at 12m post discharge (7 day PP) Validation: saliva cotinine, but validated quit rates not reported (A primary outcome for the study was alcohol abstinence)
Notes	Cluster-randomized, so individual data not used in primary meta-analysis. Entered into a secondary analysis using inverse variance method, using adjusted OR 1.02 (CI 0.50 to 2.49)
Allocation concealment	C – Inadequate
Study	Bronson 1989
Methods	Setting: internal medicine practice, USA Recruitment: attenders for periodic health examinations Randomization: method not stated
Participants	155 smokers 38% male, av.age 42, av. cpd 25

Characteristics of included studies (Continued)

	Therapist: smoking cessation counsellor
Interventions	1. Two 20 min counselling sessions during a periodic health examination (benefits of quitting, assessment of motivation, quit plan, high risk/problem solving) 2. Control (completed smoking behaviour questionnaire) Physicians carrying out health examinations were blind to group assignment and would have given similar advice to all participants.
Outcomes	Abstinence at 18m (sustained from 6-18m) Validation: no biochemical validation
Notes	
Allocation concealment	B – Unclear

Study **Burling 1991**

Methods	Setting: Inpatient substance abuse treatment centre, USA Recruitment: inpatient volunteers Randomization: method not specified
Participants	39 male veteran inpatients Therapist: paraprofessional counsellor (Social Work Master's candidate)
Interventions	1. Smoking cessation programme; daily 15 min counselling session and computer-guided nicotine fading with contingency contract 2. Wait list control.
Outcomes	Abstinence 6m after discharge Validation - none - no self-reported quitters at 6m
Notes	
Allocation concealment	B – Unclear

Study **Burling 2001**

Methods	Setting: Inpatient Veterans rehabilitation centre, USA Recruitment: inpatient volunteers Randomization: method not specified
Participants	150 veteran drug & alcohol dependent smokers. 95% male, av. age 40, av. cpd 17 Therapists: Masters/Doctoral level counsellors
Interventions	All participants were receiving standard substance abuse treatment, smoking banned in building. 1. Multicomponent. 9w programme; 7w daily counseling, 2w biweekly. Target quit week 5. Nicotine fading, contingency contracting, relapse prevention, coping skills practice. Nicotine patch (14 mg) 4w. 2. As 1, but skills generalized to drug & alcohol relapse prevention. 3. Usual care. Other programs & NRT available
Outcomes	Abstinence at 12m (sustained at 1, 3, 6m follow ups) Continuous abstinence rates taken from graph & abstract. PP rates also reported Validation: CO & cotinine
Notes	1+2 vs 3 Using PP rates would give lower estimate of treatment effect. No significant difference between 1 & 2, but favoured 1.
Allocation concealment	B – Unclear

Study **Dornelas 2000**

Methods	Setting: Hospital inpatients, USA
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Characteristics of included studies (Continued)

	Recruitment: Acute myocardial Infarction (MI) patients (not selected for motivation to quit) Randomization: 'random numbers from an envelope'
Participants	100 MI patients (98% smoked in previous week) 23% female, aged 27-83, av cpd 29 Therapist: Psychologist
Interventions	1. 8 x20 min sessions, 1st during hospitalization, 7 by phone (<1, 4, 8, 12, 20 & 26w post-discharge). Stage of change model, motivational interviewing, relapse prevention. 2. Minimal care. Recommended to watch online patient education video, referral to local resources.
Outcomes	Sustained abstinence at 1 yr (no smoking since discharge) Validation: household member confirmation for 70%. 1 discrepancy found
Notes	
Allocation concealment	B – Unclear

Study **Fiore 2004**

Methods	Setting: Primary care patients, 16 clinics, USA Recruitment: Clinic attenders willing to accept treatment Randomization: method not stated
Participants	961 smokers of ≥ 10 cpd. (A further 908 were allowed to select treatment. Demographic details based on 1869) 58% female, av. age 40, av. cpd 22 Therapist: Trained cessation counsellor
Interventions	(Self-selected group of factorial trial not included in meta-analysis) 1. Nicotine patch, 22mg, 8w incl tapering. 2. As 1 plus Committed Quitters programme, single telephone session and tailored S-H. 3. As 2 plus individual counselling, 4 x 15-25 min sessions, pre-quit, -TQD, next 2w
Outcomes	Continuous abstinence at 1 yr (no relapse lasting 7 days), also PP. Validation: CO, cut-off not specified. 2 discordant
Notes	New 2005 update 3 versus 1&2 used in meta-analysis. More conservative than 3 versus 2.
Allocation concealment	B – Unclear

Study **Glasgow 2000**

Methods	Setting: 4 Planned Parenthood clinics, USA Recruitment: Clinic attenders, unselected for motivation Randomization: method not stated, block size 4
Participants	1154 female smokers Av. age 24, av. cpd 12 Therapists: 4 hours training
Interventions	Both groups received 20 sec provider advice. 1. Video (9 min) targeted at young women. 12-15 min counselling session, personalized strategies, stage-targeted S-H materials. Offered telephone support call 2. Generic S-H materials
Outcomes	Abstinence at 6m (for 30 days) Validation: saliva cotinine ≤ 10 ng/ml
Notes	26% did not want telephone component, 31% of remainder not reached.
Allocation concealment	B – Unclear

Characteristics of included studies (Continued)

Study	Jorenby 1995
Methods	Setting: clinical research centres, USA (2 sites) Recruitment: community volunteers Randomization: double-blind for pharmacotherapy, method not stated
Participants	504 smokers \geq 15 cpd av. age 44, av. cpd 26-29 Therapists: Trained smoking cessation counsellors
Interventions	Compared 22 mg/day vs 44 mg/day nicotine patch and 3 types of adjuvant treatment. All participants had 8 weekly assessments by research staff 1. Minimal - S-H materials from physician at screening visit for trial entry, instructed not to smoke whilst wearing patch. No further contact with counsellors. 2. Individual - S-H at screening visit + motivational message. Met nurse counsellor x3 after TQD. Counsellor helped generate problem-solving strategies and provided praise and encouragement. 3. Group - S-H + motivational message. 8x 1hr weekly group sessions. Skills training, problem-solving skills.
Outcomes	7 day PP abstinence at 26w Validation; CO < 10ppm.
Notes	No significant difference in dose-related outcome and no dose-counselling interaction at 26w reported, so patch arm collapsed in analysis. 2 vs 1, counselling vs NRT alone, Comparison with group counselling covered in Cochrane group therapy review.
Allocation concealment	B – Unclear

Study	Lifrak 1997
Methods	Setting: substance abuse outpatient facility, USA Recruitment: community volunteers Randomization: method not specified
Participants	69 smokers av. age 39, av.cpd 25 Therapists: nurse practitioner for 1. and 2, clinical social worker or psychiatrist experienced in addiction treatment for 2.
Interventions	Both interventions included use of nicotine patch (24 hr, 10w tapered dose) 1. Moderate intensity - 4 meetings with nurse who reviewed S-H materials and instructed in patch use. 2. High intensity. As 1 plus 16 weekly 45 min cognitive behavioural relapse-prevention therapy
Outcomes	Abstinence at 12m, 1w PP Validation: urine cotinine for some participants, but no corrections made for misreporting.
Notes	12 administrative drop-outs/exclusions not included, treatment group not specified. Both interventions regarded as counselling, used in comparison of intensity.
Allocation concealment	B – Unclear

Study	Molyneux 2003
Methods	Country: UK Recruitment: hospital Randomization: in blocks of 9, concealment not described
Participants	274 smokers (183 in relevant arms) admitted to medical and surgical wards, smoked in last 28 days 60% male, av age 60, median cpd 17, 81% had previous quit attempt Therapists: research doctor or nurse trained in cessation counselling
Interventions	1. Usual Care, no smoking advice 2. Brief (20 min) bedside counselling + advice leaflet + advice on NRT 3. As 2 plus choice of NRT product (not relevant to this review)
Outcomes	Continuous abstinence at 12m

Characteristics of included studies (Continued)

	Validation: CO < 10ppm
Notes	New 2005 update
Allocation concealment	B – Unclear
Study	Ockene 1992
Methods	Setting: cardiac catheterization labs at 3 hospitals, USA Recruitment: inpatient smokers or recent quitters with coronary artery stenosis, following arteriography Randomization: method not stated
Participants	267 smokers (256 surviving at 12m follow up) av. age 53, av. cpd 25 Therapists: Masters level health educators
Interventions	1. Minimal intervention - 10 min advice and review of an information sheet 2. Inpatient counselling session, 30 min, outpatient visits and telephone calls. Opportunity to attend group programme
Outcomes	Abstinence at 12m (sustained for 6m) Validation: saliva cotinine < 20ng/ml
Notes	Average length of contact for intervention was 1.22 hr (20min to > 5hr)
Allocation concealment	B – Unclear
Study	Pederson 1991
Methods	Setting: Chest unit, USA Recruitment: Inpatients with COPD Randomization: method not stated
Participants	74 cigarette smokers av. age 53, 75% smoked 20+/day Therapist: Non-specialist trained in counselling
Interventions	1. Advice to quit 2. Individual counselling; between 3 & 8 15-20 min sessions on alternate days during hospitalization. S-H manual, support & encouragement.
Outcomes	Abstinence at 6m Sample validated by COHb
Notes	8 deaths (6 in 1, 2 in 2.) excluded, 8 lost to follow up included
Allocation concealment	B – Unclear
Study	Rigotti 1997
Methods	Setting: hospital, USA Recruitment: Inpatients in medical or surgical services, smoking > 1 cig in month before admission Randomization: method not stated
Participants	615 smokers or recent quitters (excluding 35 deaths). 37% of intervention and 32% of controls had a current smoking-related health problem. Therapist: research assistant supervised by a nurse
Interventions	1. Single bedside counselling session (motivational interviewing, cognitive behavioural and relapse prevention techniques), av 15 min, S-H materials, chart prompts, 1-3 telephone calls post-discharge 2. Usual care
Outcomes	Abstinence at 6m Validation: saliva cotinine
Notes	

Characteristics of included studies (Continued)

Allocation concealment B – Unclear

Study	Schmitz 1999
Methods	Setting: hospital, USA Recruitment: women with or at risk of Coronary Artery disease (CAD) Randomization: method not stated
Participants	Two separate samples recruited: 53 inpatients with CAD who stopped smoking during hospitalization and wanted to stay quit. 107 women volunteering for cessation treatment who had > 1 CAD risk factor Therapists: 2 smoking counsellors + 2 clinical psychology interns
Interventions	1. Coping skills, relapse prevention, 6 x1 hr including stress management, homework. 2. Health Belief model, 6 x1 hr. smoking-related health information about disease state or CAD profile. Focus on benefits of stopping
Outcomes	Abstinence at 6m (PP) Validation: CO < 9ppm, urine cotinine < 10ng/ml Not all quitters tested, confirmation rates not reported
Notes	Post-randomization drop-outs who did not complete baseline and begin treatment were not included in any data. Quit rates were lower in the CAD sample than in the at-risk group
Allocation concealment	B – Unclear

Study	Simon 1997
Methods	Setting: Veterans Administration hospital, USA Recruitment: smokers undergoing non-cardiac surgery Randomization: random list of treatment assignments in sealed opaque envelopes
Participants	299 smokers 98% male, av. age 54, av. cpd 20 Therapist: public health educator
Interventions	1. Multicomponent: single counselling session (30-60 min) prior to discharge (based on social learning theory and stages of change). Video, prescription for nicotine gum if no contraindications. 5 follow-up counselling calls over 3m 2. Brief counselling (10 min) and S-H materials.
Outcomes	Abstinence at 12m Validation: serum or saliva cotinine < 15ng/ml. 6 self reports confirmed only by 'significant other'.
Notes	65% of Group 1 and 17% of Group 2 reported using NRT, but use of NRT was not significantly associated with quitting in either group
Allocation concealment	A – Adequate

Study	Simon 2003
Methods	Setting: Veterans Affairs hospital, USA Recruitment: hospitalized smokers in contemplation or preparation stage of change Randomization: computerized algorithm, no details on concealment
Participants	209 smokers, >= 20 cigs in total in week before hospitalization, excludes 14 deaths during follow up 97% male, av. age 55, av cpd 23 Therapists: trained nurse or public health educator
Interventions	1. Intensive counselling: single counselling session (30-60 min) prior to discharge (based on social learning theory and stages of change), 5 telephone counselling calls < 30 min, 1 & 3w, monthly for 3m + S-H.

Characteristics of included studies (Continued)

	Recycling encouraged. Nicotine patches begun in hospital, dose based on pre-hospitalization smoking rates. 2m supply at discharge. 2. Nicotine patches as 1. -10 min session on risks & benefits, S-H.
Outcomes	Abstinence at 12m Validation: cotinine < 15ng/ml.
Notes	New 2005 update
Allocation concealment	B – Unclear

Study Stevens 1993

Methods	Setting: 2 health maintenance organization hospitals, USA Recruitment: All hospitalized smokers or recent ex-smokers with stay > 36hrs Randomization: not random; intervention team alternated between hospitals on a monthly basis.
Participants	1119 smokers or recent quitters (5%) av. age 44, av. cpd 20 Therapists: Masters level cessation counsellors To reduce contamination between intervention and control periods hospital staff members were not involved in intervention
Interventions	1. 20 min counselling session, 12 min video, quit kit, choice of S-H materials, 1-2 follow-up telephone calls, access to hotline, bimonthly newsletter mailings. 2. Usual care
Outcomes	Abstinence at 12m (2 PP, 3 & 12m) Validation: due to low success in obtaining samples for cotinine analysis, data are based on self report only.
Notes	A sensitivity analysis on the effect of exclusion of this non-random study is reported. There were no statistically significant baseline differences between patient characteristics in intervention and control groups, but there are no details of whether quit rates were similar amongst patients receiving the intervention in each hospital/monthly period.
Allocation concealment	C – Inadequate

Study Weissfeld 1991

Methods	Setting: Veterans Administration outpatient clinics, USA Recruitment: veterans attending walk-in and general medicine clinics invited to attend quit smoking programme Randomization: numbered envelopes containing treatment assignment derived from random number table. Randomization to high or low intensity occurred after delivery of low intensity session.
Participants	466 male smokers av. age 55 years, av. cpd 26 Therapists: smoking cessation counsellors
Interventions	1. Control - pamphlet on hazards of smoking 2. Low Intensity counselling - single session 20-30 min and S-H booklet 3. High intensity counselling - same initial session, with sustained contact of 3m. One further face-to-face session, telephone calls and mailings, behavioural S-H manual. Prescription and sample of nicotine gum and instructions for use.
Outcomes	Abstinence for 1m at 6m (9m for high intensity group, 6m after last contact) Validation: nicotine metabolites in urine
Notes	Using validated quit rates there was no difference between 2 and 3, although self-reported quitting was greater in 3. 2&3 vs 1 with sensitivity analysis of 2 vs 1. 3 vs 2 in analysis of intensity
Allocation concealment	A – Adequate

Study	Windsor 1988
Methods	Setting: University worksite, USA Recruitment: Employees volunteering for a quit smoking programme Randomization: sealed numbered envelopes containing computer-generated assignment, prior to baseline interview.
Participants	378 smokers av. age 37, av. cpd 23-27 Therapist: health educator
Interventions	All groups received a 10 min session of brief advice 1. + S-H manuals 2. + S-H and another session of counselling (20-30 min) with skills training, buddy selection and a contract. 3. as 1. with monetary rewards for cessation 4. as 2. with monetary rewards for cessation
Outcomes	Abstinence at 1 yr (sustained at 6w, 6m, 1yr) Validation: saliva thiocyanate < 100ng/ml at all follow ups.
Notes	There was no apparent effect of monetary incentives so this arm is collapsed. 4&2 vs 3&1. No. of quitters from graphs, checked against AHCPR data
Allocation concealment	A – Adequate
av - average (mean) CI - confidence interval CO - carbon monoxide COHb - carboxyhaemoglobin COPD - chronic obstructive pulmonary disease cpd - cigarettes per day m - month MA - meta-analysis min - minute NRT - Nicotine replacement therapy OR - odds ratio PP - point prevalence (abstinent at defined period) ppm - parts per million S-H - Self help materials TQD - Target Quit Date w - weeks yr - year	

Characteristics of excluded studies

Study	Reason for exclusion
Canga 2000	Intervention provided by a nurse, included in Cochrane review of nursing interventions (Rice 2004).
Colby 1998	Short follow up (three months).
Emmons 2001	Data not available for intervention and control groups separately. No significant difference reported. Cessation was a secondary outcome in this trial using motivational interviewing to reduce passive smoke exposure. Participants were not selected by motivation to quit.
Froelicher 2004	Intervention provided by a nurse; will be relevant for Cochrane review of nursing interventions.
Kadowaki 2000	Intervention was multicomponent and included advice/counselling from a physician, nurse and a group programme. Follow up only 5 months.
Lando 1992	There was no face-to-face contact with counsellors. Contact was by pro-active telephone calls.

Characteristics of excluded studies (Continued)

Malchodi 2003	Intervention specifically for pregnant women, see Cochrane review of smoking cessation interventions in pregnancy (Lumley 2004)
Marks 2002	Intervention was provided in a self-help format.
Niaura 1999	All participants received individual counselling; Included in Cochrane NRT review (Silagy 2002).
Rabkin 1984	The health education arm of the trial included a group meeting with didactic lecture, film and discussion, followed by a single individual session with a therapist. It was decided that this did not meet the criteria for individual counselling.
Rodriguez 2003	Intervention combined the systematic use of NRT with counselling; covered in Cochrane review of worksite interventions, 2005 update (Moher 2005)
Schwartz 1967	Success was defined as reduction in smoking of over 85%, not complete abstinence.
Stevens 2000	Intervention providers were respiratory therapists not counsellors. Included in Cochrane review of interventions in hospital inpatients, (Rigotti 2002).
Woodruff 2002	Short follow up (three months).

ANALYSES

Comparison 01. Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up

Outcome title	No. of studies	No. of participants	Statistical method	Effect size
01 Counselling versus minimal contact control	17	6384	Odds Ratio (Fixed) 95% CI	1.56 [1.32, 1.84]
02 Individual counselling compared to control. Using generic inverse variance to include Bobo	17		odds ratio (Fixed) 95% CI	1.50 [1.27, 1.77]
03 Comparisons between counselling conditions			Odds Ratio (Fixed) 95% CI	Subtotals only
04 Sensitivity analyses for Alterman 2001 in intensive versus brief counselling comparison			Odds Ratio (Fixed) 95% CI	Subtotals only

INDEX TERMS

Medical Subject Headings (MeSH)

*Behavior Therapy; *Counseling; Psychotherapy, Group; Randomized Controlled Trials; Smoking [*prevention & control]; Smoking Cessation [*methods]

MeSH check words

Humans

COVER SHEET

Title Individual behavioural counselling for smoking cessation

Authors Lancaster T, Stead LF

Individual behavioural counselling for smoking cessation (Review)
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Contribution of author(s)	TL and LS jointly conceived the review, developed the protocol, extracted data, wrote the text and are guarantors. LS conducted the searches and preliminary screening of studies.
Issue protocol first published	1998/4
Review first published	1999/2
Date of most recent amendment	25 May 2005
Date of most recent SUBSTANTIVE amendment	08 February 2005
What's New	Three new studies have been included in an update in 2005. There are no changes to the implications for practice.
Date new studies sought but none found	Information not supplied by author
Date new studies found but not yet included/excluded	Information not supplied by author
Date new studies found and included/excluded	14 February 2002
Date authors' conclusions section amended	08 April 2002
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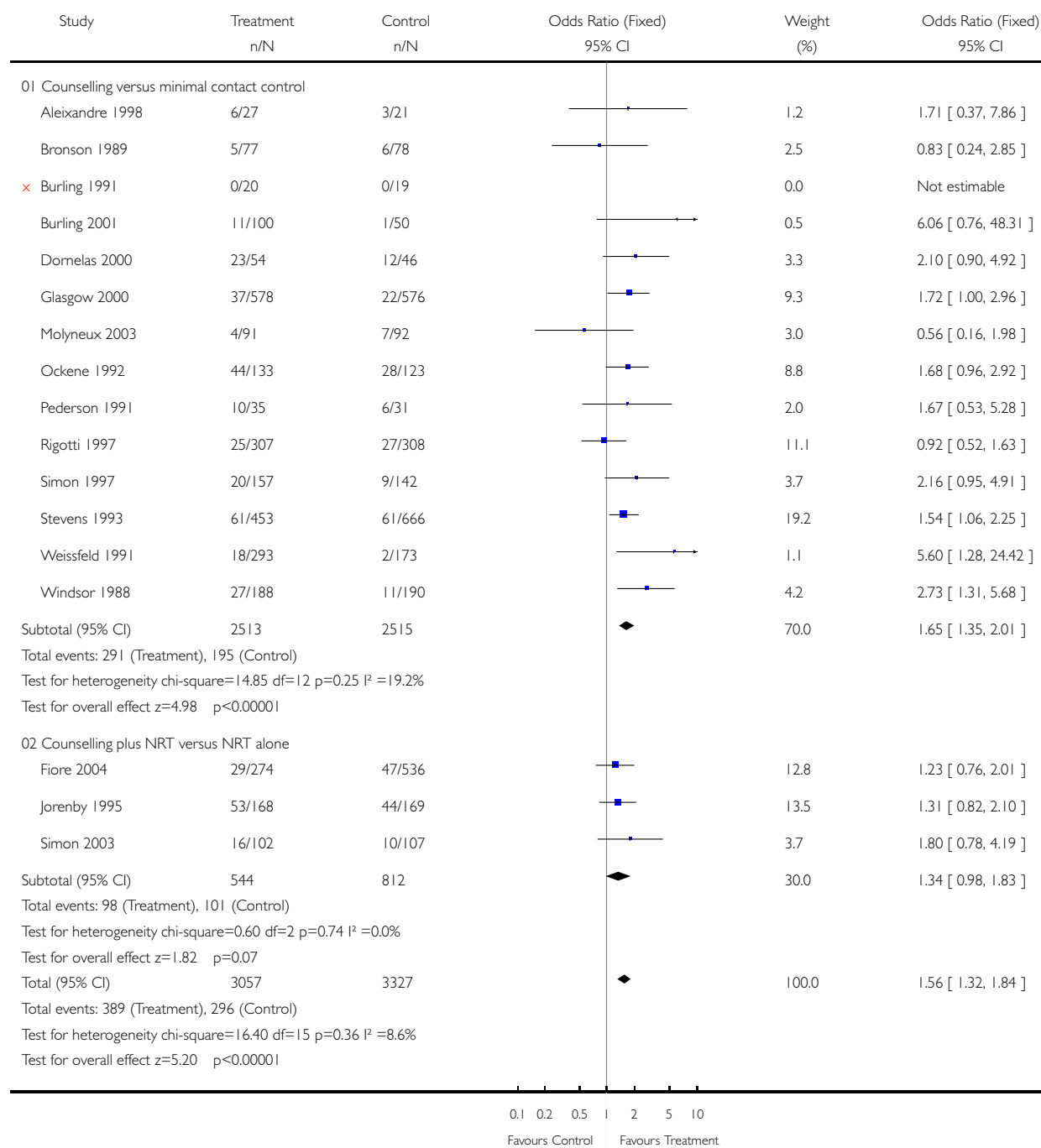
GRAPHS AND OTHER TABLES

Analysis 01.01. Comparison 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up, Outcome 01 Counselling versus minimal contact control

Review: Individual behavioural counselling for smoking cessation

Comparison: 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up

Outcome: 01 Counselling versus minimal contact control

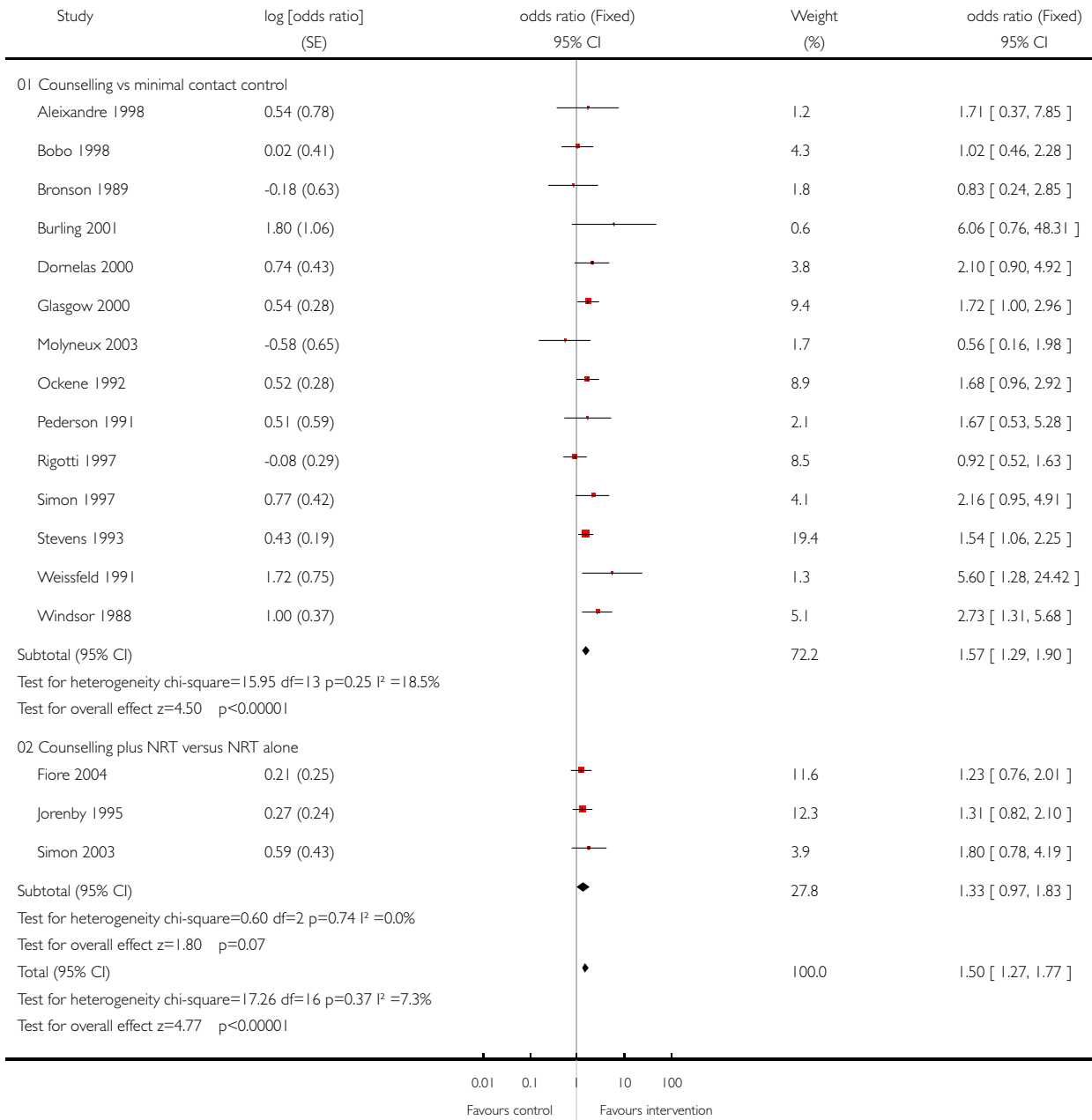


Analysis 01.02. Comparison 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up, Outcome 02 Individual counselling compared to control. Using generic inverse variance to include Bobo

Review: Individual behavioural counselling for smoking cessation

Comparison: 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up

Outcome: 02 Individual counselling compared to control. Using generic inverse variance to include Bobo

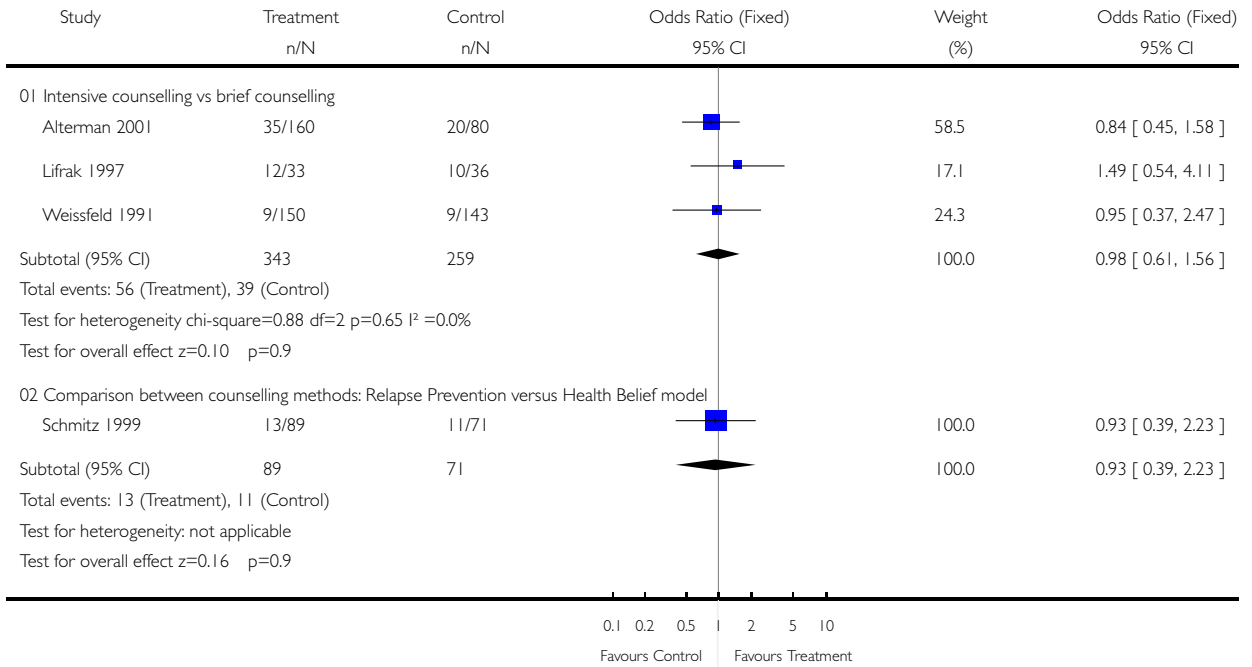


Analysis 01.03. Comparison 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up, Outcome 03 Comparisons between counselling conditions

Review: Individual behavioural counselling for smoking cessation

Comparison: 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up

Outcome: 03 Comparisons between counselling conditions



Analysis 01.04. Comparison 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up, Outcome 04 Sensitivity analyses for Alterman 2001 in intensive versus brief counselling comparison

Review: Individual behavioural counselling for smoking cessation

Comparison: 01 Individual counselling compared to comparison intervention. Smoking cessation at longest follow-up

Outcome: 04 Sensitivity analyses for Alterman 2001 in intensive versus brief counselling comparison

