Wiener
Gebietskrankenkasse

Tabakprävention

bei Kindern und Jugendlichen

Analyse der internationalen Evidenz

Rapid Assessment

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1. RAPID ASSESSMENT

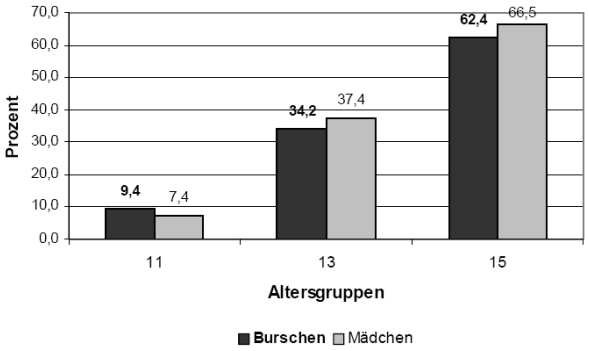
1.1. Ausgangslage

Rauchen gilt international all ein bedeutendster Risikofaktor für die jugendliche Gesundheit und stellt weltweit eine der zwei bedeutsamsten vermeidbaren Todesursachen dar[1]. Es ist an der Entstehung zahlreicher Erkrankungen beteiligt, darunter Herz-Kreislauferkrankungen, Atemwegserkrankungen (chronische Bronchitis, Asthma, Lungenemphysem), zahlreicher Krebserkrankungen und beeinträchtigt die körperliche Leistungsfähigkeit. Obwohl viele dieser Erkrankungen erst als Spätfolgen in Erscheinung treten, belegen Studien dennoch, dass bereits Jugendliche gesundheitliche Folgeschäden wie Einschränkungen der Lungenfunktion, asthmatische Probleme, Kurzatmigkeit aufweisen.[2;3] Das Risiko, an Lungenkrebs zu sterben verdoppelt sich, wenn RaucherInnen vor dem Erreichen des 15. Lebensjahres mit dem Rauchen begonnen haben gegenüber RaucherInnen, die erst zehn Jahre später einen regelmäßigen Zigarettenkonsum aufgenommen haben.[4] Die überwiegende Mehrzahl der erwachsenen RaucherInnen beginnen bereits vor ihrem 18. Lebensjahr mit dem Rauchen[5;6], Studien zufolge betrifft dies bis zu 80 % aller RaucherInnen[7]. Berechnungen zufolge wird ein Viertel aller RaucherInnen, die als Jugendliche zu rauchen begonnen und dieses Verhalten über zwei Jahrzehnte hinweg fortgesetzt haben, zwischen dem 35. und 69. Lebensjahr – also lange vor der durchschnittlichen Lebenserwartung - an den direkten Folgen des Tabakkonsums sterben. [8]

Daten aus der im Jahr 2006 durchgeführten HBSC-Studie (Health Behaviour in School-aged Children)[9] über „die Gesundheit der österreichischen SchülerInnen im Lebenszusammenhang“ zeigen, dass 35% der 13jährigen SchülerInnen (Burschen 33,5%, Mädchen 36,6%) angeben jemals geraucht zu haben. Erwartungsgemäß steigt dieser Prozentsatz mit dem Alter der Befragten an: waren es bei den 11-jährigen SchülerInnen 8,4%, die bereits Erfahrungen mit der Zigarette gesammelt haben, so trifft dies bei den 15-jährigen Burschen und Mädchen bereits auf zwei von drei SchülerInnen zu.

[1] WHO 2003
[2] Dür 2002 a
[3] Dür 2002 b
[4] Nordlohne 1992
[5] Lamkin/Houston 1998
[6] Houston et al. 1998
[7] Moolchan et al. 2000
[8] International Agency for Research on Cancer 2004.
[9] HBSC 2006

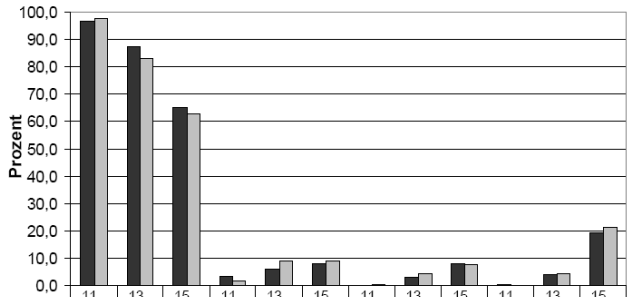
Anteil der 11-, 13- und 15-jährigen SchülerInnen, die bereits Erfahrungen mit der Zigarette haben, nach Alter und Geschlecht (2006)



Als Experiment- und Probierverhalten ist das Rauchen also weit verbreitet, was PräventionsexpertInnen allerdings nicht erschreckt. Denn erfreulicherweise entwickeln längst nicht alle SchülerInnen aus dem Probierrauchen ein stabiles Risikoverhalten. Für viele hat das Probierrauchen, das von fast allen RaucherInnen nachträglich als schmerzhaft, kratzig, Übelkeit erzeugend und stinkend beschrieben wird, einen präventiven Effekt.

Den aktuellen Daten zufolge, geht „nur" jeder zweite Jugendliche (49,6%), der schon einmal das Rauchen probiert hat, über dieses Probierverhalten hinaus. Gelegentlich, d.h. seltener als einmal pro Woche, greifen 5,9% der befragten Mädchen und Burschen zur Zigarette, wohingegen 3,7% dies wöchentlich, 7,6% sogar täglich tun. Interessant ist, dass sich die Geschlechter in Hinblick auf ihr Rauchverhalten nur marginal voneinander unterscheiden. Wenig überraschend ist hingegen, dass die Gruppe der RaucherInnen und hier vor allem der täglichen RaucherInnen mit dem Alter deutlich anwächst. So zählen bei den 15-jährigen Burschen und Mädchen bereits 36,4% der SchülerInnen zu den RaucherInnen, wobei 20,1% täglich diesem Verhalten nachgehen.

Raucherstatus der 11-, 13- und 15-jährigen SchülerInnen, nach Alter und Geschlecht (2006)



	gar nicht			gelegentlich			wöchentlich			täglich		
	11	13	15	11	13	15	11	13	15	11	13	15
Burschen	96,3	87,3	64,9	3,2	5,9	8,0	0,1	2,9	8,0	0,4	3,9	19,0
Mädchen	97,8	82,9	62,5	1,6	8,6	8,9	0,4	4,2	7,5	0,1	4,2	21,1

Raucherstatus

Neben der Regelmäßigkeit mit der geraucht wird, spielt auch die Menge an gerauchten Zigaretten eine bedeutende Rolle. Bezogen auf alle RaucherInnen, die GelegenheitsraucherInnen inklusive, zeigt sich, dass 63,4% weniger als fünf Zigaretten täglich rauchen (Burschen 60,5%, Mädchen 66%). Mehr als zehn Zigaretten täglich rauchen hingegen 20% der RaucherInnen - 8,5% sogar mehr als ein Päckchen täglich (Burschen 9,3%, Mädchen 7,9%). Die Anzahl der gerauchten Zigaretten steigt mit dem Alter an, was vor allem auf die Zunahme an täglichen RaucherInnen zurückzuführen ist

Für die 15-jährigen SchülerInnen wurde auch das Einstiegsalter erhoben. Die Berechnungen ergeben, dass die RaucherInnen um das 13. Lebensjahr (12,8 Jahre) mit dem Rauchen begonnen haben. Die Geschlechter unterscheiden sich diesbezüglich nicht. Zusätzlich zeigt sich in den Daten, dass die Wahrscheinlichkeit, täglich zu rauchen steigt, je früher die RaucherInnen mit dem Rauchen begonnen haben. Aus Sicht eines Karrieremodells bedeutet dies, dass ein früher Einstieg die Statuspassage zum/zur täglichen RaucherIn begünstigt, der Suchteffekt früher eintritt und die Kontrolle über die Zigarette immer schwieriger wird.

1.2. Zusammenfassung der Ergebnisse

Hintergrund

Rauchen gilt international als ein bedeutendster Risikofaktor für die jugendliche Gesundheit und stellt weltweit eine der zwei bedeutsamsten vermeidbaren Todesursachen dar. Es existiert eine Vielzahl von unterschiedlichen Interventionsmethoden, um präventiv dem Risikofaktor Rauchen bei Jugendlichen entgegenzuwirken. Im Auftrag des Hauptverbandes der österreichischen Sozialversicherungsträger wurde im Rahmen dieses Berichts ein Überblick über die internationale Evidenz zur Tabakprävention bei Kindern (bis 13 Jahre) und Jugendlichen (13-21 Jahre) erstellt.

Forschungsfragen

- Welche Interventionsmodelle zur Tabakprävention bei Kindern und Jugendlichen sind in der internationalen Literatur als effektiv beschrieben?
- Welche Empfehlungen lassen sich für die Konzeption eines Tabakpräventionsprogramms für Kinder und Jugendliche in Österreich daraus ableiten?

Ergebnisse

Im Rahmen eines Cochrane Reviews[10] wurde die Effektivität von **massenmedialen Kampagnen** zur Tabakprävention bei Kindern und Jugendlichen untersucht. Kampagnen in den Massenmedien (Fernsehen, Radio, Zeitungen, Broschüren und Reklametafeln) können junge Menschen davon abhalten zu rauchen, die Evidenz ist jedoch nicht stark. Kampagnen, die mit ihrer Botschaft enger definierte Zielgruppen erreichen konnten hatten eine höhere Erfolgsquote als solche, die die Zielgruppe nicht enger eingrenzen konnten. Effektive Kampagnen dauerten auch länger und waren intensiver als weniger erfolgreiche. Weiters waren bezüglich Zeitpunkt und Art der Kampagne Unterschiede im Erfolg zu messen, wobei ältere Jugendliche Radio und Fernsehen bevorzugen. Veränderungen in der Einstellung, Wissen oder Absicht nicht zu Rauchen beeinflussen nicht generell den langfristigen Erfolg solcher Kampagnen. Zwei von sechs in den Review eingeschlossenen Studien kamen zu

[10] Sowden 1998

dem Schluss, dass massenmediale Kampagnen das Rauchverhalten von jungen Menschen beeinflussen können. Beide Kampagnen hatten ein solides theoretisches Fundament, nutzten formative Forschung beim Design der Kampagnen und waren von angemessener Intensität über einen längeren Zeitraum hinweg. Es gibt einige Hinweise dafür, dass die Massenmedien bei der Verhinderung der Verbreitung des Rauchens bei jungen Menschen wirksam sein können, insgesamt ist der Evidenznachweis jedoch nicht sehr stark.

Im Rahmen eines Cochrane Reviews[11] aus dem Jahr 2007 wurde die Wirksamkeit von **Interventionen zur Unterstützung von Familienmitgliedern** bei der Stärkung der Nichtraucher-Einstellungen bzw. der Förderung des Nichtrauchens bei Kindern untersucht. Vier von neun Studien, die eine familienorientierte Intervention im Vergleich zur Kontrollgruppe untersuchte, zeigten signifikant positive Effekte. Eine Studie zeigte jedoch auch signifikant negative Effekte. Eine von fünf RCT´s die ein familienorientiertes Programm im Vergleich zu einer Intervention im Setting Schule in der Kontrollgruppe untersuchte, zeigte signifikant positive Effekte. Die Studienergebnisse lassen den Schluss zu, dass familienorientierte Programme dabei helfen können das Rauchverhalten von Kindern zu beeinflussen. Allerdings hängen positive Ergebnisse auch davon ab, wie gut das Personal geschult ist und wie gut die Inhalte des Programms der Zielgruppe vermittelt werden.

Obwohl im Rahmen der Analyse der internationalen Literatur einige positive Ergebnisse in einer kurzfristigen Perspektive zur **Tabakprävention im Setting Schule** gefunden wurden, gibt es wenig Anzeichen dafür, dass Präventionsprogramme die lediglich im Setting Schule alleine ansetzen ein effektives Mittel sind auch über einen längeren Zeitraum hinweg Kinder und Jugendliche vom Rauchen abzuhalten[12]. Im Rahmen eines Cochrane Reviews[13] aus dem Jahr 2006 wurden 23 randomisierte kontrollierte Studien der Kategorie 1 (höchste Validität) einer genaueren Analyse unterzogen, wobei die Interventionsmethoden stark variierten (Informationsvermittlung, soziale Einflüsse, Vermittlung sozialer Fähigkeiten als auch kombinierte Modelle die das Setting Gemeinde inkludierten). Auf Grund der Studienergebnisse gibt es begrenzte Anzeichen dafür, dass Präventionsprogramme die lediglich Informationen über das Rauchen und deren negative Auswirkungen vermitteln, effektiv sind. Ein Grossteil der Studien hatte Interventionen die auf Modelle des sozialen Einflusses aufbauen zum Inhalt. Obwohl die Hälfte der in den Review eingeschossenen Studien mit höchster Validität dieser Interventionsmethode in einer kurzfristigen Perspektive

[11] Thomas 2007
[12] Wiehe 2005
[13] Thomas 2006

positive Ergebnisse hinsichtlich des Rauchverhaltens zeigen konnten, wurden bei jener Studie mit der höchsten Qualität und der längsten Evaluationsdauer (Hutchinson Smoking Prevention Projekt) keine langfristigen Effekte nach 65 Einheiten über 8 Jahre verteilt nachgewiesen. Weiters konnten begrenze Evidenznachweise für die Effekte von Interventionen, die die Vermittlung grundlegender sozialer Kompetenz als auch für Interventionen die einen multimodalen Ansatz unter Einbeziehung des Settings Gemeinde zum Inhalt hatten, gefunden werden.

Im Rahmen eines Cochrane Reviews[14] aus dem Jahr 2003 konnten begrenzte Hinweise dafür gefunden werden, dass **Interventionen im Setting Gemeinde** helfen können Kinder und Jugendliche vom Rauchen abzuhalten. Von dreizehn Studien die eine Intervention im Setting Gemeinde verglichen mit keiner Intervention in der Kontrollgruppe evaluiert haben, konnten zwei, die Teil eines großen Präventionsprogramms von kardiovaskulären Krankheiten waren, eine geringere Raucherprävalenz nachweisen. Von drei Studien die eine Intervention im Setting Gemeinde mit einer Intervention lediglich im Setting Schule in der Kontrollgruppe verglichen haben, konnte eine Studie einen Unterschied in der Raucherprävalenz nachweisen. Eine Studie konnte eine geringere Anstiegsrate in der Raucherprävalenz bei einer multimodularen Interventionsgruppe verglichen mit einer Kontrollgruppe, bei der lediglich durch Massenmedien interveniert wurde, zeigen.

Die Entscheidung mit dem Rauchen zu beginnen bzw. das Rauchen fortzusetzen wird von einer Vielzahl von Faktoren beeinflusst. Interventionen im Setting Gemeinde zielen darauf ab, durch koordinierte, breit gefächerte multimodulare Programme das Verhalten der Menschen zu beeinflussen. Dies inkludiert Altersbeschränkungen, Restriktionen im Tabakvertrieb, Programme zur Vermeidung von bestimmten Krankheiten (z.B. Herzkrankheiten), Massenmediale Kampagnen als auch Schulprogramme. Im Rahmen des Cochrane-Reviews[15] wurden Evidenzhinweise dafür gefunden, dass **multimodulare, koordinierte Programme** die Raucherpävalenz bei Jugendlichen senken können und deshalb effektiver sein können als singuläre Strategien zur Prävention des Tabakkonsums von Jugendlichen. Auch im European Smoking Prevention Framework Approach (ESFA) konnten positive Ergebnisse für multimodale Programme gefunden werden.

[14] Swoden 2003
[15] Swoden 2003

Die Effektivität von **Tabakentwöhnungsprogrammen bei Jugendlichen** wurde 2006 in einem Cochrane Review[16] einer Analyse unterzogen. Komplexe Programme die speziell auf die Vorbereitung eines Rauchstopps bei jungen Menschen zugeschnitten sind und Verhaltenstherapien zeigen gewisse positive Ergebnisse. Es gibt jedoch noch nicht genügend große Studien mit einer qualitätsvollen Definition eines Rauchstopps in einer längerfristigen Perspektive, um von einer gesicherten Effektivität solcher Tabakentwöhnungsprogramme für Jugendliche zu sprechen. Pharmakologische Produkte wurden bei Jugendlichen noch nicht ausreichend getestet.

Sussmann[17] berichtet in einem Review von durchschnittlichen Rauchstopp-Quoten von 12 % bei Interventionsgruppen und rd. 7 % bei Kontrollgruppen in einem Zeitraum von 3 bis 12 Monaten nach Interventionsbeginn. Jene Programme die motivationsfördernde Ansätze zum Inhalt hatten, konnten die höchsten Rauchstopp-Quoten von durchschnittlich 19 % vorweisen. Programme, die in Schulklassen durchgeführt wurden, konnten die besten Ergebnisse erzielen (19 %), während IT-basierte Programme rund 13 % Rauchstopp in der Interventionsgruppe erzielten. Obwohl auch Sussmann teilweise schlechte Datenqualität der einzelnen Studien kritisierte, kam er auf Grund der Ergebnisse von insgesamt 66 untersuchten Studien zu dem Schuss, dass sich die Rauchstopp-Quoten mit einem Entwöhnungsprogramm verdoppeln. Als Follow-up des Reviews von Sussmann wurden von Mitgliedern der YTCC (Youth Tobacco Cessation Collaborative) Studienergebnisse verstärkt nach der Studienqualität gewichtet. Die Autoren des 2003 publizierten Berichts[18] kamen zu dem Schluss, dass Interventionen die am kognitiven Verhalten ansetzen Jugendliche bei einem Rauchstopp am besten unterstützen.

[16] Grimshaw 2006
[17] Sussman 2002
[18] McDonald 2003

1.3. Handlungsempfehlungen

- Soziale Einflusse bestimmen das Rauchverhalten von Kindern und Jugendlichen maßgeblich. Die Vermittlung grundlegender sozialer Kompetenz, das Erkennen von Risikosituationen das Erlernen der Fähigkeit zu Widerstehen sowie der Einfluss von Peers sind grundlegende Ansatzpunkte die im Rahmen der Planung von Maßnahmen zur Tabakprävention bei Kindern und Jugendlichen Berücksichtigung finden sollten.

- Programme zur Prävention von Tabakkonsum von Kindern und Jugendlichen sollten multimodular aufgebaut sein, in den Settings Schule und Gemeinde koordiniert durchgeführt werden und den Einfluss der Familienmitglieder auf das Rauchverhalten berücksichtigen.

- Bei der Zielgruppendefinition ist das Probier- und Rauchverhalten der österreichischen Jugendlichen zu berücksichtigen.

- Die operative Durchführung sollte von adäquat ausgebildeten Expertinnen und Experten vorgenommen werden. Bei der Einbindung von Lehrerinnen und Lehrern sollte großes Gewicht auf eine qualitätsvolle Weiterbildung hinsichtlich der Programminhalte gelegt werden.

- Die Evaluation der Effekte eines Präventionsprogramms sollte auf einen längern Zeitraum ausgelegt sein. Bei der Evaluation der Effekte sollte eine biochemische Verifikation (CO-Messung) zusätzlich zu verbalen oder schriftlichen Angaben der Jugendlichen durchgeführt werden.

- Begleitende mediale Maßnahmen sollten ein solides theoretisches Fundament besitzen, sowie formative Forschung beim Design der Kampagnen zu Grunde legen. Eine angemessene Intensität über einen längeren Zeitraum hinweg ist zu empfehlen. Es ist abzuwägen, ob die dafür entstehenden Opportunitätskosten angemessen sind.

- Komplexe Programme die speziell auf die Vorbereitung eines Rauchstopps bei jungen Menschen zugeschnitten sind und Verhaltenstherapien können bereits rauchende Jugendliche dabei unterstützen mit dem Rauchen aufzuhören.

1.4. Methode und Literatursuche

Der vorliegende Bericht basiert in wesentlichen Teilen auf einer Literatursuche in der Cochrane Database of Systematic Reviews (Chochrane Reviews) sowie ergänzender Literatursichtung im NHS Centre for Reviews and Dissemination.

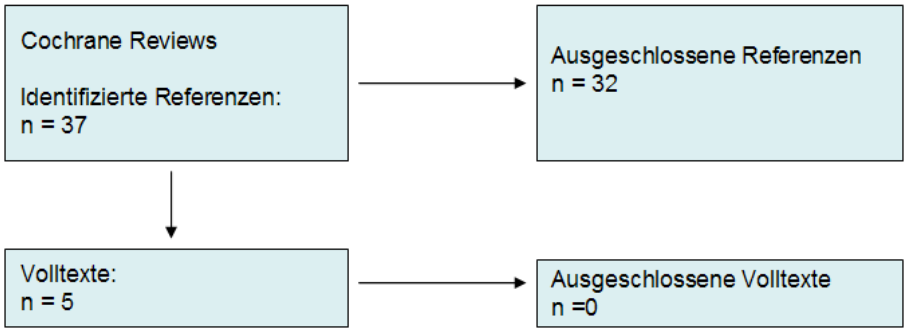
Die Cochrane Library wurde mit den Suchwörtern: smoking OR tobacco AND prevention nach Reviews durchsucht.

Einschlusskriterien:

- Maßnahmen der Gesundheitsförderung und/oder Prävention
- Fokus auf Kinder und/oder Jugendliche

Ausschlusskriterien:

1) Keine Maßnahmen der Gesundheitsförderung und/oder Prävention
2) Interventionen mit Fokus auf Erwachsene
3) Fokus auf Tabakkonsum und Schwangerschaft
4) Fokus auf Reduktion von Passivrauch
5) Fokus auf Interventionen, die durch die Sozialversicherung nicht beeinflussbar sind (z.B. Werbeverbote)



1998 wurde ein Cochrane Review[19] mit dem Ziel erstellt, die Effektivität von massenmedialen Präventionskampagnen hinsichtlich eines Rauchstarts von Jugendlichen zu untersuchen.

[19] Swoden 1998

Dabei erfüllten 6 von insgesamt 63 Studien alle Einschlusskriterien für einen Cochrane Review.

2003 wurde eine Cochrane Review[20] mit dem Ziel erstellt, die Effektivität von Interventionen im Setting Gemeinde hinsichtlich der Prävention des Rauchstarts von Jugendlichen zu untersuchen. Dabei wurden 17 Studien in den Review eingeschlossen. Alle Studien hatten ein kontrolliertes Studiendesign, wobei 6 davon ein randomisiertes Studiendesign hatten.

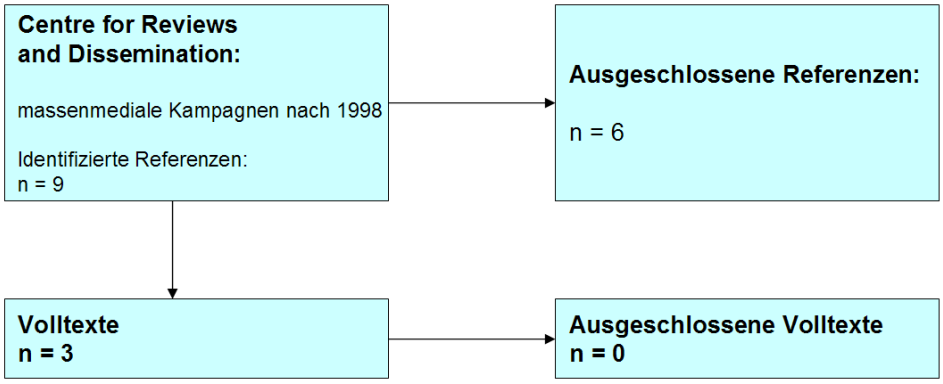
2006 wurde ein Cochrane-Review[21] mit dem Ziel erstellt, die Evidenzlage zu verhaltenstherapeutischen Interventionen in Schulen bei Kindern (5 – 12 Jahre) und Jugendlichen (13 – 18 Jahre) darzulegen. Dabei wurden fünf unterschiedliche Interventionsmethoden identifiziert und deren Effektivität verglichen. Im Rahmen dieses Reviews wurden insgesamt 93 RCT´s eingeschlossen, wobei 23 davon der Kategorie 1 (most valid) zugeordnet wurden.

2006 wurde ein Cochrane Review[22] mit dem Ziel erstellt, die Effektivität von Raucherentwöhnungsinterventionen bei Jugendlichen zu untersuchen. Insgesamt wurde 15 Studien in diesen Review eingeschlossen (7 Cluster-RCT´s, 6 kontrollierte Studien und 2 kontrollierte Studien).

2007 wurde ein Cochrane Review[23] mit dem Ziel erstellt, die Effektivität von Interventionen zu bewerten, die Familienmitglieder dabei unterstützten die Nichtraucher-Einstellung zu stärken und das Nichtrauchen von Kindern und anderen Familienmitgliedern zu fördern. Insgesamt wurden 22 RCT´s in diesen Review eingeschlossen.

Ergänzend zur Literatursuche in der Cochrane Database of Systematic Reviews wurde eine Literatursichtung in der Datenbank des NHS Centre for Reviews and Dissemination für den Bereich der massenmedialen Kampagnen durchgeführt, die nach 1998 publiziert wurden.

[20] Swoden 2003
[21] Thomas 2006
[22] Grimshaw 2006
[23] Thomas 2007



1999 wurde vom NHS Centre for Reviews and Dissemination ein HTA-Bulletin[24] erstellt, in dem auch die Effektivität von massenmedialen Kampagnen beschrieben wurde.

2002 wurde von Friend/Levy[25] ein Review über massenmediale Kampagnen zur Reduktion der Raucherprävalenz und des Zigarettenkonsums erstellt. Dabei wurden massenmediale Kampagnen die auf die Gesamtbevölkerung abzielen, aber auch speziell solche mit Fokus auf Jugendliche einem Review unterzogen.

Weiters wurden teilweise im Cochrane Review über Interventionen im Setting Gemeinde[26] Teilaspekte von massenmedialen Kampagnen beleuchtet.

Ergänzend zur Literatursuche in der Cochrane Database of Systematic Reviews wurde eine Literatursichtung in der Datenbank des NHS Centre for Reviews and Dissemination für den Bereich der Interventionen im Setting Gemeinde bzw. von multimodularen Programmen durchgeführt, die nach 2003 publiziert wurden.

Im Rahmen des European Smoking Prevention Framework Approach (ESFA) wurden die Effekte eines multimodalen Programms[27] gemessen. Dabei wurden die Ergebnisse aus 6 europäischen Ländern verglichen.

[24] NHS CRD 1999
[25] Friend 2002
[26] Swoden 2003
[27] De Vries 2006

Zusätzlich wurden folgende Reviews identifiziert und in den Handlungsempfehlungen des Berichts berücksichtigt:

2005 wurde ein systematischer Review[28] mit dem Ziel erstellt, Evidenz von Tabakpräventionsprogrammen im Setting Schule auf ihre Langzeitwirkung hin zu untersuchen. Insgesamt wurden 8 Studien[29] in diesen Review eingeschlossen.

2006 wurde von Park[30] ein Review erstellt, dessen Ziel es war die Evidenzlage von Tabakpräventionsprogrammen im Setting Schule bei Jugendlichen in Südkorea zu analysieren. Dabei wurden erstmals Forschungsergebnisse aus Südkorea ins Englische übersetzt und somit der wissenschaftlichen Gemeinschaft zugänglich gemacht. Im Rahmen dieses Reviews wurden insgesamt 11 Studien[31] eingeschlossen. Zwar konnten einige Studien ein verbessertes Wissen über Tabakkonsum nachweisen, keine der eingeschlossenen Studien konnte jedoch einen signifikant positiven Effekt bezüglich des Rauchverhaltens nachweisen.

Weiters wurde 2003 ein Review[32] erstellt, der allgemein Tabakpräventionsprogramme und Tabakentwöhnungsprogramme bei Kindern und Jugendlichen untersuchte.

[28] Wiehe 2005
[29] Botvin 1995, Dent 2001, Ellickson 2003, Flay 1989, Lynam 1999, Peterson 2000a, Shean 1994, Sussman 1998
[30] Park 2006
[31] Kim 1992, Roh 1996, Hwang 1999, Kim 2000, Han 2001, Park 2001, Roh 2001, Doo 2002, Park 2003, Kim 2003, Park 2004
[32] Backinger 2003

2. DARSTELLUNG DER EVIDENZ

2.1. Präventionskampagnen in Massenmedien

Die Effektivität von massenmedialen Präventionskampagnen für Jugendliche wurde in einem Cochrane Review[33] 1998 untersucht. Im Rahmen des Reviews wurden insgesamt sechs Studien eingeschlossen, wobei drei[34] davon reine massenmediale Kampagnen zum Inhalt hatten und drei[35] weitere Studien eine Kombination aus massenmedialer Intervention in Kombination mit einer Intervention im Setting Schule zum Inhalt hatten.

Worden 1983 untersuchte in den USA TV-Spots die auf dem Ansatz des sozialen Einflusses aufgebaut waren und in drei Blöcken über jeweils 13 Wochen gesendet wurden. Zielgruppe dieser Kampagne waren 10-12jährige Kinder, die TV Spots wurden über einen regionalen Sender ausgestrahlt. Als Kontrollgruppe fungierte eine Region die außerhalb der Sendereichweite der regionalen Kabelsender. Als Claim wurden positive dargestellte Rolemodels (NichtraucherInnen) verwendet, die die Vorzüge eines rauchfreien Lebens darlegten. Die Evaluationsergebnisse wurden mit einer vergleichbaren Region außerhalb der Reichweite des Senders verglichen. Insgesamt wurden 4005 SchülerInnen in diese Studie eingeschlossen (1242 in der Interventionsgruppe und 2763 in der Kontrollgruppe). Nach 18 Monaten konnte kein statistisch signifikanter Unterschied hinsichtlich des Rauchverhaltens zwischen den Regionen gemessen werden. Details zu dieser Studie befinden sich im Anhang.

Baumann 1991 untersuchte in den USA die Effektivität einer Präventionskampagne die erwartete Konsequenzen des Tabakkonsums zum Inhalt hatte und über die Kommunikationskanäle TV, Radio und Postwürfe verbreitet wurde. Über den Radiospot wurde jungen Menschen zusätzlich zu der Vermittlung von negativen Folgen des Tabakkonsums die Möglichkeit geboten im Rahmen eines Wettbewerbs Freunde zu rekrutieren. Es wurde erwartet, dass sich daraus entstehende Diskussionen über Tabakkonsum zu positiven Folgen hinsichtlich de Rauchverhaltens führen. Die Kampagne dauerte insgesamt 15 Monate. Zwischen der Interventionsregion und der Kontrollregion

[33] Swoden 1998
[34] Worden 1983, Bauman 1991, Hafstad 1997
[35] Flay 1987, Flay 1995, Flynn 1995

konnten keine Unterschiede hinsichtlich der Wirksamkeit der Kampagne festgestellt werden. Details zu dieser Studie befinden sich im Anhang.

Hafstad 1997 evaluierte eine Medienkampagne über mehrere Kommunikationskanäle (Zeitungen, Poster, TV- und Kinospot), die je 3 Wochen einmal jährlich über 3 Jahre durchgeführt wurde. Die Kampagne hatte provokative emotionale Appelle zum Inhalt, die hauptsächlich an Mädchen gerichtet waren. Diese in einer norwegischen Region durchgeführte Kampagne wurde mit einer vergleichbaren Region (Größe, Bildungslevel, Einkommen der Eltern, Raucherprävalenz) als Kontrollgruppe verglichen. In der Interventionsregion nahmen 4.898 Jugendliche und in der Kontrollregion 5.439 Jugendliche an der Basline-Untersuchung teil. In der Interventionsregion war der Anstieg von täglichen weiblichen RaucherInnen ein Jahr nach dem Ende der Kampagne (4 Jahre nach Baseline-Messung) um 4 % niedriger als in der Kontrollregion (8,6 % vs. 12,4 %). Obwohl nicht statistisch signifikant wurde dieser Trend auch für männliche Raucher (6,8 % Interventionsregion vs. 10,5 % in der Kontrollregion) festgestellt. Der Odds Ratio betrug 0,74 (95 % CI; 0,64-0,86). Details zu den Studienergebnissen befinden sich im Anhang.

In den Studien von Flay (1987 und 1995) wurden Programme im Setting Schule, die auf der Kompetenzstärkung um sozialen Einflüssen zu widerstehen aufgebaut waren mit TV-Spots kombiniert. Die TV-Spots waren für die Interventionsgruppe als auch für die Kontrollgruppe zugänglich. Es konnten keine signifikanten Effekte des TV-Spots gemessen werden. Details zu diesen beiden Studien befinden sich im Anhang.

Flynn 1995 untersuchte die Effektivität von TV und Radio-Spots, die zusätzlich zu Präventionsprogrammen im Setting Schule geschalten wurden und als theoretische Basis die Theorie des sozialen Lernens zum Inhalt hatten. Nach zwei Jahren hatten die SchülerInnen der Region mit TV-Kampagne und Intervention im Setting Schule ein geringeres Risiko wöchentlich zu Rauchen im Vergleich zur Kontrollregion, die lediglich die Intervention im Setting Schule erhielt (OR 0,62, 95 % CI; 0,49-0,78).

Flynn 1995 lieferte auch Daten über die Kosteneffektivität der Kampagne. Die Kosten bei einem Zinssatz von 3 % betrugen 696,-- USD pro gewonnenen Lebensjahr.

Bei beiden Studien mit positiven Ergebnissen hinsichtlich der Raucherprävalenz (Flynn 1995 und Hafstad 1997) konnten auch statistisch signifikante Unterschiede zwischen der

Interventions- und Kontrollgruppe hinsichtlich Einstellung zum Rauchen bzw. der Absicht in der Zukunft zu Rauchen festgestellt werden.

2002 wurde ein Review[36] von Friend über die Effektivität von massenmedialen Kampagnen zur Reduktion der Raucherprävalenz erstellt. In 2 Bundesstaaten wurden Präventionskampagnen zum Thema Tabakkonsum mit Fokus auf Kinder und Jugendliche durchgeführt. In Arizona wurden, nachdem die Tabaksteuer um 0,40 USD erhöht wurde, 23 % der Mehreinnahmen aus dieser Tabaksteuererhöhung (rund 27 Mio. USD jährlich) in Tabakkontrollmaßnahmen investiert. Bilaous und Glantz[37] berichten über einen Rückgang des pro Kopf Zigarettenkonsums von 8 %. Allerdings wird dieser Wert in der Literatur kritisch hinterfragt, da keine Basline-Messung durchgeführt wurde.[38] In Florida wurde 1998 um 25 Mio. USD die „Truth“ Medienkampagne gestartet, welche inhaltlich direkt die Tabakindustrie attackiert hatte, später jedoch von diesem Claim abwich. Die RaucherInnenquote sank nach einem Jahr bei SchülerInnen der „middleschool“ von 18,5 % auf 15 % und bei SchülerInnen der „Highschool“ von 27,4 % auf 25,2 %.[39]

[36] Friend 2002
[37] Bilaous 1999
[38] Wakefield 2000
[39] Centers for Disease Control and Prevention 1999

2.2. Familienorientierte Programme

Das Verhalten der Eltern als ein signifikanter Faktor für das Rauchverhalten von Jugendlichen wurde Studien nachgewiesen.[40] Eine Kohortenstudie im Rahmen des Hutchinson Smoking Prevention Project[41] hat nachgewiesen, dass Kinder deren Eltern niemals geraucht haben am seltensten rauchen (Odds reduziert um 71 % verglichen mit Kindern bei denen beide Eltern rauchen). Weiters wurde im Rahmen dieser Kohortenstudie festgestellt dass auch Kinder deren Eltern mit dem Rauchen aufgehört haben seltener rauchen (Odds reduziert um 39 %).

Die Wirksamkeit von Interventionen zur Unterstützung von Familienmitgliedern, die Einstellung von Kindern und Jugendlichen zum Nichtrauchen zu fördern, wurde 2007 in einem Cochrane Review[42] untersucht. Im Rahmen des Reviews wurden 22 RCT´s identifiziert, die diese Forschungsfrage zumindest teilweise zum Inhalt hatten. Sechs[43] davon wurden als Studien der Kategorie 1 (minimales Risiko eines Bias), zehn[44] der Kategorie 2 und sechs[45] der Kategorie 3 zugerechnet.

Zur Forschungsfrage, ob familienorientierte Interventionen besser als keine Intervention bzw. Standardversorgung sind, konnten vier[46] Studien postive Effekte mit einer familienorientierten Intervention nachweisen, während vier weitere Studien[47] keine Effekte nachweisen konnten (Eckdaten siehe Anhang). Eine Studie[48] zeigte sogar negative Effekte.

Jackson 2006 verglich gedruckte Leitfäden, Erziehungstipps, Newsletter sowie andere Anreize (Yoyos, Kameras, etc.) des „Smoke Free“ Programms mit einer Kontrollgruppe und zeigte, dass in der Kontrollgruppe nach 3 Jahren eher mit dem Rauchen begonnen wurde (19,3 %) als in der Intervetionsgruppe (11,9 %) (OR 2,16, 95 % CI, 1,39-3,37).

Spoth 2001 zeigte niedrigere Rauchquote bei dem „Iowa Strengthening Families Program“ (ISFP) im Vergleich zur Kontrollgruppe. Nach 1 Jahr waren 13,9 % des Iowa Strengthening Families Program und 16,7 % in der Kontrollgruppe neue Raucher/innen (relative Differenz

[40] Mounts 2002
[41] Bricker 2003
[42] Thomas 2007
[43] Baumann 2001, Curry 2003, Schinke 2004, Spoth 2001, Spoth 2002, Storr 2002
[44] Ary 1990, Biglan 1987, Cullen 1996, Elder 1996, Forman 1990, Jackson 2006, Josendal 1998, Nutbeam 1993, Stevens 2002, Wu 2003
[45] Conell 2007, Dishion 1995, Knutsen 1991, Olds 1998, Reddy 2002, Salminen 2005
[46] Jackson 2006, Josendal 1998, Spoth 2001, Storr 2002
[47] Baumann 2001, Biglan 1997, Curry 2003, Cullen 1996
[48] Nutbeam 1993

von 27,5 %). Nach 4 Jahren hatten 67,7 % in der ISFP-Gruppe und 50 % der Kontrolgruppe nie geraucht (relative Reduktion für ISFP vs. Kontrollgruppe von 34,8 %).

Storr 2002 zeigte, dass in der Interventionsgruppe (Family-School-Partnership) mehr Personen Nichtraucher/innen geblieben sind als in der Kontrollgruppe (OR – covariante adjustments 0,55; 95 % CI 0,34-0,88).

Josendal 1998 fand bei der Gruppe, die ein familienorientiertes Programm erhielt, nach 3 Jahren weniger neue RaucherInnen (68,3 % Nichtraucher in der Classroom-plus-parents-Gruppe) als in der Kontrollgruppe (58,3 % Nichtraucher) (OR 0,48; 95 % CI, 0,39-0,59). Auch bei der Anzahl der wöchentlich gerauchten Zigaretten zeigte sich ein Unterschied (12,8 für Parents-classroom-group vs. 17,8 für Kontrollgruppe).

Nutbeam 1993 zeigte, dass der Prozentsatz der NichtraucherInnen in der Interventionsgruppe nach 2 Jahren zurückging (von 77,6 % auf 53,8 %) und in der Kontrollgruppe lediglich von 79,6 % auf 62 % sank (OR 1,4; 95 % CI 1,61-1,70).

Details zu den oben genannten Studien befinden sich im Anhang.

Bei Analyse der Forschungsfrage, ob familienorientierte Interventionen besser als Interventionen im Setting Schule sind, konnte lediglich eine Studie[49] positive Effekte zeigen, während vier Studien[50] keine signifikanten unterschiedlichen Effekte nachweisen konnten.

Spoth 2001 zeigte, dass nach einem Evaluationszeitraum von 6 Jahren der Zeitraum, um mit dem Rauchen zu Beginnen für die Teilnehmer des „Iowa Strengthening Families Program (ISFP) 54,9 Monate dauerte, während in der Kontrollgruppe bereits nach 31 Monaten zu rauchen begonnen wurde und in der „Drug Free Years Programme“-Gruppe dieser Zeitraum 31,8 Monate betrug.

Keine der im vier[51] im Rahmen des Cochrane-Reviews untersuchten Studien mit hoher bis mittlerer Qualität konnte signifikante inkrementale Effekte bei der Forschungsfrage nachweisen, ob Programme aus familienorientierten Interventionen plus Interventionen im Setting Schule besser als reine Interventionen im Setting Schule sind. Auch im Vergleich, ob familienorientierte Interventionen die speziell auf Tabakkonsum fokussierten besser als

[49] Spoth 2001
[50] Biglan 1997, Josendal 1998, Nutbeam 1993, Storr 2002
[51] Ary 1990, Biglan 1987, Elder 1996, Forman 1990

Interventionen mit mehreren Zielparametern sind, konnte eine Studie[52], die diese Forschungsfrage untersuchte, keine Unterschiede festgestellen.

Zwei Studien[53] untersuchten die Forschungsfrage, ob familienorientierte Interventionen plus Peergroup Interventionen besser als reine Peergroup Interventionen sind. Beide Studien konnten positive inkrementelle Effekte nachweisen. Beschreibungen über die Eckpunkte der Interventionen befinden sich im Anhang.

[52] Stevens 2002
[53] Schinke 2004, Wu 2003

2.3. Präventionsprogramme im Setting Schule

Der wichtigste wahrgenommene Vorteil von Tabakpräventionsprogrammen im Setting Schule ist, dass durch das Setting Schule fast alle Kinder erreicht werden können. Im Rahmen eines Cochrane Reviews[54] wurden grundsätzlich fünf unterschiedliche Interventionsmethoden identifiziert, die auf jeweils unterschiedlichen theoretischen Modellen aufbauen.

1. **Lehrpläne**, die darauf abzielen den TeilnehmerInnen **Informationen** über das Rauchen einschließlich der gesundheitlichen Risiken von Tabakkonsum und die Inzidenz und Pävalenz des Rauchen zu geben[55]. Dabei wird die Annahme getroffen, dass Information allein dazu führen wird, eine Veränderung des Verhaltens zu bewirken.
2. **Vermittlung sozialer Kompetenz** im Rahmen der Lehrpläne, die auf der Theorie des sozialen Lernens von Bandura[56] aufbauen. Diese Programme nutzen kognitive Verhaltenstherapien (Anleitung, Demonstration, Feedback, außerschulische Praxis im Rahmen von Hausaufgaben). Dabei werden Selbstmanagement und soziale Kompetenz wie Zielsetzung, Problemlösungsfähigkeit, Verbesserung des Selbstwertgefühls als auch die Fähigkeit, Medien und zwischenmenschlichen Einflüssen zu widerstehen, erlernt.
3. **Modelle des sozialen Einflusses**, aufbauend auf McGuire´s Kommunikations-Theorie[57] und Evans`s Theorie der psychologischen Inokulation[58]. Dabei werden normative Bildungsmethoden und Qualifizierungsmaßnahmen zum Widerstehen des Tabakkonsums angewandt. Dazu gehören die Berichtigung der Einschätzung von Jugendlichen über den Tabakkonsum von Erwachsenen, Erkennen von Risikosituationen, Sensibilisierung über die Rolle der Medien, Peerinterventionen, Einflüsse der Familienmitglieder und das Erlernen der Fähigkeit zu Widerstehen.
4. **Kombinierte Methoden** aus Ansätzen der **Vermittlung sozialer Kompetenz** und aus **sozialen Einflüssen**.
5. **Multi-modale Programme**, die Lehrpläne mit umfassenderen Initiativen innerhalb und außerhalb der Schule kombinieren. Dabei werden auch Interventionen für Eltern, Schulentwicklung und das Setting Gemeinde mit einbezogen. Weiters werden Besteuerung, Verkauf, Verfügbarkeit und Nutzung von Tabak mit berücksichtigt.

[54] Thomas 2006
[55] Bangert-Drowns 1988
[56] Bandura 1977
[57] McGuire 1968
[58] Evans 1976

Multi-modale Programme werden in diesem Bericht in einem gesonderten Kapitel dargestellt.

2.3.1. Informationsprogramme im Rahmen der Lehrpläne

Im Rahmen des Cochrane Reviews[59] wurden 10 RCTs zu dieser Thematik untersucht, wobei lediglich eine Studie[60] der Kategorie 1 (höchste Validität), eine Studie[61] der Kategorie 2 und 8 Studien[62] der Kategorie 3 (Risiko eines Bias im Studiendesign und in der Umsetzung, sodass keine Konklusionen aus den Studienergebnissen möglich sind) zugeordnet wurden. Neun Studien fokussierten auf Tabakkonsum, eine Studie auf Tabakkonsum und Herzgesundheit (Howard 1996).

Crone 2003 konnte bei einem in den Niederlanden durchgeführten Präventionsprogramm[63] einen signifikanten Effekt nachweisen. 1 Jahr nach der Intervention haben 25 % der Interventionsgruppe und 29 % der Kontrollgruppe geraucht (OR 0,61; 95 % CI; 0,41-0,91). Die Eckpunkte des Studiendesings sind im Anhang dargestellt.

Bei einem weiteren in den Niederlanden durchgeführten Programm[64] konnte von Ausems ebenfalls ein positiver Effekt gemessen werden. Nach 12 Monaten hatten von den Nichtraucher/innen zur Nullmessung 25 % der „out of school group“ , 28 % der „in-school-group“, 29 % der “in-and-out-of-school-group“ jedoch 41 % der Kontrollgruppe geraucht. Nach18 Monaten hatten 27 % der “out of school group”, 40 % der “in and out-of-school group” und 48 % der Kontrollgruppe mit dem Rauchen begonnen.

Weitere Studien[65], die ein Informationscurriculum mit anderen Interventionsstudien verglichen haben zeigten, dass Informationscurricula entweder weniger effektiv waren oder dass kein Unterschied in der Wirkung nachgewiesen werden konnte.

Auf Grund der geringen Anzahl von Studien mit guter Qualität kann ein positiver Effekt von reinen Informationsprogrammen im Setting Schule nicht ausgeschlossen werden, es gibt jedoch lediglich beschränkt positive Anzeichen dafür, dass Programme die lediglich Informationen über den Tabakkonsum bieten, wirksam sein können.

[59] Thomas 2006
[60] Crone 2003
[61] Ausems 2004
[62] Chatrou 1999, Denson 1981, Figa-Talamanca 1989, Gatta 1991, Hirschmann 1989, Howard 1996, MacPherson 1980, Rabinowitz 1974
[63] Crone 2003
[64] Ausems 2004
[65] Botvin 1999, Hansen 1991, Sussman 1993

2.3.2. Vermittlung sozialer Kompetenz

Im Rahmen des Cochrane Reviews wurden 3 RTC´s diesem Interventionsmodell zugeordnet, wobei zwei[66] davon der Kategorie 1 mit höchster Validität und eine[67] der Kategorie 3 (Risiko eines Bias im Studiendesign und in der Umsetzung, sodass keine Konklusionen aus den Studienergebnissen möglich sind) zugeordnet wurden. Die Eckpunkte der beiden Studien der Kategorie 1 werden in den folgenden Tabellen dargestellt:

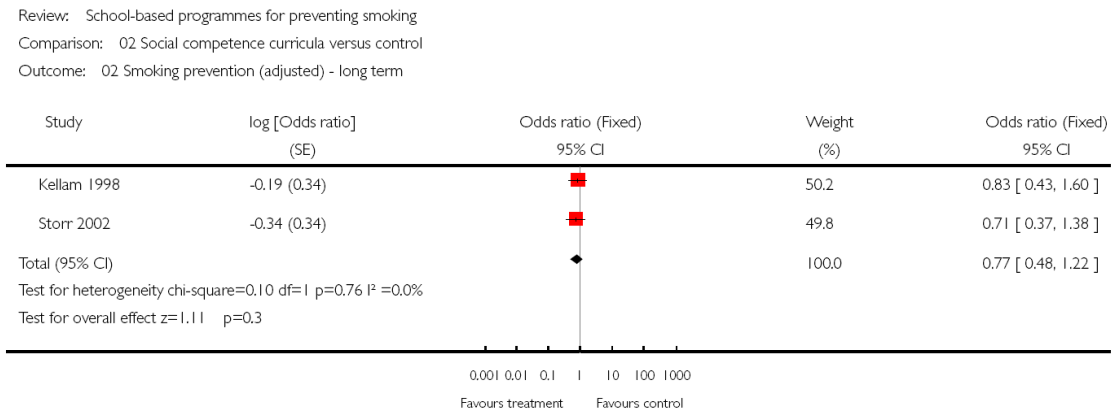
Study	**Kellam 1998**
Methods	Country: USA. Site: 19 elementary schools in Baltimore. Focus: Smoking prevention by changing behaviour predicting later smoking uptake. Design: 5 areas in Baltimore ranging from very poor to middle class identified, 3 to 4 public schools with similar socioeconomic and racial/ethnic profiles selected in each. Within areas, classes randomly assigned. Analysis: Life table and survival curve approach. Cox proportional hazards model (EGRET).
Participants	Pretest: 2311 1st grade 1985 or 1986. Analysis limited to 1604 nonsmokers at baseline. Age: 5-6 Gender: 49.6% F. Follow up: 69%, attrition unrelated to intervention status
Interventions	Compared 2 programmes designed to reduce future tobacco usage by addressing risk factors for uptake. 1. Good Behaviour Game, led by classroom teachers during regular classes. They defined and posted undesirable behaviours (fighting, shouting out of turn, and teasing), and the class with the most points for good behaviour won prizes. The game was played initially for 10 mins 3 times weekly, increasing in frequency and duration 2. Mastery Learning for reading. Students proceeded to the next unit only when they mastered 85% of the learning objectives, small groups, formative testing, and individual instruction. Control group: 'customary school programs'. Duration: 2yrs (1st and 2nd grades)
Outcomes	Definition of smoking: 'tobacco user', 'tobacco nonuser'. Assessed at individual interview Duration of follow up: from age 8 to 14

Study	**Storr 2002**
Methods	Country: USA Site: 9 public primary schools in Baltimore Focus: classroom management Design: within each school pupils were randomly assigned to 1 of 2 interventions: (1) the Classroom-Centered (CC) Intervention; or (2) the Family-School Partnership (FSP); or Control

[66] Kellam 1998, Storr 2002
[67] O`Donnel 1995

	Analysis: X2 and ANOVA to analyze pre-intervention equivalence of groups; LR to assess attrition; multilevel LR models; intention-to-treat analysis
Participants	Baseline: 678 1st graders; Follow up in 6th, 7th, and 8th grades: 566 (84%) Age: 5.3 - 7.7 years (av 6.2); Gender: 50% F
Interventions	Intervention 1: the Classroom-Centered (CC) Intervention: (a) language and maths curricula were enhanced with materials to encourage skills in critical thinking, composition, listening and comprehension; (b) whole-class strategies to encourage problem solving by children in group contexts, decrease aggressive behaviour, and encourage time on task; (c) strategies for children not performing adequately. Teams of children received points for good behaviour and lost points for behaviours such as starting fights. Points could be exchanged for classroom activities, game periods and stickers; Intervention 2. the Family-School Partnership (FSP): (a) the 'Parents on Your Side Program' trained teachers to communicate with parents and build partnerships, with a 3-day workshop, a training manual; and follow-up supervisory visits; (b) weekly home-school learning and communicating activities; (c) 9 workshops for parents; 3. Control group received usual curriculum and parent-teacher communications.
Outcomes	Self-reported time to initiation of smoking.

Die Daten der beiden Kategorie 1 Studien wurden gepoolt, wobei ein nicht signifikant positiver Effekt in einer Langzeitbetrachtung (2 Jahre) gezeigt werden konnte (OR 0,77; 95 % CI 0,48-1,22).



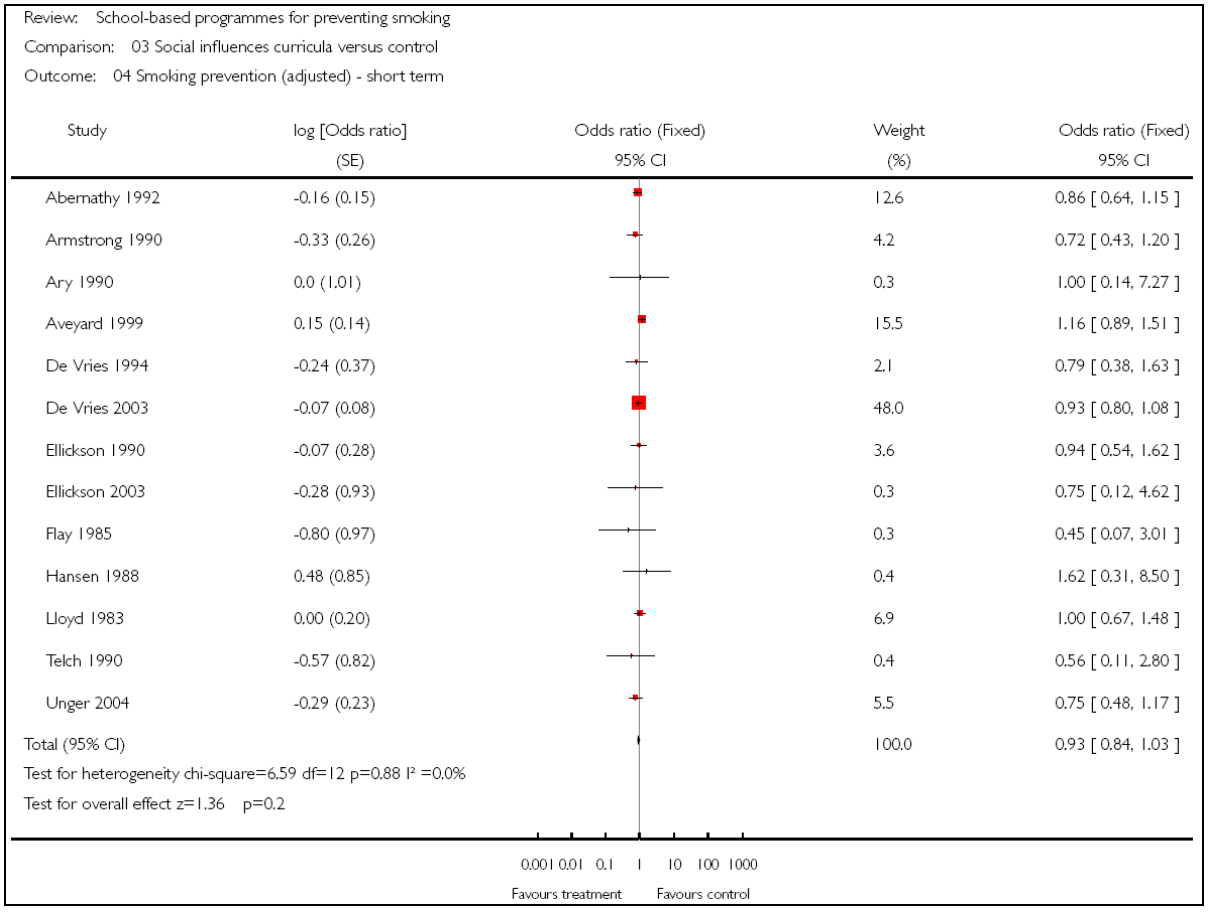
Details zu den Studienergebnissen befinden sich im Anhang.

2.3.3. Sozialer Einfluss

Im Rahmen des Cochrane Reviews wurden insgesamt 56 RCT´s diesem Interventionsmodell zugeordnet, wobei 13[68] der Kategorie 1 mit höchster Validität, 20[69] der Kategorie 2 und 23[70] der Kategorie 3 mit schlechter Validität zugeordnet wurden.

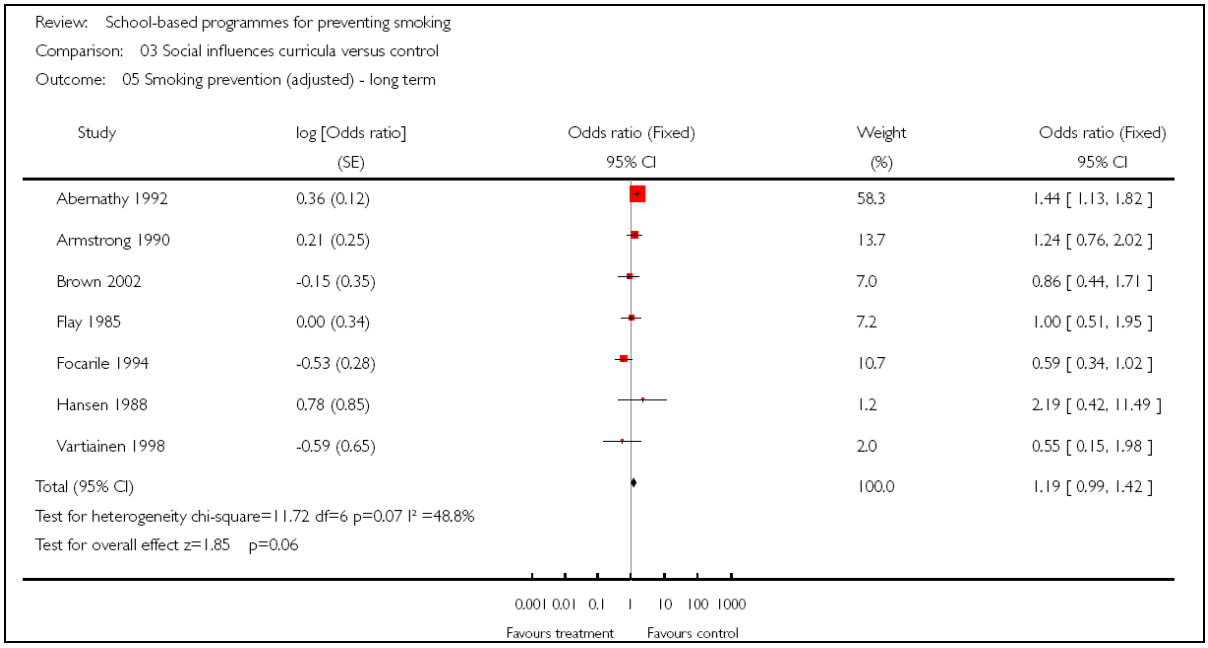
Von den 13 Studien der Kategorie 1 zeigten 9[71] gewisse positive Effekte, 4[72] konnten keinen positiven Effekt nachweisen. Auch unter Einbezug von Studien der Qualitätskategorie 2 ähneln sich die Ergebnisse.

Ein nicht signifikant positiver Effekt konnte in einer kurzfristigen Perspektive (< 18 Monate) gemessen werden. Dabei wurden Daten von 13[73] Studien gepoolt.



[68] Aveyard 1999, Botvin 2001, Brown 2002, Cameron 1999, Dijkstra 1999, Elder 1993, Ellickson 1990, Ellickson 2003, Hansen 1991, Murray 1992, Noland 1998, Peterson 2000, Walsh 2003
[69] Abernathy 1992, Armstrong 1990, Ary 1990, Biglan 1987a, Biglan 1987b, Bush 1989, Clarke 1986, Clayton 1996, De Vries 1994, Flay 1995, Murray 1984, Nutbeam 1993, Schinke 1985b, Schinke 1986a, Schinke 2000, Severson 1991, Unger 2004, Vartiainen 1998, Walter 1995, Walter 1996
[70] Coe 1982, Cohen 1989, Ennett 1994, Flay 1995, Focarile 1994, Gilchrist 1986, Gindre 1995, Hansen 1988, Hort 1995, Kaufmann 1994, Laniado-Laborin 1993, Lloyd 1983, Schinke 1984, Schinke 1985a, Schinke 1985c, Schinke 1986c, Schinke 1988, Scholz 2000, Shope 1996, Tell 1984, Villalbi 1993
[71] Botvin 2001, Brown 2002 für Knaben, Cameron 1999 für „high risk schools" Dijkstra 1999, Elder 1993, Hansen 1991, Noland 1998, Walsh 2003
[72] Aveyard 1999, Ellickson 2003, Murray 1992, Peterson 2000
[73] Abernathy 1992, Armstrong 1990, Ary 1990, Aveyard 1999, De Vries 1994, De Vries 2003, Ellickson 1990, Ellickson 2003, Flay 1985, Hansen 1988, Lloyd 1983, Telch 1990, Unger 2004

In einer langfristigen Perspektive (> 18 Monate) wurde nach Poolen der Daten von 7[74] Studien ein nicht signifikant negativer Effekt gemessen, eine Kurzbeschreibung der Studien befindet sich im Anhang.

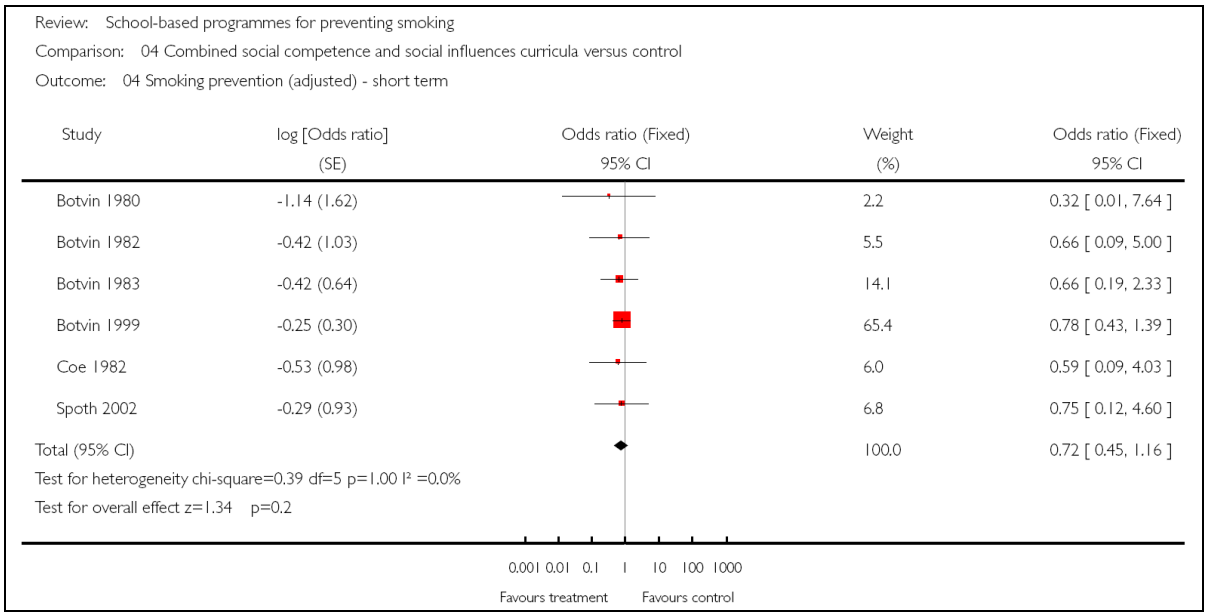


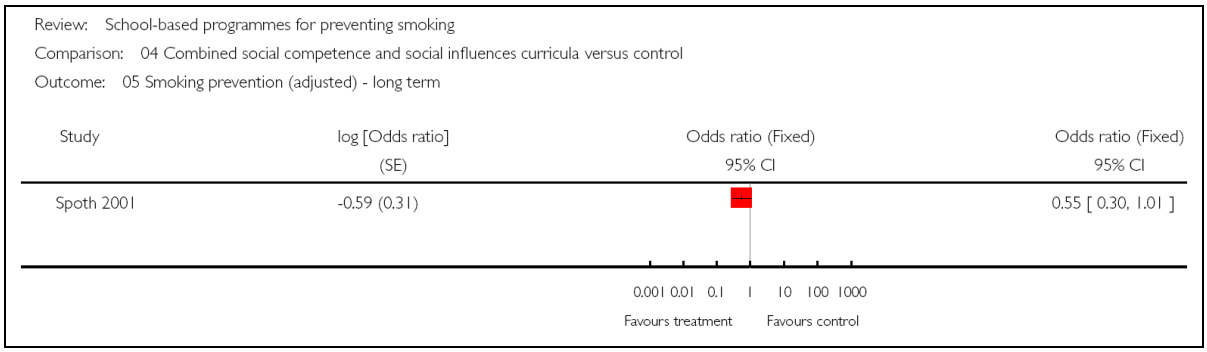
Obwohl es gewisse positive Nachweise in einer kurzfristigen Perspektive bei einigen Studien als auch einige Studien in einer längerfristigen Perspektive positive Effekte zeigten, müssen diese Ergebnisse mit der größten und am längsten dauernden Studie, dem Huchinsnon Smoking Prevention Project (HSPP)[75], verglichen werden welche keine postiven Effekte gezeigt hat. Das HSPP erstreckte sich über einen Zeitraum von 15 Jahren (1984-1999) und hatte alle essenziellen Elemente die existierende Guidelines vorgeben zum Inhalt. Die TeilnehmerInnen wurden auch zwei Jahre nach dem Schulabgang in das follow-up sample übernommen. Kritiker dieser Studie merken an, dass auf Grund der vielen Variationen von Interventionen die auf soziale Einflüsse abzielen, diese Studie kein „definitiver Test“ von Modellen des sozialen Einflusses sein kann[76] sowie lediglich ländliche Schulen in Washington inkludiert wurden[77].

[74] Abernathy 1992, Armstrong 1990, Brown 2002, Flay 1985, Focarile 1994, Hansen 1988, Vartiainen 1998
[75] Peterson 2000
[76] Botvin 2001
[77] Sussmann 2005

2.3.4. Kombinierte Modelle aus sozialem Einfluss und Vermittlung sozialer Kompetenz

Im Rahmen des Cochrane Reviews wurden 16 Studien einem kombinierten Interventionsmodell mit Elementen zur Vermittlung sozialer Kompetenz sowie sozialen Einflüssen zugeordnet, wobei 3 RCT´s[78] der Kategorie 1, sieben RCT´s der Kategorie 2[79] und sechs der Kategorie 3[80] zugeordnet wurden. Die gepoolten Daten von 6 RCT´s zeigten einen nicht signifikant positiven Effekt in einer kurzfristigen Perspektive (< 18 Monate).





Insgesamt gibt es jedoch ungenügende Evidenz um eine konkrete Aussage darüber zu treffen, ob die Vermittlung sozialer Kompetenzen in Kombination mit Interventionsmodellen

[78] Spoth 2001a, Spoth 2002, Sussman 1995
[79] Botvin 1990a, Botvin 1990b, Botvin 1999, Gersick 1988, Josendal 1998a, Scheier 2001, Sussmann 1993
[80] Botvin 1980, Botvin 1982, Botvin 1983, Gilchrist 1987, Hanewinkel 1994, Schaps 1986

die auf sozialen Einfluss abzielen effektiver sind als Interventionsmodelle, die auf sozialen Einfluss alleine abzielen.

2.4. Präventionsprogramme im Setting Gemeinde

Die Wirksamkeit von Tabakpräventionsprogrammen im Setting Gemeinde wurde 2003 in einem Cochrane Review untersucht. Siebzehn Studien erfüllten die Einschlusskriterien für diesen Review, wobei ein breites Spektrum von Interventionen durch diese Studien repräsentiert wurde. Vier Studien[81] hatten zwar speziell auf die Verhinderung der Verbreitung des Rauchens bei jungen Menschen fokussierte Interventionen, waren jedoch Teil eines größeren Programms zur Verringerung von kardiovaskulären Krankheiten in allen Altersgruppen. Eine Studie[82] evaluierte die Ergebnisse einer Intervention die die Prävention von Krebs zum Inhalt hatte. Eine weitere Studie[83] die im Setting Gemeinde durchgeführt wurde fokussierte speziell auf die Prävention eines Rauchbeginns bei Jugendlichen und hatte auch eine Promotion der Tabakentwöhnung zum Inhalt. Fünf weitere Studien fokussierten nur auf die Prävention eines Rauchbeginns bei Jugendlichen[84] und sechs weitere Interventionen[85] hatten speziell Jugendliche zur Zielgruppe, die Intervention fokussiere jedoch neben Tabakkonsum auch auf Alkohol und Drogenkonsum.

Von zwölf Studien[86], die Interventionen im Setting Gemeinde in der Interventionsgruppe mit einer Kontrollgruppe ohne Intervention bzw. Standardintervention verglichen haben, konnten zwei[87] eine Differenz der Raucherprävalenz zwischen Interventions- und Kontrollgruppe nachweisen. Beide Studien waren jedoch Teil eines größeren Präventionsprogramms zu kardiovaskulären Erkrankungen für alle Altersgruppen.

Perry 1994 konnte im Rahmen des „Minnesota Heart Health Programme - MHHP“, ein bevölkerungsweites Programm zur Prävention von Herz-Kreislauf-Erkrankungen in den USA, positive Effekte nachweisen. Von insgesamt sechs teilnehmenden Städten des MHHP wurden zwei für die „class of 1989“ Studie ausgewählt. In diesen beiden Städten wurden alle 11jährigen von öffentlichen Schulen eingeladen am Programm teilzunehmen. In einer Stadt wurden zusätzlich zu einem Bildungsprogramm welches gesunde Ernährung, Bewegung, Nichtrauchen und Blutdruckmessungen zu Inhalt hatte auch im Setting Schule ein Nichtraucherprogramm zur Verhaltensänderung über einen Zeitraum von 3 Jahren

[81] Winkleby 1993, Perry 1994, Vartiainen 1998, Baxter 1997.
[82] Hancock 2001
[83] Murray 1994
[84] Davidson 1992, Kaufman 1994, Gordon 1997, Tang 1997, Biglan 2000a
[85] Pentz 1989, Piper 2000, St. Pierre 1992, Aguirre-Molina 1995, Sussman 1998, Schinke 2000
[86] Davidson 1992, Winkleby 1993, Perry 1994, Piper 2000, St. Pierre 1992, Sussman 1998, Vartiainen 1998, Baxter 1997, Murray 1994, Aguirre-Molina 1995, Tang 1997, Hancock 2001
[87] Perry 1994, Vartiainen 1998

durchgeführt. In fünf jährlichen Messungen war die wöchentliche Raucherprävalenz der Interventiosgruppe niedriger als in der Kontrollgruppe. 1989, im Abschlussjahr der High School, waren 14,6 % aller Schüler/innen in der Interventionsgruppe wöchentliche Raucher/innen und 24,1 % der Kontrollgruppe wöchentliche RaucherInnen. Eine Beschreibung der Eckpunkte dieser Studie befindet sich im Anhang.

Das „North Karelia Project", ein Präventionsprogramm zu Herz-Kreislauferkrankungen, wurde 1972 in Finnland gestartet und lief für 8 Jahre. Bei einer 15 Jahre follow-up Untersuchung (die ProbandInnen waren zu diesem Zeitpunkt 28 Jahre alt), war der Zigarettenkonsum in der Interventionsgruppe um 22 % niedriger als in der Kontrollgruppe. Ein Überblick über die Eckpunkte der Studie befindet sich im Anhang.

Zusätzlich konnte eine Studie[88] Unterschiede in der Raucherprävalenz bei zwei unterschiedlichen Versionen einer Intervention, verglichen mit einer Kontrollgruppe die standardisierte Gesundheitserziehung erhielt, zeigen. Details zu dieser Studie befinden sich im Anhang.

Vier Studien[89] verglichen Interventionen im Setting Gemeinde in der Interventionsgruppe mit einer Kontrollgruppe die Interventionen im Setting Schule erhielt. Lediglich eine Studie[90] konnte statistisch signifikante Unterschiede in der Raucherprävalenz verglichen zur Baseline nachweisen. Diese Ergebnisse konnten jedoch nur durch Angaben der StudienteilnehmerInnen erreicht werden, als Carbon-Monoxid-Messungen durchgeführt wurden konnten diese positiven Ergebnisse nicht mehr nachgewiesen werden. Details zu dieser Studie befinden sich im Anhang.

In einem Vergleich der Effektivität einer kombinierten Intervention im Setting Gemeinde und Setting Schule im Vergleich zu einer Intervention lediglich im Setting Gemeinde konnten keine Unterschiede bei den Vergleichsgruppen nachgewiesen werden.[91] Details zu dieser Studie befinden sich im Anhang.

[88] Piper 2000
[89] Biglan 2000, Sussman 1998, Gordon 1997, Schinke 2000
[90] Biglan 2000
[91] Kaufmann 1994

Eine Studie verglich eine Intervention im Setting Gemeinde inklusive einer massenmedialen Intervention im Vergleich zu einer Kontrollgruppe die lediglich die massenmediale Komponente erhielt.[92] Die Resultate dieser Studie zeigten, dass obwohl die Raucherprävalenz in beiden Gruppen gestiegen ist, die Steigerungsrate in der Interventionsgruppe signifikant geringer als in der Kontrollgruppe war.

Die Autoren des Cochrane Reviews zu Tabakpräventionsprogrammen im Setting Gemeinde mit der Zielgruppe Jugendliche schließen aus den Ergebnissen, dass es gewisse Anzeichen dafür gibt, dass solche Programme effektiv sind.

[92] Pentz 1998

2.5. Multimodulare Programme

Im Rahmen eines Cochrane Reviews[93] wurden bei 9 RCT´s[94] multimodulare Programme einer Analyse unterzogen, vier[95] davon wurden als Kategorie 1 mit guter Validität, drei[96] als Kategorie 2[97] und zwei als Kategorie 3 klassifiziert. Von den Studien mit höchster Validität wurden bei 3 Studien signifikant positive Effekte gemessen. Biglan konnte nach 3 Jahren nachweisen, dass die Interventionsgruppe die eine Intervention im Setting Schule und im Setting Gemeinde erhielt um 4 % weniger RaucherInnen hatte als jene Gruppe, die lediglich eine Intervention im Setting Schule erhielt.

Studie	Biglan 2000
Methods	**Country**: USA **Site:** 8 Oregon communities **Focus:** tobacco, alcohol, marijuana, and anti-social behaviours **Design:** 8 communities were matched on community socio-economic status and population. Allocation of treatment was by community for community intervention activities, and by schools for schools intervention activities. Randomization was by the flip of a coin. There were no differences at baseline between community pairs in size, per capita income, median household income, % below poverty level, % minority students, or % high school graduates; **Analysis:** Generalized estimating equations andMANOVA; individual students were nested within communities, and community means were the unit of analysis.
Participants	2187 grade 7 and 2251 grade 9 in Year 1 of the study; and 2045 in grade 7 and 2120 in grade 9 in Year 5 (13.5% of students were not assessed across all 5yrs of the study.
Interventions	35 session intervention with Information, Social Influences, Community Advocacy, Media Advocacy, Youth Activities, Parental Communication, and Programmes to stores to reduce selling tobacco to minors components.
Early Outcomes	After 1 year: In the communities which received the Community + School Programme, the percentage smoking (measured by an Index of weekly smoking) at baseline was 8.7% compared to 12.4% in the communities which received the School Only Programme (p <.022).
Long term Outcomes	After 4 years (T5): the Index of weekly smoking in the Community intervention group was 12.4% and in the Schools Intervention group was 13.8% (p <.038). Smokeless tobacco use in the Community Intervention communities decreased from 13.8% at baseline to 9.7% in Year 2 (p <.04), and in the School Intervention communities from 11.4% to 13.6% (n.s.) However, there were no significant differences between the communities on expired carbon monoxide levels at any time.

Perry 2003 konnte für Knaben eine geringere Zuwachsrate für die Interventiosgruppe im Vergleich zur Kontrollgruppe nachweisen.

Studie	Perry 2003
Methods	**Country:** USA **Site:** 24 middle and junior high schools in Minneapolis and St. Paul, Minnesota **Focus:** tobacco, alcohol and marijuana use and violent behaviour **Design:** schools matched on drug use, size and socioeconomic measures and then randomized: 8 schools to DARE, 8 to DARE. and DARE Plus, and 8 to control with delayed delivery of DARE. **Analysis:** 3 level linear random coefficients model testing for differences in growth curves over time, which permits inclusion of students with missing data points
Participants	6726 7th graders in 1999-2000 or 8th grade in 2000-2001; of these 6237 (82.7%) completed the baseline questionnaire (2226 DARE; 2221 DARE Plus; 1790 control) Follow up after 18m at the end of 8th grade: 84%; no differential attrition Age: middle and junior high school Gender: 48.4% F

[93] Thomas 2006
[94] Biglan 2000, Elder 1996, Perry 1996, Perry 2003, DeVries 2003, Piper 2000, Schofield 2003, Reddy 2002, Rohrbach 1994
[95] Biglan 2000, Elder 1996, Perry 1996, Perry 2003
[96] De Vries 2003, Piper 2000, Schofield 2003
[97] Reddy 2002, Rohrbach 1994

Interventions	**Intervention 1:** DARE 10 sessions drug resistance, handling violent situations, character building, citizenship skills **Intervention 2:** DARE andDARE Plus (which included a 4 session peer-led parental involvement programme; home team activities with parents; extracurricular activities; neighbourhood action teams) Police officer instructors had received instruction in the elementary schoolDARE curriculum and had taught DARE for at least 2 semesters; those who taught DARE Plus received an additional 2 hrs instruction on interactive teaching methods.
Long term Outcomes	At 18 months:Males: DARE (baseline score 7.65; growth rate 0.95); DARE Plus (baseline score 7.72; growth rate 0.68); control (baseline score 7.66; growth rate 0.96); for growth rates DARE vs control P < 0.04; DARE Plus vs DARE P < 0.04) Females: DARE (baseline score 7.82; growth rate 0.93); DARE Plus (baseline score 8.07; growth rate 0.79); control (baseline score 7.71; growth rate 1.01); for growth rates DARE vs control n.s.; DARE Plus vs DARE n.s.)

Perry 1996[98] konnte im Rahmen eines Projektes das auf Reduktion von Alkoholkonsum ausgerichtet war, nach 3 Jahren einen geringeren Anstieg der Rauchquote in der Interventionsgruppe im Vergleich zur Kontrollgruppe nachweisen.

Studie	**Perry 1996**
Methods	**Country:** USA **Site:** rural communities in 6 NE Minnesota counties **Focus:** diminishing alcohol use; tobacco and marijuana use also measured but no specific intervention **Design:** Project Northland: 20 school districts blocked by size then randomized **Analysis:** mixed model regression and ANOVA
Participants	Baseline beginning of 6th grade: 2351; at end of 8th grade: 1901 (81%)
Interventions	Project Northland had 4 components: parent involvement/education; behavioural curricula; peer participation; community task force activities Each grade had a unique theme: 6th grade (Slick Tracy Home team programme); 7th grade (Amazing Alternatives! programme); and 8th grade (Power Lines) Control districts: usual alcohol and other drug education programmes (90% of students had taken part in Project DARE, compared to 40% in the intervention districts; and 21% in the control and 2% in the intervention districts had taken part in Project Quest sponsored by the Lion's Club)
Short term Outcomes	Cigarette and smokeless tobacco use defined as > 2 or 3 uses in lifetime, and then defined as occasionally but not regularly; regularly in the past; or regularly now; At 6 months, cig use rose in the intervention group from 6.9% to 8.4%, and in controls from 4.7% to 8.8%.
long term Outcomes	For the "baseline nonsmokers group" cigarette use was 1.5% in 1991 and 15.5% in 1994 in the experimental and 1.5% and 24.6% in the control (p <.05); and for all students 6.9% and 24.8 % in the experimental and 4.7% and 30.7% in the control (p <.05).

Eine weitere Studie[99] untersuchte die Ergebnisse eines multimodalen Ansatzes in 6 europäischen Ländern. Im Rahmen des European Smoking Prevention Framework Approach (ESFA) wurden die Effekte eines multimodalen Programms nach 24 (T3, N= 10.751) und 30 Monaten (T4, N= 9.282) gemessen. Das Programm hatte vier Interventionsebenen zum Inhalt: Jugendliche in Schulen, Schulpolitik, Eltern und Gemeinden. In Portugal begannen 12,4 % der Nichtraucher/Innen zum Zeitpunkt der Nullmessung (T1) der Kontrollgruppe nach 30 Monaten (T4) zu rauchen, während in der Interventionsgruppe lediglich 7,9 % der NichtraucherInnen zum Zeitpunkt T1 nach 30 Monaten (T4) zu rauchen begannen. In Finnland begannen 32,4 % der T1-

[98] Perry 1996
[99] De Vries 2006

Nichtraucher/innen der Kontrollgruppe nach 30 Monaten zu rauchen während in der Interventionsgruppe lediglich 27,6 % zu rauchen begannen. In Spanien begannen 33 % der ursprünglichen Nichtraucher/innen der Kontrollgruppe nach 30 Monaten zu rauchen, während lediglich 29,1 % der Interventionsgruppe zu rauchen begannen. In den Niederlanden war dieses Programm für Jugendliche mit ausländischer Muttersprache effektiv – 11,4 % neue wöchentliche Raucher der Interventionsgruppe im Vergleich zu 19,9 % der Kontrollgruppe. Hingenen wurde ein gegensätzlicher Effekt bei Jugendlichen mit niederländischer Muttersprache gemessen – 19 % neue wöchentliche Raucher der Kontrollgruppe im Vergleich zu 24 % der Interventionsgruppe. Die folgende Tabelle gibt einen Überblick über die Ergebnisse in den einzelnen Ländern.

	T1 never-smokers becoming ever-smokers		OR (95% CI)	*P* <	T1 non-smokers becoming weekly smokers		OR (95% CI)	*P* <
	E	C			E	C		
After 24 months								
overall	44.8	44.1	0.99 (0.90–1.09)	0.86	18.4	18.8	0.97 (0.69–1.08)	0.62
Denmark	49.3	43.6	1.41 (0.96–2.06)	0.08	21.8	19.1	1.30 (0.91–1.70)	0.18
Finland	49.8	51.3	1.00 (0.80–1.25)	0.99	24.8	30.1	0.76 (0.57–1.00)	0.05
The Netherlands	41.7	36.6	1.21 (0.98–1.49)	0.07	19.6	14.6	1.39 (1.10–1.76)	0.01
Portugal	33.8	41.5	0.73 (0.57–0.94)	0.02	7.3	9.1	0.74 (0.41–1.34)	0.75
Spain	48.9	52.8	0.89 (0.70–1.14)	0.36	18.4	18.5	0.96 (0.66–1.25)	0.75
UK	46.6	43.8	1.06 (0.85–1.33)	0.58	17.7	18.8	1.00 (0.75–1.25)	0.99
After 30 months								
overall	51.7	52.7	0.93 (0.84–1.03)	0.18	21.9	23.4	0.89 (0.80–0.99)	0.03
Denmark	51.5	48.7	1.15 (0.80–1.65)	0.45	20.2	21.8	0.96 (0.65–1.41)	0.83
Finland	56.7	54.9	1.23 (0.95–1.59)	0.12	27.6	32.4	0.79 (0.62–1.01)	0.06
The Netherlands	47.0	45.9	1.02 (0.83–1.27)	0.83	22.7	19.1	1.28 (1.01–1.63)	0.04
non-native Dutch					11.4	19.9	0.34 (0.15–0.78)	0.01
native Dutch					24.0	19.0	1.29 (1.02–1.63)	0.04
Portugal	41.8	53.8	0.62 (0.48–0.80)	0.00	7.9	12.4	0.56 (0.37–0.84)	0.01
Spain	64.5	68.9	0.75 (0.55–1.00)	0.05	29.1	33.0	0.80 (0.62–1.03)	0.08
UK	50.4	51.3	0.94 (0.76–1.16)	0.56	21.2	23.6	0.91 (0.73–1.14)	0.42

OR = odds ratio; CI = confidence interval.

Die Interventionen auf den unterschiedlichen Ebenen variierten in den Studienländern, wie die folgende Grafik zeigt.

	Denmark	Finland	The Netherlands	Spain	Portugal	UK
Individual level						
total lessons	12	14	9	18	14	9
refusal skills training	+	+	+	+	+	−
public commitment to non-smoking	−	+	+	+	+	−
social pressure/influence	+	+	+	+	+	−
health consequences	+	+	+	+	+	−
power of tobacco advertisements	+	+	+	+	+	+
decision making	+	+	+	+	+	+
tobacco and environment	−	+	−	−	+	+
teacher training (hours) (credits)	no	yes (20)	no	yes (8)	yes (48)	yes (8) (no)
teacher manual	yes	yes	yes	yes	yes	yes
School level						
school-contact person(s)	no	yes	yes	yes	yes	yes
school policy manual disseminated	yes	yes	yes	no	yes	yes
posters	2	3	1	1	3	no
teacher smoking cessation materials offered	yes	no	yes	yes	yes	yes
smoke-free competition	no	yes	yes	yes	yes	yes
Parental level						
brochure about how to talk about smoking	yes	no	yes	yes	yes	yes
brochure about smoking cessation	yes	yes	yes	yes	yes	no
parent meetings	yes	yes	yes	yes	yes	no
courses offered (e.g. 'Quit and Win')	yes	no	no	yes	yes	yes
Out-of-school level						
posters	yes	yes	yes	yes	yes	yes
publication in local media	no	no	yes	no	yes	no
community actions for children	no	yes	yes	no	no	no

A '+' indicates that an item was addressed by the programme; a '−' indicates that an item was not addressed by the programme.

2.6. Tabakentwöhnungsprogramme bei Jugendlichen

Obwohl ein Großteil der Tabakpräventionsprogramme darauf abzielt einen Rauchstart von Jugendlichen und Kindern generell zu verhindern, gibt es auch eine Reihe von publizierten Programmen, die Jugendliche bei einem Rauchstopp unterstützen. Solche Tabakentwöhnungsprogramme für Jugendliche wurden im Rahmen eines Cochrane Reviews[100] 2006 untersucht. Insgesamt wurden 15 Studien in diesen Review eingeschlossen. Viele der im Rahmen dieses Reviews untersuchten Studien hatten jedoch ein relativ kleines Studiensample. Die Autoren merkten auch an, dass die Studienergebnisse teilweise mit Vorsicht zu interpretieren seien, da Unterschiede in der Ergebnismessung (Fragebogen vs. CO-Messung) die Studienergebnisse im Vergleich verzerren können bzw. eine erhebliche Quelle für einen BIAS darstellen. Weiters wurde angemerkt, dass der Beobachtungszeitraum der einzelnen Studien stark variierte. Die Autoren empfehlen zumindest einen Beobachtungszeitraum von mehr als 6 Monaten.

[100] Grimshaw 2006

Im 2003[101] erstellten Review zu Präventions- und Entwöhnungsprogrammen bei Kindern und Jugendlichen wurden ähnliche Hinweise über die Evidenzlage von Entwöhnungsprogrammen bei Kindern bzw. Jugendlichen gefunden. Die in diesem Review zitierten Studientypen weisen jedoch teilweise einen nicht so hohen Evidenzgrad auf wie die im Rahmen des Cochrane-Reviews beleuchteten Studientypen.

2.6.1. TTM – Transtheoretisches Modell der Verhaltensänderung

Drei Studien[102] die in den Review[103] eingeschlossen wurden, basierten auf Interventionen die auf dem transtheoretischen Modell der Verhaltensänderung (TTM – Transtheoretical Model of change) aufgebaut waren.

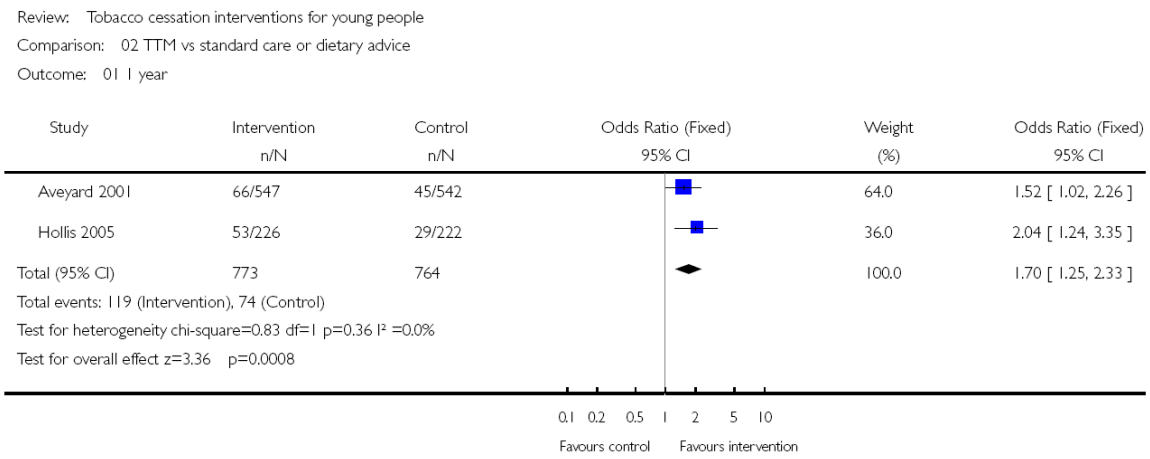
Eine Intervention[104], die ein TTM Computerprogramm zum Inhalt hatte, wurde an 53 Schulen in West Midlands in Großbritannien bei 13 bis 14jährigen rauchenden (mindestens 1 Zigarette pro Woche) Schüler/innen durchgeführt (n= 1089, Interventionsgruppe 547, Kontrollgruppe 542). Die Interventionsgruppe erhielt ein Computerprogramm, welches konzipiert wurde um das jeweilige Stadium der Verhaltensänderung zu diagnostizieren und entsprechende Materialien den rauchenden Schüler/innen zur Verfügung stellte. Die Kontrollgruppe erhielt das übliche Programm zur Gesundheitserziehung. Nach einem Jahr hörten 66 von 547 Schüler/innen der Interventionsgruppe und 45 von 543 Schüler/innen der Kontrollgruppe (30 Tage Per-Protocol-Analyse Abstinenz) zu rauchen auf (OR: 1,52; 95 % CI; 1,02–2,26). Nach 2 Jahren waren 53 von 547 Schüler/innen der Interventionsgruppe und 46 von 542 Schüler/innen der Kontrollgruppe (OR: 1,16; 95 % CI; 0,76 – 1,75) abstinent (30 Tage Per-Protocol-Analyse). Details über die Studieninhalte sowie Resultate über 7 Tage ppa Abstinenz befinden sich im Anhang.

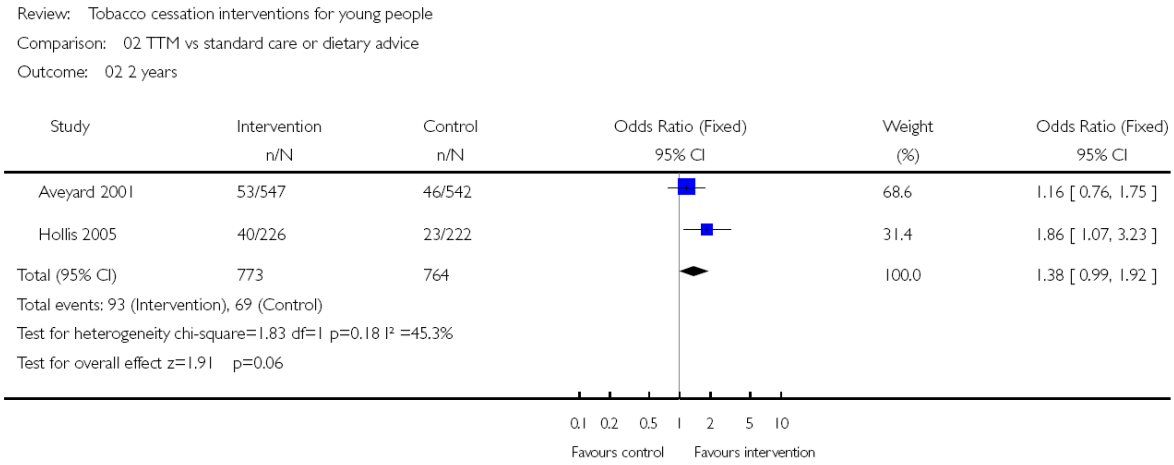
Im Vergleich dazu hatte die „Teen Reach“ Studie[105], die in den USA in 7 Pädiatrien und Familienabteilungen in HMO Zentren in Oregon und Washington State durchgeführt wurde, neben einem TTM-basierten Computerprogramm auch klinische Informationen, motivierende Beratungen und Booster-Sessions zum Inhalt. Dabei wurden 448 Raucher/innen im Alter von 14 bis 17 Jahren von insgesamt 2524 Jugendlichen, welche einen Behandlungstermin in der

[101] Backinger 2003
[102] Aveyard 2001, Hollis 2005, Lipkus 2004
[103] Grimshaw 2006
[104] Aveyard 2001
[105] Hollis 2005

Klinik hatten, rekrutiert. Die Kontrollgruppe erhielt Ernährungsberatung sowie eine 3 bis 5minütige motivierende Beratung. Die „Teen Reach“ Intervention war effektiv für Raucher (einer Subgruppe der insgesamt rekrutierten Personen) mit einem Quotenverhältnis (Odds Ratio) von 2,04 (95 % CI, 1,24 – 3,35) nach 12 Monaten und einem Quotenverhältnis (Odds Ratio) von 1,86 nach 24 Monaten (95 % CI, 1.07 – 3,23). Eine kurze Darstellung der Eckpunkte dieser Studie befindet sich im Anhang.

Die gepoolten Daten dieser beiden Studien ergeben ein Quotenverhältnis von 1,7 nach 12 Monaten (95 % CI, 1,25-2,33) oder eine Number needed to treat (NNT) von 17,5 am Ende des ersten Jahres nach Interventionsbeginn. Die Effektivität der Intervention besteht auch nach 24 Monaten mit einem gepoolten Quotenverhältnis (Odds Ratio) von 1,38 (95 % CI, 1,25-2,33), allerdings verdoppelt sich die Number needet to treat (NNT).





Lipkus 2004 führte auch eine TTM-basierte Intervention durch die auch motivationsfördernde Ansätze via Telefon und kognitive Verhaltenstherapien zum Inhalt hatte. Er rekrutierte 402 Jugendliche im Alter von 15-18 Jahren (209 Interventionsgruppe, 193 Kontrollgruppe) in 11 Shoppingcentern und Vergnügungsparks in North Carolina, South Carolina, Georgia und Tennessee. Die Interventionsgruppe erhielt motivationsfördernde Beratung via Telefon sowie Selbsthilfematerial und ein Video, die Kontrollgruppe lediglich das Selbsthilfematerial und das Video. Nach 8 Monaten hatten 21 % der Interventionsgruppe und 19 % der Kontrollgruppe zu Rauchen aufgehört (7 Tage Abstinenz ppa). Die Hypothese, dass Telefonberatung als Ergänzung zu Selbsthilfematerial wirksam sei wurde nicht bestätigt. (Quotenverhältnis von 1,12 bei 95 % CI, 0,69-1,83 nach 8 Monaten bei 7 Tagen Per-Protocol-Analyse). Da diese Studie nicht primär auf eine TTM-basierte Intervention abzielte wurde sie auch nicht mit den vorhin beschriebenen Studienergebnissen gepoolt. Details zu dieser Studie befinden sich im Anhang.

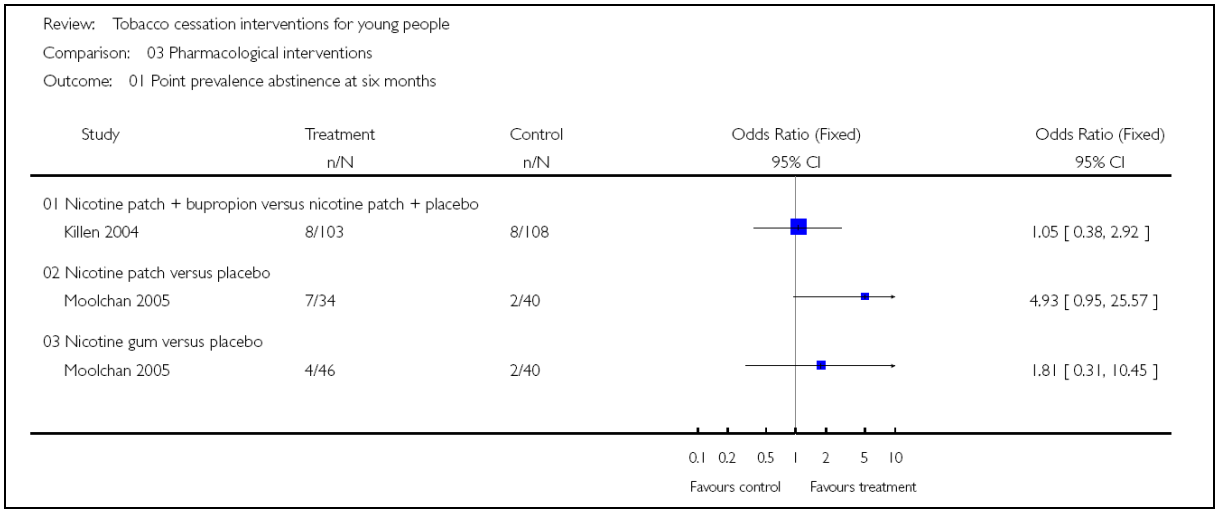
2.6.2. Pharmakologische Interventionen

Zwei Studien[106] die in den Review[107] eingeschossen wurden hatten eine pharmakologische Intervention zum Inhalt, wobei eine davon die Effekte einer Nikotinersatztherapie und die andere die Effekte von Bupropion als Ergänzung zu einer Nikotinersatztherapie untersucht hatte.

Moolchan untersuchte 2005 die Effektivität von Nikotinersatzpräparaten. Weder für Kaugummis noch für Pflaster konnte ein Effekt nach 7 Tagen PPA nachgewiesen werden (OR 4,93; 95 % CI 0,95-25,6 für Pflaster und OR 1,81; 95 % CI 0,31-10,4 für Kaugummis). Auch in einer längerfristigen Perspektive (6 Monate) konnte für keines der beiden Produkte ein signifikanter Effekt nachgewiesen werden (OR 8,36; 95 % CI 0.95-73,3 für Pflaster und OR 2,72; 95 % CI 0,27-27,3).

Auch Killen konnte für Bupropion keinen Effekt nachweisen (OR 1,05; 95 % CI 0,38-2,92). Die Autoren des Reviews merkten an, dass auch für Erwachsene keine Evidenz für Bupropion alleine gefunden wurde.

[106] Moolchan 2005, Killen 2004
[107] Grimshaw 2006



Auch im Review von Backinger[108] zitierte Studien[109] zu Nikotinersatzpräparaten zeigten keine positiven Ergebnisse für diese pharmakologischen Produkte.

[108] Backinger 2002
[109] Hurt 2000, Smith 1996, Hanson 2003

2.6.3. Psychosoziale Interventionen – Motivationsförderung und Verhaltensmanagement

Neun Studien[110] des Reviews zu Entwöhnungsprogrammen[111] hatten psychosoziale Interventionen wie Motivationsförderung und Verhaltensmanagement zum Inhalt, die Eckpunkte der Studien sind im Anhang dargestellt.

Bei drei Studien wurde ein motivierendes Interview als ein Teil des theoretischen Rahmenwerks angewandt.

Brown 2003 untersuchte bei 191 Kindern und Jugendlichen zwischen 13 und 17 Jahren (116 Interventionsgruppe, 75 Kontrollgruppe) einer stationären psychiatrischen Einrichtung die Wirksamkeit eines motivierenden Interviews. Die Interventionsgruppe erhielt 2 Sitzungen zu je 45 Minuten sowie ein Handbuch zur Rückfallsprävention und eine Selbsthilfe Broschüre, die Kontrollgruppe erhielt lediglich eine kurze Beratung sowie die Selbsthilfe Broschüre. Während des stationären Aufenthaltes hatten die Jugendlichen keine Möglichkeit zu Rauchen. Nach 6 Monaten hatten 13,3 % der Interventionsgruppe und 8,5 % der Kontrollgruppe zu rauchen aufgehört, nach 12 Monaten 14 % der Interventionsgruppe und 9,9 % der Kontrollgruppe.

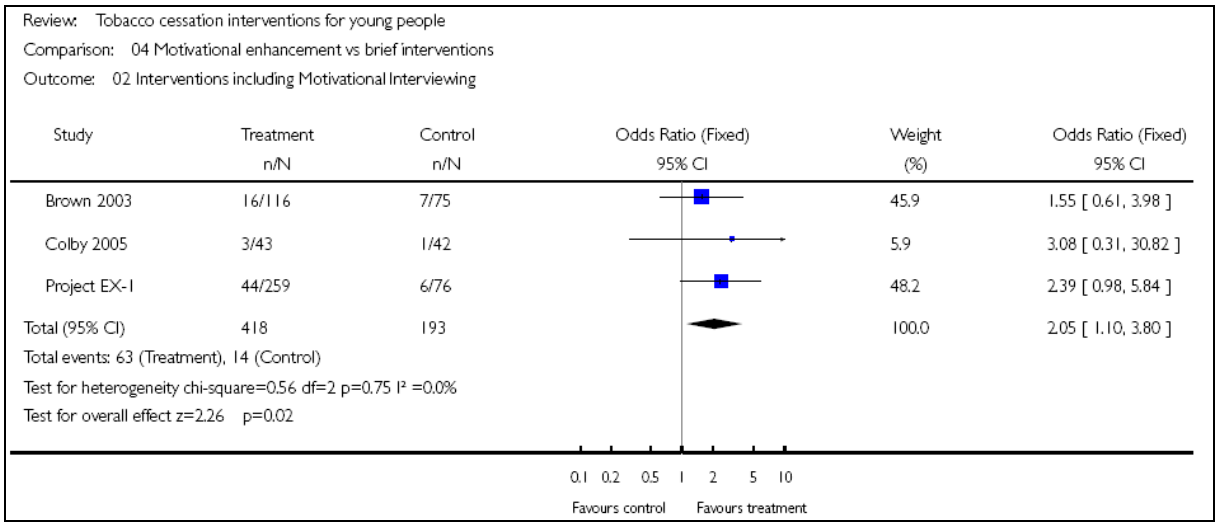
Colby 2005 untersuchte bei 85 Jugendlichen im Alter von 14 bis 19 Jahren (43 Interventionsgruppe, 42 Kontrollgruppe) in einer Spitalsambulanz und in einer Notaufnahme auf Rhode Island die Effektivität von motivierenden Interviews. Die Interventionsgruppe erhielt ein 35minütiges motivierendes Interview sowie nach 1 Woche einen Follow-up-Telefonanruf (Dauer ca 15-20 Minuten). Die Kontrollgruppe erhielt ein 5minütiges Beratungsgespräch sowie einen kurzen Telefonanruf nach einer Woche. Nach 6 Monaten hörten 3 Jugendliche der Interventionsgruppe und 1 Jugendlicher der Kontrollgruppe zu Rauchen auf.

Das Projekt EX-1 wurde in 18 Highschools in Südkalifornien bei insgesamt 335 RaucherInnen im Alter von 14-19 Jahren durchgeführt. 139 Jugendliche nahmen in 6 Projekt Ex-Schulen teil, 120 Jugendliche nahmen in 6 Projekt EX plus SAC Schulen Teil, 76 Jugendliche nahmen in 6 Kontrollschulen an dieser Studie teil. Die ProbandInnen der 6

[110] Brown 2003, Colby 2005, Greenberg 1978, Hollis 2005, Lipkus 2004, Myers 2005, Projekt EX-I, Chan 1988, Robinson 2003
[111] Grimshaw 2006

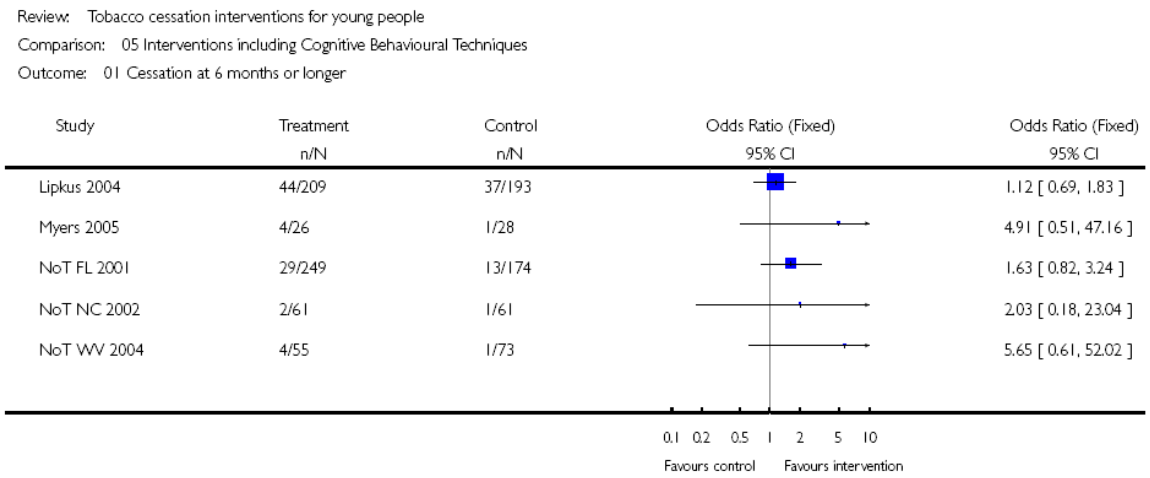
Projekt EX-Schulen erhielten insgesamt 8 Sitzungen über einen Zeitraum von 6 Wochen verteilt, wobei ein komplexes theoretisches Konstrukt mit motivierenden Interviews als einem Teilaspekt der Intervention angewandt wurde. Die ProbandInnen der 6 Projekt EX plus SAC („schools as community“) Schulen erhielten zusätzlich zum Interventionsprogramm der Projekt EX Schulen Interventionen zur Entspannung bzw. Erholung und hatten die Möglichkeit ihre Haltung zum Nichtrauchen in einem Newsletter Ausdruck zu verleihen. Die Kontrollgruppe erhielt die standardmäßige Gesundheitserziehung. Die Daten der Projekt EX-1 Schulen sowie der Projekt EX plus SAC Schulen wurden von den Studienautoren gepoolt, da nach 6 Monaten keine unterschiedlichen Ergebnisse gezeigt wurden. Nach 6 Monaten hatten 17 % der gepoolten Interventionsgruppe und 8 % der Kontrollgruppe zu Rauchen aufgehört.

Obwohl bei gepoolten Daten der drei Studien die ein motivierendes Interview als einen Teil eines komplexeren Interventionsprogramms zum Inhalt hatten, einen Odds Ratio von 2,5 errechnet wurde, kann auf Grund der vorliegenden Evaluationsergebnisse keine konkrete Aussage getroffen werden, ob ein motivierendes Interview als alleinige Interventionsmethode effektiv ist, da ein motivierendes Interview auch nicht als alleinige Komponente in diesen Studien angewandt wurde.



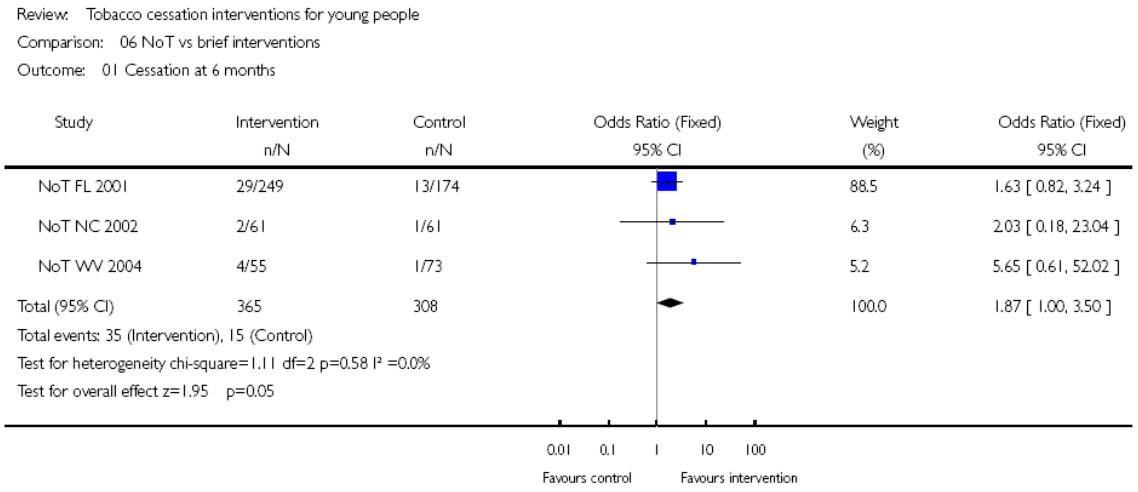
Bei Lipkus 2004, Myers 2005 und den NoT Studien[112] wurden kognitiv-verhaltenstherapeutische Techniken angewandt.

[112] Not FL 2001, NoT NC 2002, NoT WV 2004



Details zu den Studienergebnissen sowie zum Studiendesign befinden sich im Anhang.

Die Not on Tobacco Interventionen wurden mit 673 RaucherInnen aus 84 Schulen durchgeführt. Obwohl keine der Studien alleine einen statistisch signifikanten Effekt nach 6 Monaten zeigte, können bei gepoolten Daten gewisse Hinweise auf statistisch signifikante Effekte der Intervention gefunden werden. Details zum jeweiligen Programmdesign befinden sich im Anhang.



Greenberg 1978 konnte keine signifikanten Unterschiede bei drei unterschiedlichen pädagogischen Ansätzen (faktenbasiert, angstbasiert, einstellungsbasiert) zeigen. Chan 1988 untersuchte Health Risk Assessment (HRA) bei sehr kleinen StudentInnengruppen, konnte jedoch keinen Unterschied zwischen HRA mit und ohne Feedback zeigen. Details zu den Studien von Greenberg und Chan befinden sich im Anhang.

3. ANHANG

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3.2. Übersicht der Studien

3.2.1. Entwöhnungsprogramme für Jugendliche

Study	Aveyard 2001
Methods	Country: UK Setting: Schools in West Midlands Study design: Cluster controlled trial. Schools sampled with probability in proportion of size of year group. Combined prevention/cessation trial
Participants	Participants: 1089 adolescent smokers (defined as >=1cpw); I: 547; C: 542. Age range: 13-14 yrs Criteria for inclusion: Inclusion was at level of school 89 schools were approached and 53 agreed to participate. Data extracted for this cessation review based on all pupils in year 9 who smoked at least 1 cpw . Follow-up method: Questionnaire to all students Inducements to enter study: None Pre-study Smoking status assessment: self reported Post study smoking status assessment: self reported Significant demographic differences between arms of trial: None apparent in published data* Other:
Interventions	Schools randomized to intervention or control. Intervention: Computer 'expert system' designed to diagnose stage of change and deliver material tailored to individual. Six sessions, 2 per term, 1 class-based (tutor training mandatory) and one computer-based delivered over period of school year (3 school terms per year in UK). Theoretical basis of intervention: Psychosocial intervention based on transtheoretical model of stages of change. Control: Control schools received health education as delivered locally at that time; in addition teachers received 3 lesson plans plus handouts but no specialist training or record of what was delivered. Theoretical basis of control: Normal local practice
Outcomes	Measurement: 7-day and 30-day PPA (supplied by author); Follow-up periods >3m, 12m (mean length of follow up 359 (I) to 347 (C) days) and 24m from start of study, equivalent to 4m and 16m after end of intervention. Verification: None Losses to follow up: 11% (I) and 10.7% (C) @ 12m; 14% (I) and 16.9% (C) @ 24m (additional data from authors)..
Notes	7- and 30-day abstinence provided by author based on pupil reporting as quitting AND abstinent for stated period as opposed to not smoking for stated period. The latter is basis for results given in this review. Tested sensitivity of questionnaire kappa 0.87 (0.7-1.00) bias would be towards positive result so ascertainment unlikely to affect validity
Allocation concealment	A – Adequate

Study	Brown 2003
Methods	Country: USA Setting: Psychiatric hospital, Providence RI Study design: Cluster randomized controlled trial
Participants	Participants: 191 patients (116: I; 75 C), 62.3% female, ethnicity 94.8% white Age range: 13-17 year olds, mean 15.4yrs Criteria for inclusion: at least 1 cpw for previous 4 weeks, 64% daily smokers, on average smoking for 3.6 years (additional data from authors) Follow-up method: Telephone questionnaire Inducements to enter study: Gift certificates to local mall, escalating in value, on completion of each phase No significant demographic differences between arms of trial. Other: Participants were prohibited from smoking during hospital stay (mean length 9 days)
Interventions	Intervention: Motivational interviewing given in 2 sessions of 45 mins plus relapse prevention manual and self help pamphlet Control: Brief advice session plus self-help pamphlet
Outcomes	Measurement: 7-day PPA; Follow up period/s >3m, 6m, 12m Pre-study smoking status assessment: Modified Fagerstrom, mean 4.9 (±1.82) Post study smoking status assessment. Verification: Salivary cotinine and CO Losses to follow up: At 6m 8%; at 12m 9%
Notes	
Allocation concealment	C – Inadequate

Study	Chan 1988
Methods	Country: USA Setting: University dormitories, Richmond VA Study design: Cluster controlled trial; Only two arms contribute (Health Risk Assessment with and without feedback) as single control group not measured at beginning and end of study.
Participants	Participants: 40 University freshmen smokers Age range: 17-18 Criteria for inclusion: 50% of freshman randomly selected. Follow-up method: Computer scored Health Risk Appraisal [HRA] Questionnaire Inducements to enter study: None Pre-study Smoking status assessment: self assessment Post study smoking status assessment: self assessment verified by resident advisor with option to modify No significant demographic differences between arms of trial.
Interventions	Four-arm trial: 1) Health Risk assessment [HRA] at start of study, feedback on results and second assessment 1 year later (n=23) 2) HRA at start of study and HRA at end (n=17) 3) HRA at start only (no end of study data collection on smoking behaviour) 4) HRA at end only (no baseline data collection on smoking behaviour) Only arms (1) and (2) compared for this review
Outcomes	Measurement: self-reported 30-day PPA; Follow-up period/s >3m; approx 9m. Verification: resident advisor's report, with no biochemical validation
Notes	As data collection on control groups was not done before and after, only one comparison can be made. Authors noted that there was a risk of contamination between groups.
Allocation concealment	C – Inadequate

Study	Colby 2005
Methods	Country: USA Setting: Hospital outpatient or emergency departments in Rhode Island Study design: Randomized controlled trial
Participants	Participants: 85 adolescents (43 I; 42 C) Age range: 14 -19 yrs Criteria for inclusion: reported daily smoking for previous 30 days Follow-up method: Timeline Follow Back to inform structured interview Inducements to enter study: US$10 gift voucher for completion. Pre-study Smoking status assessment: self reported cpd in last 30 days Post study smoking status assessment: verified self-reported smoking pattern in last 90 days Significant demographic differences between arms of trial: Not reported
Interventions	Intervention: 35 minute personal motivational interview with 1 week follow-up phone call of 15- 20 minutes Theoretical basis of intervention: Motivational enhancement Control: 5 minute advice interview plus pamphlet and brief phone call 1 week after visit Theoretical basis of control:Brief Intervention
Outcomes	Measurement: 7-day PPA; Follow up periods: >3m, 6m. Verification: CO and cotinine Losses to follow up: 20% at 6 months
Notes	Author of study considers little confounding amongst extensive array of variables High withdrawal and non-recruitment rate.
Allocation concealment	A – Adequate

Study	Greenberg 1978
Methods	Country: USA Setting: High schools Study design: Randomized controlled trial
Participants	Participants: Open recruitment, first 100 recruited Age range: 14 -16 (Grades 9-11) Criteria for inclusion: All participants smoked at least 5cpd Inducements to enter study: Half a unit credit for experimental groups Pre-study Smoking status assessment: self report Post study smoking status assessment: self report
Interventions	Intervention: Group A (n=25) received 'scare' education; Group B (n=25) 'fact'-based education, Group C (n=25) 'attitude' approach using affective strategies. All classes took place in weekly sessions over 7 weeks. Theoretical basis of intervention: Affective teaching strategies consistent with theoretical development at time of trial Control: Control group (n=25) spent time in study hall without any active intervention
Outcomes	Measurement: PPA ['no longer smoked']; Follow up period/s >3m, 5m after end of intervention. Intervention lasted 7 weeks, so endpoint 6-7m post-baseline. No biochemical verification. Losses to follow up: 22% at final follow up. Results: All ORs calculated. Quitters: Group A 3 students; Group B 0 students; Group C 6 students and control 1 student Overall OR for aggregated quitting = 3.27 (0.39 - 27.21) Group A vs control OR = 3.27 (0.32-33.84) Group B vs control OR = 1(0) Group C vs control OR = 7.58 (0.84 - 68.46)
Notes	No power calculations evident from paper but published in 1978 so report consistent with current practice. Lack of information regarding allocation and potential confounding in this study.
Allocation concealment	C – Inadequate

Study	Hollis 2005
Methods	Country: USA Setting: 7 pediatrics and family practice departments in HMO medical centres in Oregon and Washington state. Study design: Randomized controlled trial (prevention and cessation). Blocked randomization method, using sealed envelopes.
Participants	Participants: 448 adolescent smokers selected from 2524 recruits attending clinic appointments. Age range: 14 - 17 Criteria for inclusion: Those who were willing to stay after consultation at clinic and had no intention of leaving geographical area within 1 year. Follow-up method: Mailed questionnaires and telephone interviews Inducements to enter study: None Pre-study Smoking status assessment: self-reported 30-day smoking status Non-significant demographic differences between arms of trial at level of $P < 0.05$ except for small difference in positive at depression screen ($P < 0.01$)
Interventions	Intervention: 3 sequential interventions plus maximum of 2 boosters: (1) Clinical message encouraging quitting or not starting, (2) 10-12 minute individual multi-media interactive computer-delivered expert system tailored to stage of change of individual (3) 3-5 mins of motivational counselling by trained health counsellors. Boosters were delivered at clinic attendance (computer programme and motivation counselling) or by telephone (motivational counselling only). Repeated attempts were made to deliver boosters. Theoretical basis of intervention: Prompts to clinicians to give brief advice, TTM and motivational interviewing Control: Dietary advice (5-a-day fruit and veg); Theoretical basis of intervention: Brief advice - 3-5 mins motivational counselling
Outcomes	Measurement: 30-day PPA; Follow-up periods: >3m, 1 year and 2 years. No verification. Losses to follow up: 6% at 12 months and 12% at 24 months
Notes	This sytematic review uses definition of smoking of 1 cpw for at least 6m to define a regular smoker. Hollis et al confirm that their definition of 'smokers' most closely fits this criterion. We have only used the data for smokers, although the trial included separate smoking uptake prevention results.
Allocation concealment	A – Adequate

Study	Killen 2004
Methods	Country: USA Setting: Nine continuation high schools in San Francisco, CA Study design: Randomized controlled trial. Quality of allocation concealment confirmed by author.
Participants	Participants: 211 smokers. Age range: 15-18 years Criteria for inclusion: currently smoked at least 10 cpd, for at least 6m, with >1 quit attempt and a score of at least 10 on modified FNTQ. Inducements to enter study: US$50 at end of treatment and US$50 for completing 6m assessment. Pre-study Smoking status assessment: mean cpd 15 and mean FNTQ score 16.6 No significant demographic differences between arms of trial. Health screening was conducted; those screened positive for depression (clinical diagnosis) were excluded
Interventions	Intervention: 8 weeks of tailored NRT patch therapy plus 150mg SR bupropion tablet (for 8 weeks from quit date)and relapse prevention Theoretical basis of intervention: Pharmacological plus group work (theoretical basis not given) Control: 8 weeks of tailored NRT patch therapy plus placebo tablet.(for 8 weeks from quit date). Theoretical basis of intervention: Pharmacological
Outcomes	Measurement: 7-day PPA; Follow up periods: >3m, 6m. Verification: CO monitoring (below 9ppm) and saliva cotinine (below 20 ng/ml) at 6m; adherence to bupropion measured at 5 weeks Losses to follow up: 36% at 6m.
Notes	
Allocation concealment	A – Adequate

Study	Lipkus 2004
Methods	Country: USA Setting: 11 shopping malls and an amusement park in North Carolina, South Carolina, Gerogia and Tennessee Study design: Randomized controlled trial
Participants	Participants: 402 adolescents (I: 209; C: 193) Age range: 15-18 years old Criteria for inclusion: at least one cigarette within preceding 7 days (mean years smoked 3 ±2, and 10 ±8 cpd) Follow up: Telephone survey Inducements to enter study: a movie pass Pre-study smoking status assessment: Nicotine dependence measured using mFTQ No significant demographic differences between arms of trial.
Interventions	Intervention: Telephone counselling, self help materials and a video Theoretical basis of intervention:Eclectic but pre-tested with age-appropriate group and contains elements of CBT and TTM. Telephone counselling used motivational interviewing Control: Self help materials and a video Theoretical basis of intervention: Eclectic, see above
Outcomes	Measurement: 7-day PPA and sustained abstinence (defined as not smoking at both 4m and 8m assessment points); Follow up periods >3m, 8m. Verification: saliva cotinine at level of >10ng/ml at 4m; self-report only at 8m. Losses to follow up: 36% at 8m. Results: 7 day quitting: 21% (calculated as 44smokers) in intervention and 19% (calculated as 37) in control and sustained quitting 9% (calculated as 19 students) in intervention arm and 7% (calculated as 14 students) in control. ITT for sustained quitting OR =1.279 (0.622 - 2.627) ITT for 7 day point prevelance OR = 1.124 (0.690 - 1.833)
Notes	
Allocation concealment	B – Unclear

Study	Moolchan 2005
Methods	Country: USA Setting: Baltimore, MD, by invitation through media advertisements, schools, churches. Study design: Randomized controlled trial; randomization was by an algorithm held bi the National Institue on Drug Abuse pharmacy, with true replacement of trial non-completers.
Participants	Participants: 120 Smokers (I: 80, C: 40) Age range: 13-7 years Criteria for inclusion: Smoking 10 or more cpd for at least 6m and motivation to quit >5 on 10-point integer scale. Only those who were happy to inform parents of smoking status were included. Follow-up method: interim and final questionnaires and final visit for verification of smoking status Inducements to enter study: US$90 for baseline and US$135 after final visit/completion Pre study Status assessment: Mean 18.8 cpd, 'youth appropriate' Fagerstrom mean 7.04 No significant demographic differences between arms of the trial.
Interventions	Intervention: Nicotine patch and gum, and self-help written materials. Two active groups (a) active patch with placebo gum (n=34) (b) active gum with placebo patch (n=46). NRT for both groups was tailored to weight and smoking level. Participants received 11 visits over 12 weeks to receive NRT, and attended 45 minute group CBT session at the end of each visit, + self-help materials. Theoretical basis of intervention: Pharmacological Control: placebo patch and gum (n=40).
Outcomes	Measurement: 7-day PPA, and 'prolonged' abstinence, i.e. continuous abstinence after a 2 week grace period from end of intervention; Follow-up periods: >3m, 6m. Verification: CO, salivary cotinine and thiocyanate. Losses to follow up: 54%
Notes	Timeline for trial was verified with authors. Adverse event 'profile consistent with that reported for adults'.
Allocation concealment	A – Adequate

Study	Myers 2005
Methods	Country: USA Setting: Outpatients in substance abuse programme in Southern California Study design: Non-randomised controlled trial
Participants	Participants: 54 Smokers: (I: 26; C: 28 [on waiting list]) Age range: 13-18 years, mean 16.1 yrs Criteria for inclusion: Reported weekly smoking, smokers were required to attend treatment but 'particpation in the outcome study was voluntary' Follow-up method: questionnaires and visit for verification of smoking status/ Inducements to enter study: Gift certificates US5 for baseline, US5 for 3m follow up and US$45 on completion at 6m. Pre study Status assessment: Mean 7.96 cpd in intervention group and 10.0 in control group, modified Fagerstrom scores of 3.85 in intervention group and 3.68 in control group Post study smoking status assessment: Teen Smoking Questionnaire Significant demographic differences between arms of the trial: Authors claim statistically signifiant difference only in % of pre-contemplaters, although we note that the control group had fewer girls than the intervention group (14% vs 31%).
Interventions	Intervention: Motivational enhancement delivered in 6 sessions of 1 hour each in groups. Theoretical basis of intervention: Eclectic with CBT and motivational enhancement Control: waiting list
Outcomes	Measurement: 7-day and 90-day PPA and Time Line follow back; Follow-up periods: >3m, 6m. Verification: CO and salivary cotinine, and parental corroboration Losses to follow up: 33%
Notes	Additional information from author
Allocation concealment	C – Inadequate

Study	NoT FL 2001
Methods	Country: USA Setting: 40 high schools in Florida Study design: Cluster controlled trial. A matching procedure was used 'to better accommodate the community based research partners and challanges they faced (e.g. local schools who already had NoT in place)'.
Participants	Participants: 423 Smokers in 40 schools (I: 249; C: 174). Age range: 14-19 years,mean approx 16 years. Criteria for inclusion: self-reported smoking at least 5cpd. Follow-up method: self reports and verification of smoking status Pre study smoking status assessment: Approx 11.7 cpd on weekdays and 18.2 cpd on weekends. mFTQ of around 6.0 (reported for each arm of trial) Significant demographic differences between arms of the trial: Interevention group had slightly higher nicotine dependence.
Interventions	Intervention: NoT Intervention: 1 x 50-minute session once a week for 10 weeks, same-gender small groups (no more 10 in the group) led by same-gender faciltiators. Covers motivation, smoking history, nicotine dependence, social, pdychological and health consequences of smoking, preparation for quitting, urges and cravings, relapse prevention, stress management, family/peer pressure, healthy lifestyle, nutrition. Four booster sessions offered post-programme at 2 and 4 weeks. Theoretical basis of intervention: Social cognitive theory Control: Brief Intervention (mixed gender groups, 5 minutes scripted advice, 10 minutes to describe purpose and answer questions, pamphlets) Theoretical basis of control:
Outcomes	Measurement: 1-day or longer PPA; Follow-up periods: >3m, 6m (mean 7.3m from baseline) Verification: CO Losses to follow up: approx 50%

Study	NoT NC 2002
Methods	Country: USA Setting: 10 high schools (5 matched pairs) in North Carolina Study design: Cluster controlled trial. Intervention schools were allocated where there were NoT facilitators trained to deliver the intervention already present in the school.
Participants	Participants: 122 smokers (I: 61; C: 61) Age range: 14-19 years, mean approx 16 years. 93.4% white, 56% female. Criteria for inclusion: self-reported smoking at least 5cpd. Follow-up method: self reports and verification of smoking status. Pre study smoking status assessment: Approx 13.3 cpd on weekdays and 19.4 cpd on weekends. Modified Fagerstrom score showed them 'highly addicted'
Interventions	NoT intervention with Brief Intervention as control. See NoT Florida for details.
Outcomes	Measurement: 1-day or longer PPA; Follow-up periods: >3m, 6m, 15m. Verification: CO < 9 ppm. Losses to follow up: approx 50% at 15m.
Notes	ITT data used. End of programme, if including booster sessions, is around 6m. Serious flaw and risk of confounding by picking intervention schools where already 'trained to administer' intervention in past (acknowledged). OR calculated from trial report.
Allocation concealment	A – Adequate

Study	NoT WV 2004
Methods	Country: USA Setting: 10 high schools (5 matched pairs) in North Carolina Study design: Cluster controlled trial. Intervention schools were allocated where there were NoT facilitators trained to deliver the intervention already present in the school.
Participants	Participants: 136 smokers (I: 63; C: 73) Age range: 14-19 years, mean approx 16 years. 93.4% white, 56% female. Criteria for inclusion: self-reported smoking at least 5cpd. Follow-up method: self reports and verification of smoking status. Pre study smoking status assessment: Approx 13.3 cpd on weekdays and 19.4 cpd on weekends. Modified Fagerstrom score showed them 'highly addicted'
Interventions	NoT intervention with Brief Intervention as control. See NoT Florida for details.
Outcomes	Measurement: 1-day or longer PPA; Follow-up periods: >3m, 6m, 15m. Verification: CO < 9 ppm. Losses to follow up: approx 52% at 15m.
Notes	Non-significant difference at 15m caused by doubling of control quit rate between 6m and 15m. This may be partly attributable to Master Settlement Agreement funding of US$5.8 million administered across the state for prevention activities, which confounded the background rate.
Allocation concealment	A – Adequate

Study	Project EX-1
Methods	Country: USA Setting: 18 Continuation high schools in southern California Study design: Cluster randomized controlled trial (assigned by block randomization)
Participants	Participants: 335 smokers, recruited by advertising and flyers within each school. 139 in 6 Project EX schools, 120 in 6 Project EX plus SAC schools, 76 in 6 control schools. Age range: 14-19 yrs Mean age was 16.8 (± 0.8) years. Criterion for inclusion: used tobacco in last 30 days. Follow-up method: Questionnaires and telephone for those who had left school Inducements to enter study: class credits and class release time Pre-study smoking status assessment: Questionaire. Mean smoking 8.8cpd (± 9.3) Modified Fagerstrom scores 30% in range 0-6, 53% in range 7-13 and 17% in range 14-21. Post study smoking status assessment: questionnaires No significant demographic differences between arms of trial
Interventions	Intervention: Initially schools split into three arms: (1) Project EX sessions alone (clinic only schools). (2) Project EX plus school community development 'school-as-community' (SAC schools). (3) Control: standard care. 1. Project Ex is 8 sessions or 'clinics' over a 6-week period delivered to groups and developed in trials. Four sessions are preparation for quitting over 2 weeks, and next 4 are weekly during the first month post-quit. Theoretical basis of intervention: Complex theoretical constructs including motiovation interviewing etc, and including games for groups, education and anger management, yoga, weight control, meditation, assertiveness training, role play and relapse prevention. 2. SAC intervention: modeled on Toward No Drug Abuse programme. Student body organised service, recreational and job training functions, and produced a Project newsletter, to enable expression of anti-tobacco attitudes.
Outcomes	Measurement: 30-day PPA; Follow-up periods: >3m, 6m from start of study. Verification: CO (for 62 students and results adjusted by false quit reporting factor of this group) Losses to follow up: 51% in intervention group - 40% of intervention group dropped out during clinics - 42% in control group lost to follow up. Results: No difference in outcomes between two intervention arms of trial so authors pooled data and compared, as a single arm with control arm. Calculated OR based on 17% in intervention = 44 people and 8% in control being 6 people* Calculated OR = 2.388 (0.976 to 5.841) Details from authors:
Notes	Recruitment in intervention arm was voluntary; 90% of subjects said they had volunteered because they wanted help with quitting
Allocation concealment	A – Adequate

Study	Robinson 2003
Methods	Country: USA Setting: 18 schools in Memphis, Tennesee Study design: Randomized controlled trial
Participants	Participants: 316 smokers referred to study by school adminstrators or parents after violation of school no smoking policy, 261 students (I: 169; C: 92) followed up so far [2006]. Age range: 13-19 year olds; 64% male. Follow-up method: Telephone assessment, self-reporting Inducements to enter study: Fast food coupons, discounts at music stores and money on completion. Pre-study smoking status assessment: mFTQ Significant demographic differences between arms of trial: More cases in intervention than control arms because of school wish to have offenders treated.
Interventions	Intervention: 4 x 50-minute sessions behavourial programme, based on STS (Start To Stop) model, of motivational interviews at start of programme and monthly phone calls for 1 year to assess smoking status and give brief support, based on stage of change. Theoretical basis of intervention: Social influence theory, motivational enhancement, CBT and TTM Control: Written material at start of study, and monthly phone calls to assess smoking status.
Outcomes	Measurement: 7-day PPA; Follow-up periods: >3m, 12m. Verification: Attempted for all quitters. Salivary cotinine samples obtained for 18/41 cases, CO initially as a 'bogus pipeline' for some students.
Notes	Authors were contacted for original allocation of students and clarification. Possible contamination as unit of allocation was student, so that controls and interventions mixed in same schools, and there was no concealment of allocation. Stratified data available on baseline characteristsics Referral to study for violation of school no smoking policy raises issues of consent.
Allocation concealment	C – Inadequate

C: Control Group
CBT: cognitive behavioural therapy
CO: Carbon monoxide
cpw: cigarettes per week
mFTQ: modified Fagerstrom tolerance questionnaire
I: Intervention Group
m: month(s)
PPA: point prevalence abstinence
TTM: Transtheoretical model (stages of change)

Study	Results	Notes
Aveyard 2001	a) 7 day abstinence: 76/547 (Int) and 59/542 (Cont) quit smoking at year 1; OR: 1.32 (CI 0.92 to 1.90). 63/547 (Int) and 49/542 (Cont) quit at year 2; OR: 1.30 (CI: 0.79 to 2.14) b) 30 day abstinence: 66/547 (Int) and 45/542 (Cont) quit at year 1; OR: 1.52 (CI 1.02 to 2.26) 53/547 (Int) and 46/542 (Cont) quit at year 2. OR: 1.1.8 (CI 0.7 to 1.97)	7 and 30 day abstinence provided by author based on pupil reporting as quitting AND abstinent for stated period as opposed to not smoking for stated stated period. The latter is basis for results given in this review. Tested sensitivity of questionnaire kappa 0.87 (0.7 to 1.00) bias would be towards positive result so ascertainment unlikely to affect validity.
Brown 2003	[ITT analysis]. At 6m, Intervention 13.3% (calculated as 15 students) and Control 8.5% (calculated as 6 students) quit; OR: 1.71 (CI: 0.63 to 4.62). At 12m 14% (calculated as 16 students) and 9.9% calculated as 7 students) quit; OR: 1.55 (CI: 0.61 to 4.00)	Not clear that calculations of % quitters based on original trial participants, therefore imputed OR calculated from translating % results using denominator of n=173 and OR calculated on ITT analysis basis using n=191. 'Cohort' may have led to clustering of outcomes and decreased study power.
Chan 1988	At approx 9m, 6/23 smokers quit in feedback group (arm 1) and 1/17 in no feedback group (arm 2). OR: 5.65 (CI: 0.61 to 52.22),comparing groups (1) and (2)	
Colby 2005	At 6m OR: 3.07 (CI: 0.307 to 30.817), based on calculations of ITT of 3 Intervention quitters and 1 control Losses to follow up: 20% at 6m	
Greenberg 1978	Quitters: Group A 3 students; Group B 0 students; Group C 6 students; Control 1 student Overall OR for aggregated quitting: 3.27 (CI: 0.39 to 27.21). Group A vs control OR: 3.27 (CI: 0.32 to 33.84). Group B vs control OR: not calculable. Group C vs control OR: 7.58 (CI: 0.84 to 68.46)	ORs based on ITT extrapolation.
Hollis 2005	At 1 year: OR: 2.04 (CI: 1.24 to 3.35) (additional data from author). At 2 years: OR: 1.86 (CI: 1.07 to 3.23). Losses to follow up: 6% at 12 months and 12% at 24 months	
Killen 2004	At 6m, estimated OR: 1.05 (CI: 0.29 to 3.74), based on 8 quitters in each group (7% of 103 and 8% of 105)	
Lipkus 2004	At 8m, 7-day abstinence: 21% (calculated as 44 quitters) in intervention and 19% (calculated as 37) in control; Sustained abstinence 9% (calculated as 19 quitters) in intervention and 7% (calculated as 14 quitters) in control. ITT for sustained quitting OR: 1.28 (CI: 0.62 to 2.63) ITT for 7 day point prevalence OR: 1.12 (CI: 0.69 to 1.83).	
Moolchan 2005	At 6m, 7-day abstinence: Patch 20.6% (n=7, calculated), and for gum 8.7% (n=4 calculated). Control group 5% (n=2, calculated) At 6m, 'prolonged' abstinence: Patch 17.7% (n=6,	

	calculated), and for gum 6.5% (n=3, calculated). Control group 2.5% (n=1 calculated) ITT analysis: 'Prolonged abstinence: (i) patch vs placebo OR: 8.36 (CI: 0.95 to 73.3); (ii) gum vs placebo OR: 2.72 (CI: 0.27 to 27.3). 7-day pointprevalence: (i) patch vs placebo OR: 4.93 (CI: 0.95 to 25.6); (ii) gum vs placebo OR: 1.81 (CI: 0.31 to 10.4). Losses to follow up: 54%	
Myers 2005	Sustained abstinence (7-day and 90-day PPA): 4/26 (15.4%) in intervention group, and 1/28 (3.6%) in control group. OR: 4.91 (CI: 0.51 to 47.16).	
NoT FL 2001	At 6m, 1-day or longer abstinence: 29/249 quitters in intervention group and 13/174 in control group. OR: 1.63 (CI: 0.82 to 3.24). Range of sustained abstinence reported as 1-218 days. Losses to follow up: approx 50%	
NoT NC 2002	At 6m, 1-day or longer abstinence: 2/61 quitters in intervention group and 1/61 in control group. OR: 2.03 (CI: 0.18 to 23.04). At 15m, estimated NoT quit rate of between 11% (ITT) and 22% (per protocol).	OR calculated from trial report.
NoT WV 2004	At 6m, 4/55 had quit in intervention group and 1/73 in control. OR: 5.65 (CI: 0.61 to 52.02). At 15m, estimated NoT quit rate of between 11% (ITT) and 22% (per protocol).	OR calculated from trial report.
Project EX-1	At 6m, no difference in outcomes between interventions (1) and (2), so authors pooled data and compared as a single arm against control arm. Calculated OR based on 17% in intervention group (44/259) and 8% (6/76) in control group. Calculated OR: 2.39 (CI: 0.98 to 5.84)	Quit rates based on ITT analysis and CO verification.

3.2.2. Präventionskampagnen in den Massenmedien

Study	Bauman 1991
Methods	Country: USA Objective: To evaluate the effectiveness of a mass media campaign to prevent cigarette smoking in adolescents Controlled trial, Standardised Metropolitan Areas (SMSAs) matched for size and ethnicity, with non-overlapping broadcast areas. Random geographic allocation of SMSAs to treatment conditions; 6 intervention, 4 control Cluster sampling procedures identified probability samples of households within each area screened for adolescents. Number of subjects across SMSAs ranged from 132 to 232 (2534 eligible). Logistic and linear regression (both individual - accounting for unit of allocation - and SMSAs treated as unit of analysis). Site: Homes in SMSAs in SE USA
Participants	Age: 12-14 yrs Sex: m & f Ethnicity: SMSAs with >90% whites excluded
Interventions	Theoretical basis: Behavioural science theory and research. Formative media research used to develop TV and radio messages. A) RADIO: 8 x 30 sec radio messages about 7 expected consequences of smoking relevant to adolescents, broadcast in 2 SMSAs. B) RPEER: as A plus 60 sec message inviting entry into "I won't smoke " sweepstake, prize $2,000, with a $20 incentive to recruit 5 (+) entrants, broadcast in 2 SMSAs. Brochures mailed to respondents and recruits encouraging communication with peers to discourage smoking. C) RTVPEER: as (B) plus TV broadcast of sweep stake offer and only 3 expected consequence messages, broadcast in 2 SMSAs. D) CONTROL: No media intervention. Duration: Expected consequences messages broadcast during Nov 85, Jan and April 86. TV sweepstake offer Nov 85. Brochures mailed Jan 86-Feb 87. Intervention deliverer: Messages delivered by thoughtful, self confident, casually dressed peer, being most appropriate image suggested by formative media research.
Outcomes	Self administered questionnaire used to measure perceptions of consequences of smoking, attitudes of friends to smoking, intention to smoke, and smoking behaviour. Validation: alveolar CO and saliva thiocyanate levels. Message reach and frequency. Follow-up: 11-17 months after broadcasts ended, 2-8 months after brochures mailed.
Notes	Selection of SMSAs was influenced by cost of advertising, legal restrictions (eg sweepstakes illegal in some areas) and need for non-overlapping broadcast areas.
Allocation concealment	D – Not used

Study	Flay 1987
Methods	Country: USA Objective: To evaluate the effectiveness of a mass media smoking prevention programme for adolescents co-existing with an adult smoking cessation programme. Study site: Homes and schools in Los Angeles and Northern Orange Counties. Controlled trial. Grade 7 students in 53 participating schools in 26 school districts. Some schools self-selected and could be programme only (P) or mixed programme and control (M). Control schools (C) chosen from non-responding schools. Classes for assessment were selected by school personnel (to be representative of their school). P: 364 students (all waves) C: 289 students (all waves) P (mixed schools): 419 (all waves) C (mixed schools): 347 (all waves) Ancova, logistic regression (school (classroom) unit of allocation, individual unit of analysis)
Participants	Age: 12 & 13 yrs Sex: m & f (56%) Ethnicity: White 62%, Hispanic 22%, Black 8.6%, Asian 6%.
Interventions	Theoretical basis: Social influences approach providing knowledge and skills to resist peer, family and media pressure to smoke Key components: Week one: TV: Five different 5 minute smoking prevention TV segments broadcast on five consecutive days as part of a major TV station's regular prime time (5 pm) health news programme. Schools: Five day smoking prevention programme. Teachers encouraged students to watch TV segments. Free written materials Week two: TV smoking cessation programme (5 consecutive days) aimed at parents. Written materials from week one included a self-help smoking cessation kit. C: media component Duration: 2 weeks (1wk prevention and 1wk cessation) Intervention deliverer: TV segments presented by regular host of TV health programme. TV segments showed class smoking prevention activities as a model for viewing teachers and students, and to convey information to parents.
Outcomes	Multiple choice questionnaire used to measure: knowledge about smoking, social perceptions, refusal expectations, smoking intentions, smoking behaviour of student and parents; level of TV viewing, and parental involvement. Smoking coded to five levels of behaviour. Trained substitute teachers, not involved in classroom delivery, collected data and saliva samples for thiocyanate levels Level of viewing, size of viewing audience Follow-up: 1 month (wave 2) 1 year (wave 3) 2 years (wave 4)
Notes	
Allocation concealment	D – Not used

Study	Flay 1995
Methods	The Television, School and Family Smoking Prevention and Cessation Project. Country: USA Objective: To test the independent and combined effects of a classroom curriculum and TV programming for social resistance skills training, smoking prevention, and smoking cessation. Study site: Schools, homes and towns in Los Angeles and San Diego, Southern California. Controlled trial: (entire schools randomly assigned to treatment conditions using a multiattribute blocking approach - fully factorial design). Students in 47 schools (340 classrooms) in 6 school districts. Analysis: Regression (accounting for school as unit of allocation and individual as unit of analysis).
Participants	12-14 year olds Sex: m & f Hispanic 35.5%, White 33.3%, African-American 13.9%, Other 17.3% (at pre-test)
Interventions	Theoretical basis: Social influences approach and communications theory. Diagnostic and formative media research with TV staff to develop scripts. In Los Angeles: A) social-resistance classroom curriculum B) TV media intervention C) social-resistance classroom curriculum plus TV media intervention D) health-information-based attention-control curriculum E) no-treatment control group In San Diego: (no tv) F) social-resistance classroom curriculum only G) no treatment control group. Duration: 6 weeks:- weeks 1 and 6, classroom curricula delivered and TV smoking prevention messages broadcast.- week two, TV cessation messages for adults broadcast in same area as TV prevention messages. Intervention deliverer: Physician host of regular prime time TV health news programme, presented smoking prevention messages based on filmed classroom sessions.
Outcomes	Questionnaire used to obtain information about current smoking and intention to smoke, knowledge about tobacco and health, refusal skills and self-efficacy. Expired air samples collected as a bogus pipeline procedure to encourage more accurate self-reports. (No process measures stated). Follow-up: immediately post intervention, 1 year, 2 years
Notes	
Allocation concealment	D – Not used

Study	Flynn 1995
Methods	Country: USA Objective: to test the effectiveness of mass media interventions to enhance school smoking prevention programmes. Study site: Homes with TV and schools in Standardised Metropolitan Statistical Areas (SMSAs), two SMSAs in Northeastern United States and two in Montana. Controlled trial: Four demographically matched study communities selected to provide two pairs of SMSAs, targeting high risk populations indicated by adult educational attainment and income. 50 schools selected from census tracts, indicating higher risk for smoking. Method of analysis: logistic regression (unit of allocation community, unit of analysis individual, adjusted for in analysis)
Participants	9-17 year olds Sex: m & f
Interventions	Theoretical basis: Social learning theory and related behaviour change theories. Diagnostic and formative media research with student focus group. A) Schools only programme - grade specific educational materials used in 3 - 4 class period with 10 - 15 yr olds: information about smoking and health, refusal skills, skills to resist advertising pressures, and awareness of social support for non-smoking was included. B) As A plus specifically designed 30 and 60 second TV and radio spot messages broadcast as a campaign in local media. Average of 190 TV broadcasts, 350 cable TV, and 350 radio exposures purchased in each of the 4 years in each of the two targeted media SMSAs. Paid media time was increased by 50% by donated media time. Media exposure modified to match changing media use of maturing cohort. Survey data informed the timing and placement of advertisements. Duration: 4 years Intervention deliverer: A: Usual class teacher, trained by project staff during four annual day long teacher training workshops. B: Diagnostic and formative media research used to identify most appropriate media, time placement and images.
Outcomes	School surveys administered by researchers, of cigarettes smoked in the past week, daily smoking and self-selected smoking category. Saliva samples from school group, as a bogus pipeline procedure to encourage more accurate self-reports. Attitudes towards smoking and smoking norms. Follow-up: annually over 4 year intervention and 2 years post-intervention.
Notes	School and mass media intervention linked only by educational objectives - intended to be seen as independent sources of information. Significantly younger and more females in media and school group at baseline.
Allocation concealment	D – Not used

Study	Hafstad 1997
Methods	Country: Norway Objective: To evaluate 3 provocative mass media campaigns to prevent adolescents smoking. Study site: Homes, communities and cinemas in two counties in SE Norway. Controlled trial. 2 counties matched for size, education level, income, urban-rural settlement and smoking prevalence and allocated to I and C.

	Method of Analysis: Logistic regression (adjustment made for smoking at baseline and gender) (county unit of allocation and individual unit of analysis). All students (aged 14-15 years) were eligible for inclusion, sample consisted of those returning sent questionnaire).
Participants	14-18 yr olds Sex: m & f (girls targeted)
Interventions	Theoretical basis: Hypothesis that provocative appeals stimulate discussion thereby influencing behaviour. Adolescent focus groups identified the key messages used in the campaign. 3 different full page newspaper advertisements; 1 poster, 1 TV and cinema spot. Messages: because more girls than boys smoke, girls are not capable of logical thinking - health consequences of smoking. In each 3 week period:TV & cinema spots shown 167 times; each of the 3 newspaper advertisements appeared once in each of the 5 newspapers; posters (1,140 in total) mailed to all schools, youth organisations and sports clubs. C: No intervention Duration:Three annual media campaigns of 3 weeks duration, 1992, 1993 and 1994 Intervention deliverer: not clear.
Outcomes	Self administered questionnaires used to measure: smoking behaviour, number of cigarettes smoked, and intentions to smoke. Two reminders to prompt reply. Follow-up: 1 year post 3rd campaign
Notes	
Allocation concealment	D – Not used

Study	**Worden 1983**
Methods	Country: USA Objective: To evaluate the effectiveness of televised messages to prevent smoking in young adolescents. Study site: Rural schools in Vermont county. Controlled trial. Treatment group (A) in schools in range of a network affiliate TV station. Control group (B) in adjacent areas out of range of TV signal 4,200 young people from 93 schools in 5 counties completed questionnaires. Analysis: Repeated measures ANOVA (schools unit of allocation and individuals unit of analysis)
Participants	10-12 yr olds Sex: m & f
Interventions	Theoretical basis: Social learning theory and related behavioural change theories. Diagnostic and formative media research using teenage focus groups. A: 7 x 30 sec TV smoking prevention messages, placed as paid advertising during after-school and Saturday morning viewing hours. B: No TV messages. Duration: Exposure for three 13 week periods, no exposure for two 3 month periods, during an 18 month period overall. 10 TV spots broadcast weekly, placed next to the programmes most popular with the target group. TV spots changed in new exposure periods. Intervention deliverer: Positive non-smoking role models, reinforcing positive norms and values by depicting young people who refuse cigarettes and enjoy social benefits in a smoke-free life style. Image informed by student focus groups.
Outcomes	Confidential questionnaire administered in classrooms used to measure: recall of media campaign, perception of friend's approval of smoking, perception of friend's smoking, intention to smoke a cigarette if offered by a friend, smoking behaviour. Follow-up:- 1 year (after 2 parts of TV campaign)- 18 m (after all TV broadcasts)
Notes	
Allocation concealment	D – Not used

Study	Baseline/Follow-up	Process results	Intermediate Outcome	Smoking Behaviour	Comments
Bauman 1991	Number of subjects across SMSA's ranged from 132 to 232. Total participants; pre-test 2,102 post-test 1,637 Attrition: 22% lost to follow-up (more likely to be recent, regular smokers with a high mean smoking intensity)	Messages reached 81% of intended audience on average 4.5x in each of the 3 four week periods	Positive attitudes to smoking increased in CONTROL group, relative to RTVPEER and RADIO. RADIO campaign had a modest effect on perceptions of the expected consequences of smoking and friend approval of smoking (approx 4%).There were no significant effects on intention to smoke Peer involvement component was not effective.	The study was not able to detect any effect on smoking behaviour (in both individual and SMSAs as unit of analysis)	There were substantial within-treatment differences in smoking between SMSAs. Broadcast time was purchased. Expensive campaigns involving TV were not more effective than radio alone.
Flay 1987	4,891 pre-test Attrition: 19% at wave 2 (1m) 39% at wave 3 (1y) 55% at wave 4 (2y) 1,419 students (29%) were present for all tests (included in analysis) Attrition higher for control group, more likely to be boys at higher risk of becoming smokers, or who were smoking at pre-test.	Viewed at least one smoking prevention segment: P and P[M])64% C and C[M] 12% (P< 0.001). Average number of prevention segments watched: P students 2.04 C students 0.30. The more prevention segments viewed, the lower the increase in student's lifetime cigarette use (wave 4; F = 6.662, P = 0.01).	No significant differences in any outcome variables at wave 4.	At wave 4 no significant differences in smoking behaviour or intentions to smoke between groups.	Study sample was at lower risk of becoming cigarette smokers than population of same age students. Control students more at risk of becoming cigarette smokers (differences remained after controlling for ethnic composition). Problems with lack of implementation of the school component.
Flay 1995	Of 7,351 students at pre-test, 656 (9%) did not provide data; 53% lost at 2 yr follow-up.	Not stated	At 2 yr follow-up Group D had significantly greater tobacco and health related knowledge (p< 0.0001), Group A had significantly increased their social	There were no consistent program effects on the main outcomes: smoking behaviour or smoking intentions in any of the groups.	Authors comment that television programming was poorly executed, and that there was significant variability in the integrity of classroom programme

Study	Baseline/Follow-up	Process results	Intermediate Outcome	Smoking Behaviour	Comments
			(influences) resistance skills knowledge relative to other groups (p<0.01) but actual refusal/self-efficacy did not differ significantly between groups.		delivery.
Flynn 1995	5,458 students Attrition: 62% at 2 years post intervention were lost to follow-up. Included more girls, those with less smoking amongst peers, family and friends, and with less smoking behaviour.	Higher risk group consistently reported more frequent use of radio, cable TV and network TV programmes. High risk girls reported more frequent use than higher risk boys.	Consistent effects on targeted intermediate variables were observed between the media and school group and the school group only, eg in attitudes towards smoking (0.37 v 0.25, p<0.05), & smoking norms (4.94 v 5.56, p<0.05).	Two years post intervention students exposed to B, were at lower risk for weekly smoking (OR = 0.62, 95% CI 0.49 - 0.78) than those receiving school interventions only (A) High and low risk samples at 2 year follow-up:- there was a 7.3% difference in weekly smoking prevalence favouring the media-school group rather than the school only group, and a 4.3% difference for the lower risk group.- difference in prevalence favouring the media-school group was 10.6% for high risk girls, and 4.7% for high risk boys.	Higher risk group consistently reported more frequent use of radio, cable TV and network TV programmes. High risk girls reported more frequent use than high risk boys.
Hafstad 1997	4,898 adolescents in intervention area A, 5,439 in control area B (from cohort of 11,033). Baseline proportion of daily smokers lower amongst boys in A (6.9%) than B (9.9%) Attrition: A: 44% B: 38% More smokers lost to study than non-smokers A 18% B	None reported	Expected to be a smoker in three years time: A: 9% B: 13% (p<0.01)	Overall increase in the proportion of daily smokers from 1992 - 1995 was significantly lower in A than B for girls. girls: A: 8.6% B: 12.4% (p <0.01) boys: A: 6.8% B: 10.5% (ns). Adjusted odds ratio for being a smoker in group A	As many as 88% of 15-18 year olds read daily newspapers. In Norway accepted equal status of women - more than 50% female members in the government. Campaign may not be generalisable. Total advertising ban on tobacco enforced in 1975. Cinema

Study	Baseline/Follow-up	Process results	Intermediate Outcome	Smoking Behaviour	Comments
	13%. Final post campaign survey response was lower in A than B p<0.001. 5 surveys of A compared to 2 of B.			compared to group B was 0.74 (CI 0.64-0.86). Cigarettes smoked: Boys 1992 - A: 8/day B: 7/day 1995 - A: 12/day B: 12/day Girls 1992 - A: 7/day B: 7/day 1995 - A: 11/day B: 10/day	and local TV stations were available to 63% of study cohort.
Worden 1983	4005 students, 1242 intervention and 2763 control available for analysis. Attrition not stated.	Recall of messages: A: (light viewers) 32% A: (heavy viewers) 57% B: 15%. A survey of the content and appeal of the 7 TV messages was carried out with 397 10 - 12 year olds not exposed to the original campaign using an Interest Rating Scale (IRS). 10 year olds showed significantly more interest than 11 or 12 year olds.	At one year fewer young people in the treatment area A said they would smoke a cigarette offered by a best friend (p=0.034); or perceived that their friends smoke cigarettes (p=0.004). At 18 months these differences were no longer evident.	There were no significant differences in smoking behaviour between A and B. A trend (ns) toward a lower level of smoking was noted for A, the group exposed to TV messages.	There were age related media preferences, with an increase in radio listening and a decrease in TV viewing over the 18 month campaign period. Families in TV area had slightly higher education and income levels than the controls.

3.2.3. Familienorientierte Programme

Study	Jackson 2006
Methods	Country: USA Sites: 28 school districts in N Carolina, S Carolina and Colorado Focus: tobacco prevention Design: parent-child dyads randomized to experimental or control group Analysis: X2 to test for attrition bias; logistic regression to test whether the progam affected initiation of smoking
Participants	1147 parents submitted consent forms; 135 not contactable; 125 not eligible; 887 parent-child (3rd grader) dyads completed baseline assessment
Interventions	(1) "Smoke Free" program: 6 guides mailed to home (5 at 2 week intervals, one after 1 year) with tips on parenting skills; newsletters; gifts to participating children (yo-yos, wrist bands, cameras); (2) Control: 5 fact sheets about tobacco mailed to home
Outcomes	Ever having puffed on a cigarette
Notes	Study Category: 2 1. Randomization bias: Minimal. At baseline groups equivalent except in the intervention group 68% had parent who had attended college vs 60% for control group (p <.03); 2: Performance bias: moderate - no process analysis whether parents received, read and discussed tip sheets, or if control group received and read the fact sheets; 3. Attrition bias: Minimal: 11% attrition, no differential attrition 4. Detection bias: minimal: few logic errors in childrens' reporting of smoking status 5. Power computation: not performed 6. Statistical quality: minimal risk of bias: intention to treat analysis; analysis adjusted for covariates
Allocation concealment	A – Adequate

Study	Jøsendal 1998
Methods	Country: Norway Site: nationwide sample of 4441 students in 195 classes in 99 schools. Focus: smoking prevention. Design: From a zipcode-ordered listing of all Norwegian secondary schools a school was randomly chosen, then the next three schools with a similar number of students, yielding clusters of 4 schools. Analysis: Pearson chi squared for differences across groups; McNemar's test for significance of changes and multiple logistic regression for changes in smoking rates.
Participants	4441 students, of whom 4215 provided written consent. Programme administered by classroom teachers. Parents received a brochure, teachers involved parents in discussions, and students signed a contract of non-smoking with parents.
Interventions	8-session intervention focused on personal freedom, the freedom to choose, freedom from addiction, making one's own decisions, tobacco-resistance skills, and the short-term consequences of smoking. The classroom teachers received 2 days training, detailed programme manuals to secure fidelity, and filled in a questionnaire after each lesson to evaluate programme fidelity. Students brought 2 brochures home; teachers involved parents in discussions on 'appropriate occasions', and students and parents signed non-smoking contracts. (1) classroom programme with involvement of parents and teachers; (2) classroom programme with involvement of parents; (3) classroom programme with involvement of teachers. (4) Control; no information on whether control group received any intervention
Outcomes	Daily, weekly, <weekly smoking, and non-smoking. Follow up at 6m, 18m, 30m. Only 6m follow-up data reported here.

Study	Spoth 2001
Methods	Country: USA Site: 33 rural schools in 19 contiguous counties in a midwestern US state [Iowa]. Focus: tobacco, alcohol, marijuana prevention Design: Schools blocked on size and proportion in lower income households, then randomly assigned to one of 3 groups. Analysis: multilevel mixed model ANCOVA; dichotomous outcomes by z tests; for 4 and 6 yr follow up growth curve analysis was used;
Participants	Baseline: 1,309 eligible families (index child in 6th grade), of whom 667 (51%) completed the pretest; 10th grade follow up, at age 15: 447 (67%); and 373 families (56%) completed all 5 data assessments across 4 years; Age: 6th graders, age 11, 55% F.
Interventions	(1) Iowa Strengthening Families Program (ISFP) (11 schools, n=117): 7-session programme, with concurrent 1-hr sessions for parents and children: parents taught to clarify expectations, use appropriate discipline, manage strong emotions regarding their child, effectively communicate with their child; Children's sessions paralleled the parents' , + peer resistance and peer relationship skills training; in family sessions family members practised conflict resolution and communication skills and engaged in activities to increase family cohesiveness and positive involvement of the child in the family; (2): Preparing for the Drug-Free Years Program (PDFY) (11 schools, n=124): 5-session programme, with 4 parents only sessions: parents instructed on risk factors for substance abuse, developing clear guidelines on substance-related behaviours, enhancing parent-child bonding, monitoring compliance with their guidelines and providing appropriate consequences, managing anger and family conflict; and enhancing positive child involvement in family tasks; 1 child session on peer resistance skills. (3) Control (11 schools, n=208): 4 mailed booklets (physical and emotional changes in adolescence, and parent-child relationships).
Outcomes	Ever smoked, ever used chewing tobacco, cigarettes/day, and no. of times chewed tobacco in the past month. Follow up at 4 yrs and 6 yrs.

Study	Storr 2002
Methods	Country: USA Site: 9 public primary schools in Baltimore. MD. Focus: classroom management Design: Randomized controlled trial, with pupils randomly assigned within each school. Classroom was unit of randomization. Analysis: Chi squared and ANOVA to analyse pre-intervention equivalence of groups; logistic regression to assess attrition; multilevel logistic regression models; intention to treat analysis, with GEEs with a multivariate response profile approach. intention to treat analysis
Participants	Baseline: 678 first graders; Av age 5.7 yrs; 53% M, 86% African-American.
Interventions	(1) Classroom-Centered (CC) Intervention (n=230): (a) language and mathematics curricula enhanced to encourage skills in critical thinking, composition, listening and comprehension; (b) whole-class strategies to encourage problem solving by children in group contexts, decrease aggressive behaviour, and encourage time on task; (c) strategies for children not performing adequately. Teams of children received points for good behaviour and lost points for behaviours such as starting fights; the points could be exchanged for classroom activities, game periods and stickers. (2) Family-School Partnership (FSP) intervention (n=229): (a) the 'Parents on Your Side Program' trained teachers to communicate with parents and build partnerships, with 3-day workshop, training manual and follow-up supervisory visits; (b) weekly home-school learning and communicating activities; (c) 9 workshops for parents. (3) Control group (n=219): usual curriculum and parent-teacher communications.
Outcomes	Self-reported time to initiation of smoking, at 5, 6 and 7 yrs.

Study	Bauman 2001
Methods	Country: USA Site: National telephone survey Focus: tobacco and alcohol prevention Design: 64,811 telephone numbers representative of all telephone numbers in the US; then by random digit dialing found 2,395 (3.7%) where there was a household with an eligible adolescent age 12-14 and parent pair; then randomized to intervention or control; Analysis: GEE
Participants	Of 2395 eligibles, 1,326 (55%) completed a baseline interview, and of these 549 (46%) began the program, and 407 (34%) completed it; Follow up: of the 1316 baseline pairs, 1135 (86%) completed either 1st or 2nd follow-up interviews, and 1014 (77.1%) completed both; Baseline demographics not reported in detail, but no sig diffs between groups except fewer non-Hispanic Whites (70.6%) in intervention than in control group (76.1%, P=0.05)
Interventions	(1) The Family Matters intervention: 4 booklets mailed to participants: (a) booklet 1 from expectancy theory asked families to discuss the consequences to the family if the adolescent used tobacco or alcohol; (b) booklet 2 asked family members to list normal adolescent behaviours, and understand the importance of supervision, support, communication skills, attachment and conflict resolution, and practise communication skills and plan special times to be together with the adolescent; (c) booklet 3 from social learning theory asked adults to list their own behaviours that might encourage substance abuse, identify rules that could influence their child's substance use, monitor use, and agree on rules and sanctions for substance use; (d) booklet 4 from social innoculation theory asked adults and adolescents to consider what the adolescent could do to resist peer and media pressures to use substances, to practise refusals of tobacco and alcohol, and to watch favourite TV shows together to discuss the messages of the programmes about alcohol and tobacco use. 2 wks after each booklet was posted, a health educator telephoned a parent, encouraged the participation of all family members in the programme, and answered questions; (2) Control; No active programme, only data collection
Outcomes	One question: 'How much have you ever smoked cigarettes in your life?': Likert-scale responses collapsed to never-smoked or had smoked even a puff. Smokeless tobacco determined by 'Have you ever tried chewing tobacco (such as Redman, Levi Garrett, or Beechnut) or snuff (such as Skoal, Skoal Bandits, or Copenhagen)?'. Follow up at 3m and 12m.

Study	Biglan 1987
Methods	Country: USA Site: 13 middle, junior & high schools, Oregon Focus: Preventing and reducing smoking Design: In one school district whole schools assigned to conditions. In 2 districts classes of teachers willing to use curriculum were randomized. In an additional component students in 6 schools randomized individually Analysis: classroom unit of analysis, factorial analysis of covariance
Participants	Number at pre-test: 3387 in 135 classrooms (4.9% weekly smokers); age: 7-10th grades; 51% F; majority white
Interventions	(1) Intervention 1: Information about health effects and short-term effects of tobacco; sensitization to pressures to smoke; training in refusal skills including modelling, rehearsal, reinforcement, practice, video practice, and supporting peers in refusals. (2) Intervention 2 (additional): 7th graders in 6 schools randomized to have 4 messages mailed to their parents following the programme to encourage parents to discuss their views of smoking with their child and set clear rules about smoking. Duration: 5 sessions; 4 on consecutive days + booster at 2 wks. Providers: regular science or health teachers, trained for 2-3 hrs (3) Control: no intervention
Outcomes	Weighted index of self-reported smoking (Pechacek) based on no. smoked in previous week and yesterday. Nonsmoking=no cigs in previous week. Expired CO measured and saliva collected prior to questionnaire completion. Follow up: 9m and 1 yr.

Study	Curry 2003
Methods	Country: USA Site: Portland, Seattle; Focus: smoking prevention; Design: families stratified by child's age, site, and subcohort (assessment or only follow up) then randomized to intervention or control; Analysis: Chi squared to compare nominal data; t-tests to compare means on ordinal and interval data; logistic regression for comparisons adjusting for parent baseline survey data, and to test for effect modification using treatment interaction terms;
Participants	7,337 families with a child 10-12 yrs identified in the membership files of 2 HMOs in Seattle and Portland. 4,026 [55%] gave consent and 3,563 (88% of enrolled) completed the 20m follow up; at the 20m assessment the response rate was 86% (I) and 90% (C) (P<0.001);
Interventions	'Steering Clear Project: (1) intervention: described as 'minimal intensity'. (a) a 12-chapter parent handbook; a videotape on the experiences of a former tobacco model; a CDC videotape; and a comic book, pen and stickers for the child; (b) two calls from a counsellor; (c) a 6-page newsletter 14m later; (d) access to a website; and (e) physicians were prompted during appointments to encourage families to use the videos and website and talk about staying smoke-free; (2) Control: 'usual care'. Exposure to school-based tobacco prevention curricula; tobacco marketing; and media-based tobacco prevention messages was assessed at baseline, 6m, 12m, and 20 month follow ups.
Outcomes	Ever smoking and smoking in the past 30 days. Follow up at 20m.

Study	Cullen 1996
Methods	Country: Australia Site: alternate births in Busselton Hospital, Busselton, WA. Focus: prevention of behaviour disorders Design: 246 newborns 1964-7 stratified by gender and birth order in their family, then allocated by alternate births to either intervention or control; Analysis: tests of proportions using normal appoximation to the binomial distribution;
Participants	Baseline: cohort of 246 (124 (I), 122 (C)) newborns 1964-7 Follow up in 1993: 209 (90%) adults aged 27-29 years; 105 (I), 104 (C).
Interventions	(1) Intervention: 20-30 min interviews by GP(4 per yr in 1st yr, 2 per yr for next 4 yrs) with mothers to enhance self-worth, self-acceptance, foster gentle physical interaction with child, and adopt a positive attitude to modifying child's behaviour; (2) Control: the study secretary maintained contact with the parents; No contact with either group 1975-1993 'other than sporadic visits' to one author as their GP.
Outcomes	Current smoking (not further defined); Personality, language and learning ability tests at 6 yrs of age.

Study	Nutbeam 1993
Methods	Country: U.K. Study site: 39 secondary schools in 4 different educational authorities in Wales and England Focus: smoking prevention and changes in attitudes, knowledge, and values toward smoking. Programme type: 2 projects, lasting 3 months, integrated into classroom settings: (i) FSE, adapted from Norwegian family smoking education project; (ii) SAM, derived from Minnesota smoking prevention programme [Smoking and Me]. In 2 districts schools were randomly selected from school lists, while in remaining 2 districts schools were approached based upon previous response to health education; schools matched by size and catchment area and assigned to one of 4 groups. Statistical analysis: ANOVA, chi squared,and logistic regression, with analyses taking account of clustering.
Participants	5078 eligible students at pre-test were eligible, with 4562 (89.8%) completing the pretest; Age: 11-12 yrs: 52% M; Ethnicity not stated; .
Interventions	(1) 'Smoking and Me Project' (SAM) (9 schools, n=1021): 5 lessons, with pupil-led discussion groups about the social consequences of smoking, peer, family and media influences on smoking, and practising tobacco refusal skills. One teacher from each school was encouraged to attend a 1-day training session; (2) 'Family Smoking Education Project' (FSE) (10 schools, n=1127): 3 lessons on the immediate health impact of smoking on children, a pupil booklet, and a parent booklet which encourages parents to reinforce the messages from school and show disapproval of smoking. All teachers were required to attend a 1-day training seminar (3) both programmes (10 schools, n=1161) (4) control group: no formal interventions (10 schools, n=1229)
Outcomes	Self-reported smoking (never; tried once or twice; < 1 cig/week; 1-6 cigs/week; > 6 cigs/week) Saliva for thiocyanate levels collected but not analysed Follow-up: immediate post-test following programmes and 1 yr, on 89.4% cases valid for analysis.

Study	Follow-up	Short-term results	Long-term results
Bauman 2001	1,326 completed a baseline interview and of these 407 (34%) completed the programme; Follow-up: of the 1316 baseline pairs, 1135 (86%) completed either the first or second follow-up interviews, and 1014 (77.1%) completed both		At year 1: there were 16.4% fewer new smokers in the intervention group than control, and they were less likely to begin smoking (OR = 1.27; 95% CI lower bound = 0.99; p corrected for design effect = .059) than the control. There were 25% fewer new smokers among non-Hispanic Whites, attributed to stricter parental supervision and less parental smoking.
Biglan 1987	Pre-test: 3387; at one year 2391		At 1 year there were no effects of the messages to parents and no difference from control.
Cullen 1996	Baseline: 246 newborns 1964-7; Follow-up in 1993: 209 adults aged 27-29 years (90%)		After 27-29 years: No significant differences in smoking for intervention (22.8%) compared to controls (33.6%, P=0.081; we computed OR = 0.60; 95%CI = 0.33 to 1.08)
Curry 2003	Baseline: 7,337 families with a child 10-12 years; 20 month follow-up (88% of enrolled)		After 20 months: no statistically significant difference from participating in a family programme for adolescents as measured by ever smoking (12.1% control; 13.6% intervention; ns) or in the past 30 days (2.3% control, 2.4% intervention; ns)
Jackson 2006	Of the 887 parent and child dyads who completed the baseline questionnaire, 776 (87%) were followed for 3 years		After 3 years control group more likely to initiate smoking than experimental group (OR = 2.16; 95%CI = 1.39 to

Study	Follow-up	Short-term results	Long-term results
			3.37; p <.001).
Jøsendal 1998	Baseline: 4,441 students, of whom 4,215 provided written consent.; At 3 years: attrition in experimental groups 11.2% and control 5.8% (n's not stated)		After 3 years 68.3% non-smokers in group which received the classroom-plus-parents intervention, and 58.3% in the control (p <.05; we computed OR = 0.48; 95%CI = 0.39 to 0.59). Average number of cigarettes smoked/week 12.8 for the parents + classroom group, 17.8 for the control, but no statistical analysis was presented because the authors state that no software is appropriate for their skewed data and design effect.
Nutbeam 1993	Pre-test: 5078 students aged 11 and 12 eligible, and 4562 (89.8%) completed the pretest; Follow-up: 4538 (89.4%) valid cases for analyses.		The percentage of nonsmokers in the Family Smoking Education Project group declined more over two years (from 77.6% to 53.8%) than in the control group (from 79.6% to 62%; p < 0.05; we computed OR = 1.40; 95%CI = 1.61 to 1.70).
Spoth 2001	Baseline: 1,309 eligible families, of whom 667 (51%) completed the pretest; 10th grade Follow-up at 1 year: 447 (67%); and 373 families (56%) completed all five data assessments across 4 years.		After 1 year: 13.9% new smokers in the Iowa Strengthening Families Program and 16.7% in the control (a 27.5% relative difference; n.s.). After 4 years 67% in ISFP, 50% in control were never smokers; (relative reduction for ISFP vs. control 34.8% (p <.01); After 6 years: by growth curve analysis lifetime cigarette use was lower in the ISFP than control (p <.01).
Storr 2002	Baseline: 678 first graders;		As measured by time to

Study	Follow-up	Short-term results	Long-term results
	Follow up in 6th, 7th, and 8th grades: 566 (84%)		initiation of smoking, lower risk of starting smoking for the Family-School Partnership (RR = 0.62; 95% CI = 0.39, 0.98; P = 0.041) compared to the control group.

Are family interventions better than school interventions?

Study	Follow-up	Short-term results	Long-term results
Biglan 1987	Pre-test: 3387; at one year 2391		At 1 year there were no effects of either the messages to parents or the school refusal skills programme
Jøsendal 1998	Baseline: 4,441 students, of whom 4,215 provided written consent.; At 3 years: attrition in experimental groups 11.2% and control 5.8% (n's not stated)		At 3 years the percentage of non-smokers was, 68.3% in the group which received the classroom-plus-parents intervention and 62.7% in the classroom programme-plus-teacher training intervention (n.s.). The average number of cigarettes smoked per week was 12.8 for the school + parents group and 14.3 for the school + teacher group but no statistical analysis was presented because the authors state that no software is appropriate for their skewed data and design effect.
Nutbeam 1993	Pre-test: 5078 students aged 11 and 12 eligible, and 4562 (89.8%) completed the pretest; Follow-up: 4538 (89.4%) valid cases for analyses.		After 2 years the Family Smoking Education project group retained fewer baseline non smokers as non-smokers than the Smoking and Me Project (p <.05; we computed OR = 1.08; 95%CI = 0.89 to 1.32).
Spoth 2001	Baseline: 1,309 eligible families, of whom 667 (51%) completed the pretest; 10th grade Follow-up at 1 year: 447 (67%); and 373 families (56%) completed all five data assessments across 4 years.		After 6 years time to initiation of smoking was 54.9 months in the Iowa Strengthening Families Program compared to 31.0 months in control (p <.05) and 31.8 months in the Preparing for the Drug Free Years Programme (n.s. compared to control). Although the ISFP and PDFY were not compared statistically, because the months to initiation are identical for the PDFY and control it is reasonable to conclude that the ISFP has statistically significantly longer times to initiation than the PDFY (p <.05)
Storr 2002	Baseline: 678 first graders; Follow up in 6th, 7th, and 8th grades: 566 (84%)		As measured by time to initiation of smoking there was a lower risk of starting smoking for both the Classroom-Centered group (RR adjusted = 0.55; 95% CI = 0.34, 0.88; P = 0.013) and the Family-School Partnership (RR = 0.62; 95% CI = 0.39, 0.98; P = 0.041) compared to the control group, The CC and FSP interventions were not compared statistically, but we computed OR = 1.08; 95%CI = 0.71 to 1.64

Study	Ary 1990
Methods	Country: USA Site: 22 middle/elementary & 15 high schools from 13 districts in Oregon Focus: tobacco, alcohol and marijuana prevention Design: Schools matched on urban/rural status, level of tobacco use, ethnicity and school size, then randomized (with the exception of one middle school assigned to the treatment condition as it had earlier served as a pilot school for programme development). In the 12 intervention schools, parents randomized to receive or not receive parent messages Analysis: ANCOVA.
Participants	Number at pre-test: 7837 Age; 1943 6th graders; 1890 7th graders; 698 8th graders; 1364 9th graders; 205 10th graders; 163 11th graders 9.9% weekly smoking Gender: not stated; Ethnicity : White 89%, 4.9% Black, 2.2% Asian, 1.8% Latin American, 1.2% Hispanic Only results for grades 6-9 given in Ary 1990 Attrition: 24.4 % (I) and 24.6% (C) schools; no differential attrition on pretest use by gender, grade, CO level, number of peers who smoked, offers of cigarettes, parental smoking.
Interventions	(1) Intervention: Project PATH (Programs to Advance Teen Health) Components: At each grade level (a) awareness of social influences to engage in substance use (b) refusal skills training (c) health facts, and (d) contracting not to use cigarettes and other substances. Information was provided about the short- and long-term health effects of tobacco; social, family and advertising influences to use substances; students analyzed advertisements and edited them to make them honest; learned social skills to deal with using substances: identified personal situations where they would want to say 'no' to an offer to use substances; 6 ways to say 'no'; practiced refusal skills in situations that the students said were likely to happen to them; saw videos which modelled refusal skills and modelled supporting friends refusing; made commitments not to smoke. Sessions taught by classroom teachers (who received 2 to 3 hours of training), and in grades 7 and 9 by peers nominated by their classmates. Program different for each grade. (2) PATH + Parent messages: also mailed 3 brochures: to support the classroom messages about refusal skills, information about the health effects of smoking, and commitments not to smoke or chew, and encouraged parents to discuss their views about tobacco use with their children and set clear rules about non-smoking. Duration: 25 classroom sessions (5 in each of grades 6 through 10), typically taught over a 1 week period ('focused most heavily on cigarette smoking and smokeless tobacco use, it was designed to deter the use of marijuana and alcohol'). (3) Control: typically received 10 classroom sessions of standard tobacco/drug use education.
Outcomes	Smoking: Pechacek's self-reported smoking index to yield an estimate of the no. cigs smoked in last month (composite of no. in last 6m, last month, last week, and last 24 hours): Dichotomised on >1 cig in previous month. Expired air CO tested before survey completion Follow up: 9-12m after pre-test.

Study	Biglan 1987
Methods	Country: USA Site: 13 middle, junior & high schools, Oregon Focus: Preventing and reducing smoking Design: In one school district whole schools assigned to conditions. In 2 districts classes of teachers willing to use curriculum were randomized. In an additional component students in 6 schools randomized individually Analysis: classroom unit of analysis, factorial analysis of covariance
Participants	Number at pre-test: 3387 in 135 classrooms (4.9% weekly smokers); age: 7-10th grades; 51% F; majority white
Interventions	(1) Intervention 1: Information about health effects and short-term effects of tobacco; sensitization to pressures to smoke; training in refusal skills including modelling, rehearsal, reinforcement, practice, video practice, and supporting peers in refusals. (2) Intervention 2 (additional): 7th graders in 6 schools randomized to have 4 messages mailed to their parents following the programme to encourage parents to discuss their views of smoking with their child and set clear rules about smoking. Duration: 5 sessions; 4 on consecutive days + booster at 2 wks. Providers: regular science or health teachers, trained for 2-3 hrs (3) Control: no intervention
Outcomes	Weighted index of self-reported smoking (Pechacek) based on no. smoked in previous week and yesterday. Nonsmoking=no cigs in previous week. Expired CO measured and saliva collected prior to questionnaire completion. Follow up: 9m and 1 yr. and Smoking). 4 x 50 min sessions: Session 1: short- and long-term effects of tobacco use; Session 2: motivations and fallacies about tobacco use; Session 3: economic costs of tobacco use and the efforts of the tobacco companies to promote use; Session 4: dangers of passive smoking and being supportive of those who want to quit; (2) SCHOOL + FAMILY intervention: as above, plus: (a) Home-based programme, using 'The Unpuffables' from the ALA: 4 sessions with stories about adolescents who combat tobacco use, and games to play with parents; and (b) Policy component, encouraging the adoption of policies for the school to be tobacco-free (Minnesota schools already had a policy of 100% smoke-free schools at all time periods). Teachers received 1 or 1 1/2 sessions of training; (3) Control
Outcomes	% of schools with smoke-free policies; Smoking prevalence. Duration of follow up: 3 yrs.

Study	Elder 1996
Methods	Country: USA Sites: 96 schools in Texas, California, Louisiana and Minnesota. Focus: CATCH trial (Child and Adolescent Trial for Cardiovascular Health). Design: 10 schools at each site randomized to control, 7 to school-based intervention, 7 to school and family Analysis: % in (I) and (C) groups; multiple logistic regression. Study was not designed to find a difference in smoking prevalence.
Participants	7827 children at end of 5th grade, of whom 6527 gave complete information. 51% F ; Ethnicity: 71% white, 16% hispanic; 14% African-Americans. Differential characteristics at baseline or differential attrition from baseline: not stated.
Interventions	Interventions: (1) SCHOOL intervention, 15 sessions in 3rd grade about diets healthy for hearts and exercise, 12 in 4th grade about exercise, and 16 about exercise in 5th grade plus 8 about tobacco. The tobacco intervention, only offered in 5th grade, was 'F.A.C.T.S. for 5' (Facts and Activities about Chewing Tobacco and Smoking). 4 x 50 min sessions: Session 1: short- and long-term effects of tobacco use; Session 2: motivations and fallacies about tobacco use; Session 3: economic costs of tobacco use and the efforts of the tobacco companies to promote use; Session 4: dangers of passive smoking and being supportive of those who want to quit; (2) SCHOOL + FAMILY intervention: as above, plus: (a) Home-based programme, using 'The Unpuffables' from the ALA: 4 sessions with stories about adolescents who combat tobacco use, and games to play with parents; and (b) Policy component, encouraging the adoption of policies for the school to be tobacco-free (Minnesota schools already had a policy of 100% smoke-free schools at all time periods). Teachers received 1 or 1 1/2 sessions of training; (3) Control
Outcomes	% of schools with smoke-free policies; Smoking prevalence. Duration of follow up: 3 yrs.

Study	Forman 1990
Methods	Country: USA Site: all 30 secondary schools in a SE metropolitan area Focus: tobacco, alcohol and marijuana prevention Design: Schools matched on level (middle vs. high school) ethnic composition, % of students receiving free lunches, and school size, and within each cluster randomized to the school intervention, school plus parent intervention or comparison group. Analysis: Repeated measures multivariate ANOVA, analysed separately with the school and the individual as unit of analysis (results showed no differences by unit of allocation).
Participants	327 students average age 15 yrs; referred by teachers if had two or more of: high number of disciplinary incidents, low grades, high number of unexcused absences, drug or alchol use by most friends, drug or alcohol use by family members, low self-esteem, social withdrawal, or experimental alcohol or drug use
Interventions	Intervention 1: School intervention (10 session small groups with Botvin's Life Skills Training, with 2 hr booster 1 year later) Intervention 2: School plus Parent intervention: same as 1, plus parents participated in 5 weekly 2-hr sessions to teach parents the coping skills their children were learning in the student groups, teach parents behaviour management skills, and develop small group support system for parents. Control: 10x2-hr sessions in structured small groups with substance abuse programme adapted from that provided by the state drug and alcohol commission

Are combined family plus school interventions better than school interventions?

Study	Follow-up	Short-term results	Long term results
Ary 1990	Pre-test: 7,837 1 year: 6263 completed asessments at baseline and one year		After 1 year there were no effects of the messages to parents. For grades 6 to 9, no significant differences in proportions remaining non-smokers, but the baseline smokers in the experimental group smoked fewer cigarettes a month (77) than those in the control (111; $p < 0.05$). Thus no incremental effect of a family + school compared to school programme.
Biglan 1987	Pre-test:3387; at one year 2391		At one year there were no effects of the messages to parents, and (a) for female non-smokers there were no effects of the school refusal skills intervention on smoking behaviour and (b) for males smoking rates in the intervention group were higher than control ($p < 0.04$) [but expired air carbon dioxide levels were not significantly different] so it can be concluded for both females and males the combined intervention was not better than the schools intervention.
Elder 1996	Baseline: 7,827; At 36 months, at end of 5th grade: 6,527 gave complete information);		At 3 years no significant differences in the percentages in the experimental (4.7%) and control groups (5%) stating that they had ever smoked (OR = 1.01, 95% CI 0.79-1.30). No effect of adding the family "Unpuffables" intervention to the school intervention.
Forman 1990	Eligibles: 327 Baseline: 279 students in 30 schools completed 20 hour training programme and pre and post-treatment assessment sessions 1 year: 201 completed booster and 1 year assessment (drop-outs: 20 students had moved school, 24 voluntarily wirhdrew; 4 prohibited from participation due to very disruptive behaviour)		1 year: no significant differences

Study	Stevens 2002
Methods	Country: USA Site: 12 primary care pediatric practices in Massachusetts, New Hampshire and Vermont Focus: Dartmouth Prevention Cohort Study: prevention of risky adolescent behaviours by office-based pediatric interventions. Design: Cluster-randomized trial. Practices matched by size and randomized within each pair using computer-generated random numbers. Two intervention arms, no usual-care control group. Analysis: Chi squared and t tests to check for baseline differences, controlled for by logistic regression analyses.
Participants	4096 families approached by participating primary care physicians; 3525 (86%) agreed to participate; 3094 (77%) 5th and 6th graders and their parents completed the baseline assessment ; av child age 11, 48% F, 5% ever smokers at baseline.
Interventions	(1) Clinician advice about alcohol and tobacco. (2) Clinician advice about gun safety, bicycle helmets and car seatbelts. Pediatricians and nurse practitioners received 3 hr training session. All the practice staff encouraged family communication and rule setting about the issues. Families received a brochure on effective communication and pends, card games or fridge magnets to reinforce the message; children and parents each received 12 quarterly newsletters to reinforce the messages. The practices received a monthly message based on chart audits, phone calls and visits from the research co-ordinator. Pediatrician, parent and child signed a contract committing family to discuss the issues at home and to develop a policy about the relevant behaviours. Families received a follow-up signed letter from clinician, and a fridge magnet to 'post' the policy document.
Outcomes	Ever smoking at 12m, 24m, 36m follow up, on 2183 child-parent pairs.

Are family interventions which target tobacco better than family interventions which do not target tobacco?

Study	Follow-up	Short-term results	Long-term results	Quality summary	Notes
Stevens 2002	The families of 4,096 5th and 6th graders in the practices of primary care physicians were approached to participate, of whom 3094 (77%) completed both the parent's and children's baseline survey; 36 month follow-up: 2183 parent-child pairs (53%)		At 3 years there was no change in tobacco usage in the intervention group which received the alcohol and tobacco messages compared to the other intervention group which received the gun, bicycle helmet and seat belt safety intervention.	Moderate risk of bias	Heterogeneous combination of intervention strategies with different aims

Study	Schinke 2004
Methods	Country: USA Site: New York City, New Jersey and Delaware Focus: Alcohol reduction Design: Youths were recruited from 43 community agencies in NY City, New Jersey and Delaware, and sites were stratified by geography and ethnicity, then randomly assigned to the CD-ROM intervention, CD - ROM + parent intervention, or control. Analysis: MANOVA
Participants	Baseline: 514 Age: avg 11.5 y Gender: 51.4% f
Interventions	(1) Social learning and Problem solving using CD-ROM: ten 45 minute sessions on goal setting, coping, peer pressure, refusal skills, norm correcting, self-efficacy, problem-solving (Stop, Options, Decide, Act, Self-praise), decison-making, effective communciation, and time management, (2) CD-ROM + Parent intervention: (a) parents received a 30 minute videotape with printed materials on the goals of the youth intervention, showed how parents could help avoid problems with alcohol, and the importance of family rituals, rules and bonding (b) 2 hour parent workshop; (c) parent CD-ROM how to reduce youth alcohol use (3) Control: (no further description)
Outcomes	No of cigarettes in the last 30 days

Study	Wu 2003
Methods	Country: USA Site: 35 housing developments, community and recreatiuon centres in Baltimore, MD Focus: Effect of adding parental monitoring and booster sessions to small-group risk reduction interventions for adolescents. Design: Longitudinal randomized community-based cohort study, randomized at level of site. Analysis: Chi squared and Student t tests for differences in characteristics at baseline; general linear modeling with adjustment for clustering;

Participants	817 African-American youths 12-16 years, 42% M.
Interventions	(1) Focus on Kids (FOK): 8 session HIV small-group risk reduction programme on decision making, goal setting, communication, negotiating, and consensual relationships and information regarding safe sex, drugs, alcohol and drug selling. Conducted in small groups (5-10), led by 2 older peers. (2) FOK + ImPACT (Informed Parents and Children Together): 20-min video about parental monitoring and communicating with 2 instructor-led role-playing vignettes in the child's home). (3) FOK + ImPACT + booster sessions at 6m and 10m
Outcomes	Sexual intercourse; unprotected sex; self-reported smoking in last 6m (not further defined), alcohol, drugs, selling or delivering drugs; carrying a knife, fighting, beating someone up, or intention to take a risk. Assessment on Parent Adolescent Communication Scale Follow up at 6m,12m, 24m.

Are combined family plus peer risk reduction interventions better than peer risk reduction interventions?

Study	Follow up	Short-term results	Long-term results	Quality summary	Notes
Schinke 2004	Baseline: 514 After 3 years: 469 (91%)		At 1,2, and 3 years lower cigarette use in both intervention groups than control (p <.001)		
Wu 2003	Baseline: 817 youths 12-16 years, 24 year follow-up: 346 (42%)		At 2 years less smoking in the group which received both the Focus on Kids (FOK) and the Informed Parents and Children Together (ImPACT) interventions (12.5%), compared to those who received only the FOK intervention (22.7%; p<.05).	Moderate risk of bias	Incremental, and with comparison against a control.

3.2.4. Setting Schule

3.2.4.1. Informationen in den Lehrplänen

Study	**Crone 2003**
Methods	Country: Netherlands Site: 26 schools that provided lower secondary education Focus: smoking prevention Design: All 54 community health services (except 3 already involved in another project) were invited to participate; 14 services provided the names of 48 schools and 18 agreed; 4 community services approached the researchers directly and recruited 8 schools; Schools were stratified on their use of a frequently used national drug programme then randomized by toss of a coin by an independent person; Analysis: multilevel techniques.
Participants	Baseline: 2562 (1444 intervention; 1118 control group) in 154 classes 12m: 941 (37%); also, 3 schools dropped out Average age: 13yrs
Interventions	Intervention group: 3 lessons on knowledge, attitudes and social influences, class agreement not to smoke, class competition (for entry class had to have < 10% smokers after 5m); 2 optional video lessons Control group: schools used usual anti-smoking programmes; Teachers were trained and then the Stivoro and Trimbos Institute 'supported the schools in all activities concerning the intervention ... and looked at adherence to the protocol in the intervention'.
Outcomes	Self-reported smoking: experimenting; weekly; daily

Study	**Ausems 2004**
Methods	Country: Netherlands Site: 8 local health departments were approached, 6 participated and 36 vocational schools participated Focus: smoking prevention Design: Cluster-Randomized Controlled Trial, with 19 schools already participating in the in-school programme randomly assigned to either the in-school (I) or combined in- and out-of-school (I+O), and 17 other schools randomly assigned to either the out-of-school (O) or the control (C).; Analysis: multilevel regression modelling using MIXREG for continuous and MIXOR for dichotomous outcomes Missing data: replaced by previous observation; Intention-to-treat: drop-outs were treated as smokers
Participants	Numbers at pre-test: In-school (I) = 525; out of school (O) = 513; I + O = 829; control = 509 Numbers at 12m: I = 434 (83%); numbers at 18m: O = 265 (52%); I + O = 625 (75%);C = 317 (61%) Age: average 13 years Gender: 52% F Smoking status: 59.7% ever smoked; 19.5% current smokers
Interventions	1. In-school: 3 lessons x 50 mins: ingredients of tobacco and physical and mental reactions of smoking; norms concerning smoking; pressures to smoke and skills to resist 2. Out-of-school: 3 letters mailed to students' homes, tailored to pre-test attitudes, norms, self-efficacy, smoking intentions and behaviour Process analysis for students was 15 item questionnaire; and for teachers a 5 item implementation questionnaire
Outcomes	Self-reported never smoked even one puff; not in past month; smoked in past month
Early Outcomes	At 12 months for pre-test non-smokers initiation of smoking was 25% in the out-of-school group; 28% in the in-school group; 29% in the in-and-out-of-school group; and 41% in the

	control. (1) Intervention vs. no intervention control: For the out-of-school group vs. control OR = 0.44 (95% CI 0.18 -1.09); (2) Intervention vs. Intervention: for the in-andout- of-school vs. out-ofschool OR = 1.85 (95% CI 0.71-4.83).
Long term Outcomes	At 18 months smoking initiation was 27% in the out-of-school, 40% in the in-and-out-of-school group, and 48% in the control. (1) Intervention vs. no intervention control: 3 lesson out-of-school OR = 0.42 (0.18 -0.96); (2) Intervention vs. Intervention: 3 lesson in school + 3 letter out-of school vs. 3 letter out-of school, OR = 1.85 (0.71- 4.83) (in favour of out-of school);

3.2.4.2. Studien Vermittlung sozialer Kompetenz

Study	Number followed-up	Early outcomes	Long term outcomes	Additional comments
Kellam 1998	Baseline: 2311; Follow-up at 2 years: 69%. Attrition was unrelated to intervention status (p>.25).		2 years: Of 1,604 nonsmokers at baseline, 502 had tried smoking by age 14. Boys in Good Behaviour classrooms less likely to start smoking than those in control classrooms (RR 0.62; 95% CI 0.40, 0.97, p = .04). Mastery Learning also reduced risk of starting smoking for boys (effect significant for one cohort, RR 0.46; 95% CI 0.24, 0.87, P= .017). For females there was no effect of either programme	Methodological problems are: no statements about the method of randomisation and if the researchers were blinded or concealed; and no power copmputation. Boys in the cohort rated by teachers as the best behaved were less likely to smoke compared to the control groups (RR = .13; 95% CI 0.03, 0.62, p =.01).
Storr 2002	678 pupils entered Grade 1; and 549 (81%) were assessed 6 years later.		Intervention vs. usual curriculum control: After 6 years: Classroom-Centered RR = 0.57 (0.34 - 0.96; p =.03); Family-School Partnership RR = 0.69 (0.50 - 0.97; p = .03);	

3.2.4.3. Studien sozialer Einfluss

Study	De Vries 2003
Methods	Countries: Denmark, Finland, Netherlands, Spain, Portugal, UK Site: schools Focus: smoking prevention Design: European Prevention Framework Approach: In Netherlands schools were partly matched, partly randomized; in Barcelona and Madrid regions not randomly assigned; Analysis: LR to compare drop-outs to non-drop-outs and compare smoking rates; exposure to lessons by t-tests; final models run with multi-level analysis
Participants	23,531, of whom 23,125 (98%) completed baseline questionnaires; baseline nonsmokers = 20166 Age: average 13.3 years Gender: 50% F Of 20,166 nonsmokers at baseline, 15,422 (76.5%) remained after 2yrs
Interventions	European Smoking Prevention Framework (EFSA) Approach and School Policy Guide; however each country individualized its interventions Individual: 5-6 lessons by teachers on (1) knowledge (know the increased risk of short-term effects of smoking on the body; know that there are alternative ways of managing stress and weight; be able to name positive healthy alternatives for smoking; know what smoking addiction and habit is; realize that non-smoking is the majority behaviour; social influences (know the general mechanism of social pressures and social norms; be able to identify direct and indirect pressures to smoke; be able to recognize the influence of smoking advertisements); and refusal skills (realize that there are ways of politely telling people you would prefer that they not smoke around you; be able to cope with parental and peer influences to use tobacco; be able to resist pressure to smoke by saying 'no'); School: appoint a staff member to co-ordinate a non-smoking policy in the school; assess smoking by pupils and staff and measure the level of environmental smoke; gather informaton about the wishes of pupils and staff about a non-smoking poilicy for the school; write a smoke-free policy; develop an annual written plan for smoking regulations; plan smoke-free activities; develop smoking education within the school curriculum, specifying the number of lessons per grade; distribute a smoke-free newsletter and posters; use a brochure about how to stop smoking; use a brochure about how to talk about smoking; Parents: letter, leaflet or meeting; 'Quit & Win' competition; Out of school: access point pupils, committees; community activities for children; media campaign Teacher training varied: 20 hrs in Finland; 48 in Portugal, 8 in UK, not specified in Denmark Control regions: 'Usual care' which differed between countries (not further described)
Outcomes	Self-reported never smoker; nonsmoking deciders [had quit experimenting]; triers; experimenters [not smoking weekly]; regular [at least once/week]; and quitters [had quit after having smoked at least once/week]

Study	Peterson 2000
Methods	Country: USA Site: 40 school districts in Washington state Focus: Tobacco Design: Hutchinson Smoking Prevention Project: Districts randomized. Schools selected with < 35% attrition from Grades 3 to 7, 50-250 students/grade level, and within 200 miles of study HQ, matched on high school smoking, size and location Analysis: randomization-based permutation inference, which requires no distributional or modeling assumptions, and accomodates ICCs.
Participants	4177 3rd graders in experimental and 4211 in control; eqivalent at baseline; at Grade 12 + 2 yrs follow up 48 developmentally unable to participate, unable to locate 241, 181 no reply, 8 declined, yielding 7864 (93.8%)
Interventions	Students received 65 sessions consisting of: (1) skills to identify marketing and peer influences to smoke; (2) skills to resist marketing and other influences; (3) information to correct erroneous perceptions about smoking; (4) motivation to be smoke-free, and distinguishing between what the adolescent wants to do and is able to do; (5) promoting self-confidence in the ability to refuse influences and pressure to smoke; (6) enlisting positive family influences. Control schools continued usual health curricula.
Outcomes	Self-reported smoking in Grade 12 and Gr 12 + 2; saliva cotinine measured on a 12.6% random sample of Grade 12, and no differential bias in reporting between experimental and control groups
Notes	Study Category 1: 1. Randomization bias: minimal risk: groups similar at baseline; 2. Performance bias: minimal risk: All teachers participated in the training; > 99% implemented the interventions; and teachers effectively communicated the key concepts in 80% of the lessons observed; 3. Attrition bias: minimal risk: Major effort was invested in explaining the purpose of the RCT and maintaining the long-term collaboration of the school districts, parents and students and there were 7,865 (94%) at follow-up two years after Grade 12; 4. Detection bias: minim 5. Power computation: based on no of districts, no of students, actual attrition, prevalence of daily smoking at Grade 12 + 2yrs; programme exposure estimated at 0.745 due to outmigration, ICCs of 0.01, and 2-sided alpha = 0.05, which was estimated to provide power to detect a 30% nominal relative reduction in daily smoking prevalence at the endpoint 2yrs after high school. 6. Statistical bias: minimal risk: randomization-based permutation inference, which requires no distributional or modeling assumptions, and accomodates ICCs;

Study	Abernathy 1992
Methods	Country: Canada Site: all schools in Calgary, Alberta Focus: Smoking prevention: Design: PAL Programme: Schools stratified into quintiles according to neighbourhood median income, randomly assigned to programme (94 schools) or control (96 schools). Analysis: X2 tests compared proportions smoking in the three groups
Participants	Number at pre-test (1988): all 190 schools in Calgary which had a 6th grade (7508 6th grade students; with 7207 (96%) after 12 months; 6884 (92%) after 26 months; and 6530 (87%) followed to the 9th grade). The analysis sample is the 3567 children (48% of the original sample) for whom all four questionnaires could be matched; Age: grade 6; Gender: 49% F Baseline never smoked: 67% M 71% F
Interventions	Intervention: Peer Assisted Learning (PAL) social influences programme, with information about the benefits of not smoking (with peer-led component) Duration: 5 sessions over 3m Teachers were invited to in-service presentations about the PAL programme (attendance not stated) Control: no intervention
Outcomes	Smoking categories: Never smoked/ Tried but no longer smoke/ Currently smoke Main analysis based on baseline never smokers. Follow up from start of programme: 1yr (Grade 7, 1989), 2yr (1990), 3yr (1991)

Study	Armstrong 1990
Methods	Country: Australia Site: 45 Primary schools in Nedlands, WA Focus: Smoking prevention Design: Primary schools feeding randomly selected high schools stratified by class size and location, random allocation of schools to 3 conditions Analysis: Comparison of the proportions of students in the 3 groups who took up smoking was by Pearson's X2 (two sided); Effects of other variables controlled in separate LRs (using EGRET) for boys and girls, and for each year of follow up, using only children present at baseline and both follow ups. Once the final models were chosen, the parameters were re-estimated with an added risk model.
Participants	Number at pre-test (1981): 2366 Age: 7th grade (modal age 12 years); Gender: 49% F Baseline smoking prevalence 24-37%, higher for boys than girls. No sig diffs between groups No differential attrition by treatment group at 12m follow up
Interventions	Direct comparison of peer and teacher delivery 1. Peer-led (selected by class), teacher facilitated; 5 sessions Intervention based on Minnesota model. Components: estimating smokers in age group; negative consequences; why children smoke; physiological effects; information on % of smokers; listed situations where pressure to smoke; practised refusal techniques; students presented arguments for non-smokers' rights; developed counter-arguments to smokers' reasons for smoking; role of the family; advertising techniques; essay on reasons for remaining non-smokers; public commitment. 2. Teacher-led same programme 3 Control Training : 'all leaders received appropriate previous training' Duration: 6m
Outcomes	Definition of non-smoking: had not smoked a single cig (not even a few puffs) in previous 12m. Saliva samples collected but not analyzed Follow up: 12m, 24m, 7yrs from end of programme

Study	De Vries 1994
Methods	Country: Netherlands Site: 6 vocational and 8 high schools, Maastricht Focus: smoking prevention Design: Cluster-ranodmized controlled trial; table of random numbers assigned schools to experimental and control. Analysis: linear regression for quantitative effect measures and for binary effect measures; multi-level analyses using VARCL
Participants	Number at pretest (1986) approx 1784 (inferred from attrition rate) Age: 2nd grade of secondary school (US 8th grade) Gender: not stated Follow-up: At 1yr attrition was 14% and did not differ between the experimental and control groups. More pretest smokers (27%) dropped out than nonsmokers (13%; $P < 0.001$). .
Interventions	Experimental Grp: Social influences programme; short-term effects of smoking; pressure from peers, adults and advertising; alternatives; and decision making. Students formed their own groups and chose their own peer leaders. Teachers co-ordinated the lessons and assisted the peer leaders. Peer leaders and teachers received training and manuals. Duration: 5 x 45 min lessons Control group: not stated
Outcomes	Self-reported smoking: never/ smoked up to 5 times/ quitter/ occasionally but not every week/ at least 1 cig/week/ at least 1 cig/day. Questionnaires were confidential. Saliva was collected and CO levels correlated with smoking ($r = 0.79$ to 0.85). Duration of follow up: 1yr from pretest

Study	Ellickson 1990
Methods	Country: USA Site: 30 schools from 8 districts, California and Oregon Focus: Smoking, alcohol and marijuana prevention Design: Project ALERT: 30 schools blocked by district and restricted assignment, randomized to 3 conditions (schools represented a broad cross-section of SES and ethnicity from urban, suburban and rural areas) Analysis: X2, LR, student level analyses to assess curriculum's effectiveness according to risk level (non-user, experimenters, users), common covariates used included district, dummy variables for Black/Asian ethnicity and a composite variable (peer/family use and attitudes, personal beliefs and background variables)
Participants	Number at pretest: 6527 (1984) (14% baseline nonresponse due to parental refusals or absence) Age: 7th grade, 13-14 yrs; Gender: not reported; Ethnicity: 9 of the schools had minority populations of 50% or more Follow up: 2yrs (9th grade) approx 72% of baseline; 59% (n=3852) had data for first 4 points. By 10th-12th grade f-up, 53-57% of baseline. No differential attrition across treatment groups, although students lost from the analysis tended to have baseline characteristics linked with later drug use.
Interventions	Direct comparison of programme deliverer Experimental Grp 1. Adult health educators (10 schools) Experimental Grp 2. Older age peer teen leaders and teachers (10 schools) Duration: 8 lessons (1/week) in 7th grade and 3 booster sessions in 8th grade; based on social influence model with self efficacy model of behaviour change: develop reasons not to use drugs; identify pressures to use them; counter pro-drug measures; learn how to say no to internal and external pressures; understand that most people do not use drugs; and to recognize the benefits of resistance. Participatory curriculum, with question-and-answer sessions, small group exercises, role modeling, and repeated skills practices. Controls: no intervention or continuation of traditional drug education programmes (4/10 control schools did latter).
Outcomes	Analysis based on 3 risk levels for future smoking at baseline (Non-user - never/ Experimenters - tried but <3 times in yr before baseline and not in month prior to baseline/ Users - 3 times in past year and any use in prior month to baseline) Saliva cotinine levels obtained and analyzed. At baseline and at 15m, 95% of students with cotinine scores that identified them as recent tobacco users (N = 603) reported cig use in the past month. Follow up: 3, 12 and 15m, 2yrs, 6yrs

Study	Ellickson 2003
Methods	Country: USA Site: 55 S. Dakota middle schools Focus: drug, alcohol and tobacco prevention Design: Project ALERT: 48 school clusters (high schools and their associated middle school feeders) blocked by geographic region and community size then randomly assigned to 2 intervention groups or control; Analysis: generalized estimating equation to account for ICCs
Participants	Baseline: 5412 enrolled, of whom 4669 (86.6%) completed the baseline survey; 18m after baseline: 4276 8th Graders Age: 8th graders followed to 10th Grade Gender: 50% F; at baseline 1/3 had tried cigs
Interventions	Intervention 1: 11 lessons in Grade 7 and 3 in Grade 8 from the revised Project ALERT drug prevention programme 2. Same, with 3 boosters in 9th and 10th Grades Control: other prevention curricula (not described) Teachers trained in 1 day workshops; additional teacher manuals and videotaped lessons
Outcomes	1. Self-reported ever, past month and weekly smoking 2. Saliva samples collected, and analyzed for a random sample of 654: only 3 (0.5%) of the 560 who reported not smoking in the prior month or 2 days had saliva cotinine concentations > 10 ng/ml; 1.7% gave inconsistent responses at bassline; 1.5% at follow up, and 6.5% across waves

Study	Flay 1985
Methods	Country: Canada, Ontario Site: 22 schools in 2 counties Focus: smoking prevention Design: Waterloo Study: 16 of 22 schools. Schools matched on size, rural/urban location and SES. Assignment to experimental or control random except for 3 schools where the superintendent thought the principal would not be satisfied if the students were assigned to the control group Analysis: X2, School level analysis also reported
Participants	Number at pretest 654 (94% of target population) Age: 6th grade, Mean age of controls higher. 42% never smokers at baseline. Attrition: 4%/year; absenteeism was 5%/test 17% of dropouts were experimenting with smoking compared to 12% of the sample. No between-group differences At the 6yr follow up 90% of students were traced and data obtained from 80% of these.
Interventions	The Waterloo Smoking Prevention Programme: 6 x1hr weekly sessions in Grade 6 on information and attitudes to smoking; family, peer and media influences on smoking; decision making and commitment. 2 maintenance session in grade 6, 2 booster sessions in 7th grade and 1 in 8th. Duration: 11 sessions over 3yrs Control: usual health education
Outcomes	Self-reported smoking; never/ tried once/ quit/ experimenter/ regular Regular smokers divided into =< 3/week; and >3/week Saliva for thiocyanate levels. Follow up: 18m (end of grade 7, 5yr (grade 11), 6yrs (grade 8)

Study	Telch 1990
Methods	Country: USA Site: 2 junior high schools in southern California Focus: smoking prevention (other drug use also assessed) Design: (initial selection of schools not reported), 15 social studies classes in 1 school randomly assigned to one of 2 interventions or a control. Classes in other non-treated school were a non-random control Analysis: X2, no adjustment for clustering
Participants	Number at pretest (1984) 540 x 7th graders in randomized classes, 234 in control school Age: 12yrs. Approx 80% baseline never users in school 1 Gender: 47% F; Ethnicity: 24% W, 17% B, 19% H, 24% A, 16% O Follow up: complete pretest-post-test data from 81% in school 1; 58% from school 2
Interventions	Direct comparison of programme deliverer Experimental Grp 1: Peer-led; videotape social pressure resistance with vignettes, workgoups and worksheets; acute negative effects of smoking, social pressures to smoke, role modelling, resistance strategies, advertising/media influences. Same-age peers elected and given 1hr training Experimental Grp 2: As Grp 1 without peer leaders Duration: 5 sessions over 3w Control Grp 1: survey only Control Grp 2: (not random) in another school: survey only, no intervention
Outcomes	Self-reported smoking [nonsmoker; experimental (< 1/week); regular (once/week or more). Individual students were tracked using coded questionnaires. Results presented both as pre and post prevalences, and as onset rates for baseline non-users. Expired CO (analyzed but not reported) and saliva ('bogus pipeline') Alcohol and marijuana use Duration of follow up: 7m (Oct - May)

Study	Unger 2004
Methods	Country: USA Site: 16 middle schools in southern California Focus: smoking prevention; multicultural curriculum vs same curriculum without multicultural content; Design: Project FLAVOR: schools randomly assigned to receive either the multicultural or the standard curriculum; Analysis: pre-intervention equivalence of groups assessed by X2 and ANOVA; LR assessed differential attrition; multilevel LR with school as a random effect assessed outcomes;
Participants	Baseline in 6th grade: 2775 invited; of whom 2131 (77%) provided parental consent; and of these 1978 (92%) completed the 6th grade survey; Follow up 1yr later: of those who completed the 6th grade survey 1571 (80%) completed 7th grade survey; Follow up 2yrs later: 2412 (76.4%) completed the 8th grade survey; Results are presented for 1430 never-smokers at baseline; Age: 11.3 years Gender: 54% F;
Interventions	Experimental Grp: Fun Learning About Vitality, Origins and Respect (FLAVOR) with 8 weekly lessons on social norms about smoking and refusal skills with multicultural examples and projects (e.g. Mexican soap opera; the Wheel of Life using the Yin-Yang concept); Control: 8 lessons on the same psychosocial issues about smoking with role-plays, trivia games, and art projects Co-interventions: all schools in California are legally obliged to provide tobacco education in grades 4-8
Outcomes	Lifetime smoking in 7th grade among 6th grade never-smokers

Study	Ary 1990
Methods	Country: USA Site: 22 middle/elementary and 15 high schools from 13 Oregon districts Focus: tobacco, alcohol and marijuana prevention Design: Project PATH: Schools matched on urban/rural status, level of tobacco use, ethnicity and school size, then randomized (with the exception of one middle school assigned to the treatment condition as it had earlier served as a pilot school for programme development). In the 12 intervention schools, parents randomized to receive or not receive parent messages Analysis: ANCOVA.
Participants	Number at pre-test: 7837 Age; 1943 6th graders; 1890 7th graders; 698 8th graders; 1364 9th graders; 205 10th graders; 163 11th graders 9.9% weekly smoking Gender: not stated; Ethnicity : 89% W, 4.9% B, 2.2% A, 1.8% Latin American, 1.2% H Only results for grades 6-9 given in Ary 1990 Attrition: 24.4 % in experimental and 24.6% in control schools; no differential attrition on pretest use by gender, grade, CO level, number of peers who smoked, offers of cigarettes, parental smoking.
Interventions	Intervention: Project PATH (Programs to Advance Teen Health) Components: At each grade level (a) awareness of social influences to engage in substance use (b) refusal skills training (c) health facts (d) contracting not to use cigarettes and other substances. Programme different for each grade. Parent message group mailed 3 brochures Duration: 5 classroom sessions in each of grades 6 through 10, typically taught over a 1w period ('focused most heavily on cigarette smoking and smokeless tobacco use, it was designed to deter the use of marijuana and alcohol'. Deliverer: science or health teachers who received 2 to 3 hrs training. Peer leaders presented some activities in 2 grades Control groups typically received 10 classroom sessions of standard tobacco/drug use education.
Outcomes	Smoking: Pechacek's self-reported smoking index to yield an estimate of no. cigs smoked in last month (composite of no in last 6m, last month, last week, and last 24 hours): Dichotomized on >1 cig in previous month. Expired air CO tested before survey completion Follow up: 9-12m after pre-test

Study	Aveyard 1999
Methods	Country: UK Site: 53 West Midlands secondary schools Focus: smoking prevention Design: Schools sampled with probability proportional to size of year 9 enrolment; 89 schools approached,53 agreed to participate. Randomized in 5 strata based year 9 size. Analysis: multi-level modelling to allow for clustering. Sensitivity analysis for handling of losses to follow up. Analyses done adjusted for baseline smoking status and other variables.
Participants	Number at pre-test (1997); 8352, 90% of potential participants Age: year 9, 13-14 yrs, Gender, 50% F Ethnicity 86% W, 5% Indian subcontinent, 4% Afro=Caribbean
Interventions	Intervention: 1 class lesson and 1 computer session per term for three terms based on Prochaska's trans-theoretical model/ stages of change. Students used individual computers to answer questions about their smoking, and an expert system gave feedback on how their temptations compared to those of others in same stage, and their changes from previous sessions. Also saw video clips of young people talking about smoking. Class lessons developed understanding of stages of change, and pros and cons of smoking at different stages. Teachers delivered a 1 hr classroom 'transtheoretical model' intervention. Teachers received a 2 day training course. Control: Normal health education on tobacco. Teachers provided with lesson plans and handouts but were not required to use them, and received no training. Duration: 6 hrs over 3 terms.
Outcomes	Self-reported behaviour: Ex-smoker. Smoker/ tried/ never. Primary outcome was smoking one or more cigs a week Questionnaires were confidential Follow up: 12m after start of intervention specifying the number of lessons per grade; distribute a smoke-free newsletter and posters; use a brochure about how to stop smoking; use a brochure about how to talk about smoking; Parents: letter, leaflet or meeting; 'Quit & Win' competition; Out of school: access point pupils, committees; community activities for children; media campaign Teacher training varied: 20 hrs in Finland; 48 in Portugal, 8 in UK, not specified in Denmark Control regions: 'Usual care' which differed between countries (not further described)
Outcomes	Self-reported never smoker; nonsmoking deciders [had quit experimenting]; triers; experimenters [not smoking weekly]; regular [at least once/week]; and quitters [had quit after having smoked at least once/week]

Study	Hansen 1988
Methods	Country: USA Site: 8 Junior high schools, Los Angeles Focus: Substance abuse prevention (Project SMART) Design: Project SMART: RCT; 8 schools randomly assigned to 2 experimental (2 schools each) and control (4 schools) groups Analysis: aggregate classroom scores used (85 classes). Indices of use by ANOVA and ANCOVA using pretest scores as covariates. Dichotomous 30-day use by Fisher's exact test.
Participants	2863 7th grade (1982) Gender: 49% F Ethnicity: 38% H, 30% B, 22% W. There was high attrition (37% from baseline to first post-test, and 32% from pretest to final post-test). There was differential attrition of Black students (p<.0001), of baseline smokers (p<.0001), and greater total attrition in the Social and Control groups (60%) than the Affective group (37%). Control and Social group subjects differed on baseline smoking within the past 30 days in Data set 1-2 (p <.005)
Interventions	Direct comparison of social influences, affective education and control 1. Social curriculum: health effects, resistance training, normative expectations, mass media, social activism, public commitment. 2. Affective curriculum: stress reduction, goal setting, decision making, self esteem, assertiveness, public commitment Duration: 12 sessions over 1 term Deliverer: staff health educators and regular classroom teachers with peer opinion leader involvement Control: No intervention
Outcomes	Smoking: Smoking index, with aggregated classroom means. Dichotomized on +/- 30 day use. Separate analysis for baseline non-users, with onset to various levels of use. Saliva samples collected but not analyzed. Follow up: initial post-test 1yr after pretest (grade 8), 2nd post-test at 2yrs

Study	Lloyd 1983
Methods	Country: Australia Site: 88 primary schools in NSW Focus: smoking prevention Design: Smoking or Health Programme: schools matched on size and SES variable, pair randomized Analysis: X2 and multiple regression.
Participants	Number at pretest (1979): 6299 Age: Yrs 5 and 6 Of the baseline students 3231(51%); (1657 boys were surveyed in Yr 5 and 1572 in Yr 6; and 157 girls in Yr 5 and 1496 in Yr 6; Gender: approx 50% F Ethnicity: not stated There were baseline differences in smoking behaviour with more girls in yr 6 smoking in treatment schools Differential composition at baseline or differential attrition: not stated.
Interventions	'Smoking or Health' programme of the Teaching Resources Centre of the NSW Department of Education: (1) Respiration process; (2-3) physiological effects of smoking, 'Puffing Poll', creative dance; (4) advertising (5) resisting peer pressure (6) decision making, value clarification (7-9) revision. Duration 6w, 90-mins/week Control: no intervention
Outcomes	Never-smoker; or smoked in the past 4w. Participants were assured of confidentiality and surveys were identified by numbers and not names. Follow up: 12m

Study	Brown 2002
Methods	Country: Canada Site: 6 school boards in SW Ontario; 30/35 schools participated Focus: tobacco prevention Design: Schools were matched within school boards by size and number of cohorts from the elementary schools studied by Cameron 1999 and randomized by pairs to intervention or control; collectors blinded to assignment; Analysis: analysis of paired clusters using a variance term appropriate to the randomization of schools
Participants	Of the 3028 students, 2776 (91.7%) participated At end of grade 10: 2643 (95.2% of those who consented) Age: grade 8 followed through Grade 10 Gender: 50% F
Interventions	Intervention group: A teacher in each school facilitated students and staff to participate in as many activities as possible inconsistent with smoking, build committment to non-smoking, and strengthen non-smoking as a school norm Control: 'usual care' not further described Co-interventions not ascertained
Outcomes	Outcomes: 1. Intervention activities in each grade; 2. Self-reported never smoking, tried once, quit, experimental smoker [smoking < once a week]; and regular smoker [smoking weekly]; 3. CO samples collected but not analyzed

Study	Focarile 1994
Methods	Country: Italy Site: Health District of Rozzano, Milan Focus: Smoking prevention Design: 53 classes stratified by baseline smoking and risk factors randomly allocated using table of random numbers. Analysis: LR, binomial LR
Participants	Number at pretest: of the 1268 registered students 1057 (83%) were registered in the randomized classes and 1017 were randomized (508 intervention, 549 control); Age: 12-13 yrs: Gender: 50% F: Ethnicity: not stated 55% never-smokers at baseline. Risk factor index for smoking was 0.79 in intervention and 0.85 in control group at baseline (no P value stated). Follow up at 36m: 420 (222 intervention, 198 control)
Interventions	Intervention: social influences, resistance skills training, based on Waterloo Smoking Prevention Program, delivered by volunteer teachers during classes. Duration: 6 lessons over 3m Control: programme of information on cardiovascular risks (including the risk of smoking)
Outcomes	Never-smoking; 1 cig/month; 1 cig/week; > 1 cig/week; < 7 cigs/week; > 1 cig/day Follow up: 18m. At 36m only pupils in classes which completed the programme were followed up. Some sent postal questionnaires and some contacted by telephone.

Study	Vartiainen 1998
Methods	Country: Finland; Site: 40 schools; in North Karelia 24 schools were randomly assigned for the intervention to be taught by project workers, teachers, and trained peer leaders (8 schools); or by teachers (8 schools); or for teachers to provide written and audiovisual material but to receive no training or assistance from project educators (8 schools); in Kuopio county out of 36 schools 16 schools were randomly selected either for teachers to teach the intervention (8 schools), or to be controls (8 schools); Design: for the evaluation from the above sample of 40 schools 3 pairs of schools were chosen: 1 pair in capital, 1 in a small village for evaluation; 1 pair received programme from health educator; 2nd pair from teachers; 3rd pair were controls from another province; Analysis: separate analyses for individuals and schools; the authors state: '... there was surprisingly little difference in the results whether the unit was a school or a student'; no multilevel modeling;

Participants	At baseline 7th grade students in 1978: 903 (health educator-led programme = 314; teacher-led programme = 299; control = 290); 15yr follow up in 1993: 640 (70%); health educator-led programme = 208 (66%); teacher-led programme = 210 (70%); control = 222 (77%);
Interventions	1. School Social Influences intervention: Pressures to smoke by peers, adults and mass media; and resistance skills; In 2 schools health educators and trained peer leaders led 10 sessions in grades 7-9; in other schools teachers led 10 sessions in the 8th grade; 2. The North Karelia Project for adults was also started in 1972; the authros did not separately assess any effect of this programme on the sudents and it was not directed to the students; 3. Mass media communication and community organization during the school prevention programme; the organizers did not separately assess the effect of these programmes on the students;
Outcomes	1 question 'Do you smoke now?' on a scale from 1 (not at all) to 5 (daily); daily smokers were asked for cigs/day;

Studienergebnisse:

Study	Number followed-up	Early outcomes	Long term outcomes
Aveyard 1999	Baseline: 8352; 89% followed up, 96% of whom gave consistent answers. Over 77% received all 3 computerised intervention sessions, although baseline smokers less likely to attend.	1y: No statistically significant changes in smoking overall between the groups, or in subgroups defined by baseline status. The intention to treat odds ratio for smoking in the intervention group compared to control was 1.08 (95% CI 0.89-1.33). Adjustment for confounding, or assuming those lost to follow-up did not alter their smoking status, did not affect results. Point estimates suggested an intervention reduction in smoking prevalence for baseline regular smokers but an increase for those who were not regular smokers.	Two years: (1) there were no significant differences in changes of stage in the intervention group compared to the control at either the one or two year follow-up (Aveyard 2001); (2) the odds ratios for smoking for participants using the interventions but not engaging once were 1.83 (95%CI = 1.41-2.39) at 1 year and 1.70 (1.38-2.11) at 2 years, and for those engaging three times were 0.79 (0.60-1.03) at 1 year and 0.96 (0.75-1.21) at 2 years (Aveyard 2003).
Brown 2002	3028 elementary students who attended the 30 recruitment schools, 2776 (91.7%) agreed to participate; and 2643 (95%) completed questionnaires at end of 10th Grade.	None reported	2 year follow up: For males who were never-smokers at end of Grade 8, 9.8% in the intervention group and 16.4% in the control schools were smoking in Grade 10 (P = 0.02); no sig diffs for females.

Ellickson 1990	Baseline 6527; Follow-up: 15 months: 60% 2 years: 72-76% 4-6 years: 53-57% There was no differential attrition across treatment groups, although students lost from the analysis tended to have baseline characteristics linked with later drug use.	15m: Little effect on nonusers, but significant reductions in experimenters: their weekly smoking declined 50% in teen-led group (p<.006) and by 33% in health-led group (p<.09). Daily use dropped by 50% in teen-led group (p<.03). More experimenters reported no smoking for 1 year, p<0.006 for teen-led and p<0.09 for adult-led. For baseline smokers, the program increased smoking (boomerang effect), with significant increase for smoking in the past month (p <.01), and monthly smoking (p <.05) in teen-led group	2y: (grade 9, Bell 1993) only 2 sig diffs (p<.05) amongst multiple comparisons: There was 5% less monthly smoking amongst baseline experimenters for teen led group, in same group there was a higher incidence of weekly smoking for baseline users. 6y: (grade 12, Ellickson 1993) no evidence of any benefit from the programme for any baseline risk group. More weekly smokers amongst baseline smokers in the Adult taught group than control (P=<0.1), again there were multiple comparisons.
Study	**Number followed-up**	**Early outcomes**	**Long term outcomes**
Ellickson 2003	5,412 students; of whom 4,689 [87%] completed the baseline survey; and 4,276 completed the follow-up at 18 months [91% of baseline].		Intervention vs. usual curriculum control: at 18 months: For baseline nonusers: past month experimental 8.6% control 11.1%; weekly experimental 4.0%, control 6.6%; proportion of new smokers 26% in combined experimental groups, 32% in control p <.01); 23% reduction in past month (p <.01) and weekly smokers (p <.01).
Hansen 1991	Baseline: 3,011; 1 year: 2,416 (80%). Attrition amongst students who received resistance training was 18% vs. 22% in other conditions. Analysis based on cohort followed.	1 year: There was a trend towards lower cigarette use in normative education classes. 8.1% vs 10.3% for ever smoking and 4.8% vs 6.5% for 30 day smoking. ANCOVA showed a significant main effect for normative education (F 4.76, p<0.05) on the main cigarette index. There was no evidence of an effect of Resistance Training.	
Peterson 2000	Baseline: 8388. 7,910 (93.8%) followed up to Grade 12 + 2 years in both experimental and control groups. All 40 school districts particpated fully during the 12 years of the trial. 100% of teachers who presented the HSPP curriculum attended inservice education; in 86% of the lessons observed teachers implemented the lesson activities.		At both Grade 12 and Grade 12 + 2 years, no significant differences were noted between the experimental and control groups in daily, current or cumulative smoking, or those with family risk for smoking.

Abernathy 1992	Baseline: 7508. Based on matching of ID codes in each survey: 3566 in matched cohort by Grade 9, 47% of baseline. No discussion of attrition. Data presented only for baseline never-smokers who were matched.	1yr: Grade 7 males who had received the entire programme were less likely to smoke than those in the control schools (p<.005), and the difference would still have been significant if entire randomised groups were compared. Prevalence of smoking in baseline never smokers reduced by about 7%. No programme effects for females.	2 & 3y: Small differences maintained (approx 5%) amongst males. No effect for females.

Study	Number followed-up	Early outcomes	Long term outcomes
Armstrong 1990	Baseline: 2366 82% resurveyed at 1y, 64% at 2y, 38% at 7 yrs. No significant differences in follow-up in peer-led or teacher-led groups, or between females and males. At 7 years, significantly lower response from control condition.	1y: Females: For both intervention groups combined, fewer females started smoking compared to the control group (p <.05). Males: Fewer males in the teacher-led group began smoking compared to the control and peer-led groups (p <.0002). No effect on baseline smokers	2yr: Females: Smoking uptake was 6.6% (95%CI: -17.3% to +4.0%) lower in teacher-led and 8.1% (95%CI: -18.9% to 2.7%) lower in the peer-led group compared to control (p <.03). Males: Smoking uptake was 2.8% (95%CI: -11.2% to 5.6%) lower in the teacher-led group than the control or peer-led groups (p <.009), but was 6.4% (95%CI: -3.6% to + 16.4%) higher in the peer-led group compared to control. After 7 years there were no effects on male initial smokers or non-smokers; but the odds of girls in the experimental groups who were non-smokers starting smoking was 0.5.
Ary 1990	Baseline: 7837 Attrition 24% No differential attrition across conditions. Dropouts were more likely to be smokers or at risk of smoking.	12m: No differences in effect of the intervention on pretest non smokers - 12% became smokers in both conditions. Pretest smokers in expt group reported fewer cigarettes/month at 1 year (77 vs 112, F=3.02, p<0.05), but the difference in smoking prevalence (65% vs 69%) was not significant No effect of messages to parents.	

Study	Number followed-up	Early outcomes	Long term outcomes
De Vries 1994	1529 had data at both baseline and T3. Attrition was 14%, and did not differ between expt and control. No sig diffs in the smoking behaviour of the dropouts between expt and control. Males (OR = 1.36) and older students (OR = 1.47) more likely to drop out. No significant inter-class or inter-school effects (these accounted for 6% of the residual variance).	1y: For baseline never-smokers, programme effect only for high schoolers (OR = 0.63; 95% CI 0.43-0.91, p <.02), 42% of them began experimental smoking in the Expt and 52% in the control. No programme effect on regular (i.e. weekly or daily) smokers in high schools (OR = 0.78; 95%CI = 0.38-1.58), but there was a programme effect in vocational schools (OR = 2.24; 95%CI 1.30-3.90, p < .01). Regular smoking in vocational schools increased less in Expt (16% to 24%) than control (16% to 30%). No programme effects on helping existing smokers to quit.	
Flay 1995	At 2 years 3,155 (47%), with greater attrition in Los Angeles than San Diego, and among African-Americans and students with lower grades. No differential attrition across experimental and control conditions.	Post-test: In Los Angeles at the post-test there was lower prevalence in the social resistance (p <.00001) and television (p<.006) conditions. In San Diego at the post-test prevalence was lower in the social resistance groups (p<.00001).	At the 2 year follow-up in Los Angeles there was lower prevalence in the social resistance group (p<.0007) and in the television + social resistance group (p<.05). In San Diego at 1 year prevalence was lower in the social resistance group (p<.028).

Study	Number followed-up	Early outcomes	Long term outcomes
Unger 2004	2,775 6th grade students were invited to participate; 2,131 [77%] provided parental consent; of these 1,970 [92%] completed the 6th grade survey; and 1,571 [80%] completed the survey at the end of the 7th grade; and the results are presented for the 1,430 who were non-smokers at baseline.	At 12 months: Intervention vs. Intervention: For baseline non-smokers smoking rates increased in the multicultural programme group to 8% and to 11% in the standard intervention; only for the Hispanic boys was the multicultural programme more effective than control (OR = 0.49; 95% CI = 0.27, 0.88); and that there were no significant effects for females, or Asian-Americans or other ethnic groups.	
Vartiainen 1998	4,253 9th graders at baseline; and 4,179 (98%) completed the baseline questionnaire		(1) at four years (only four schools were chosen for analysis) at baseline in 1978 4-9% of the children reported smoking 1-2 times/month; in 1981 the percentages were 37% in the control schools, 27% in the direct intervention schools (p

			<.05) and 26% in the "county-wide intervention schools" (p <.01); (2) at eight years three pairs of matched schools were analysed, and there was 10% less smoking in the direct intervention than the control schools, and 16% less in the county-wide compared to the control schools (no statistical significance stated). If all drop-outs were assumed to be smokers, the smoking rate in the intervention schools was 48-49%, and 59% in the control (no statistical significance stated).
Flay 1985	Baseline: 654; 76% present at the pretest and all subsequent tests up to 18m. 17% of dropouts were experimenting with smoking compared to 12% of the sample. 6 years: attrition was not related to treatment condition but was related to smoking behaviour.		(1) 18m: Among never smokers at baseline, at 18 months there were no significant differences in the percentage smoking in the experimental compared to the control group. Among children experimenting with smoking at the pretest, at 18 months there were fewer smokers in the experimental compared to the control group (p <.003). (2) 6 years: there were no significant differences between the experimental and control groups in the percentages of non-smokers who had become smokers; and no differences for initial smokers in quit rates.
Study	**Number followed-up**	**Early outcomes**	**Long term outcomes**
Focarile 1994	Baseline 1,057. The intervention was completed for 80% of the intervention and 70% of control pupils (in 38 out of the 53 classes). Follow-up: 80% in the experimental and 73% control at 18 months. 44% Int. 36% Control at 36 months (only classes in which programme delivered followed at 36m. Differential attrition at follow-up: smokers more likely to refuse to complete the questionnaire (X2 = 8.94, p <.005).	18m: Proportion of current non smokers 88% in expt and 80% in control (diff 7.4%, 95% CI 2.3; 12.5) no significant difference for never smokers.	36m: (selective follow-up) Proportion of current non smokers 55% in the expt and 44% in the control (diff +11%, 95%CI 1.4; 20.6; OR adjusted for clustering = 1.7, p =.03). Non significant difference for never-smokers. No statistical differences by gender.
Lloyd 1983	Baseline 6299; Attrition at 1 year: <10%	1y: No significant differences. For older girls prevalence was lower in treatment schools, reversing	

Telch 1990	1040 eligible students were given a package to take home for their parents to complete, of whom 852 returned consent forms and of whom 562 (68%) completed the questions about their smoking status. 2 year follow-up: substantial differential loss to follow-up across conditions for some age/gender subgroups (e.g. 54% of 13-14 year old males in control and 25% in expt schools lost to follow-up). Higher attrition for baseline smokers. At the 12 year follow-up: the researchers contacted 947 of the baseline cohort, but only 382 attended the screening sessions in Oslo, and there was substantial differential attrition by condition and baseline smoking status.	(1) 2 years: Significantly lower smoking amongst baseline nonsmokers in experimental (16.5%) compared to control (26.9%; p <.001), with males E = 13% and C = 21%, and females E = 20.5% and C = 32.1% (no significant differences stated). (2) 10 years: No significant differences in smoking rates between experimental and control groups. (3) 12 years: No significant differences in daily smoking between experimental (44%) and control (48%) groups (p=0.1). Adjusting for baseline differences, daily smoking in men was lower in the experimental (36%) compared to the control group (49%; p<0.05). Daily smoking by baseline non smoking men was 31% vs 45% (p<.06). The difference for women was in the opposite direction (E = 47%, C = 42%; NS).

3.2.4.4. Kombination soziale Kompetenz und soziale Einflüsse

Study	Botvin 1980
Methods	Country: USA Site: 2 suburban New York City schools Focus: smoking prevention Design: random assignment of one school to experimental and other to control
Participants	Number at pre-test: 281 (70% non-smokers) Age: 8th, 9th and 10th graders Gender: not stated: Ethnicity: 'predominantly white' Attrition: 80% of experimental and 74% of control group followed up at 6m; Differential attrition from baseline: not discussed.
Interventions	Experimental: social influences and psychosocial skills; group discussion, modelling, behaviour rehearsal, and the application of special skills training to life situations, including the decision to smoke; homework; self-improvement project. Duration: 10 lessons over 12w Deliverer: outside specialist (see Notes) Control: no intervention
Outcomes	Smoking: Self-reported smoking (last month, and last week). Pretest smokers excluded from analysis Follow up: 6m from pretest

Study	Botvin 1982
Methods	Country: USA Site: 2 suburban New York City schools Focus: Smoking prevention Design: All 7th grade classes of both schools. Schools randomly assigned Analysis: X2
Participants	Number at pretest: 426 Age: 7th graders; Gender: not stated Ethnicity: White (school A 93%; school B 90%); Black (2%,4%); Oriental (3%,3%); Hispanic (2%,3%) Follow up: complete pre-and post-test data on 84%, of whom 74% were nonsmokers at the pretest Attrition: not discussed.
Interventions	Experimental: Physiological effects; teenage smoking rates; LST smoking prevention programme skills (self image, self improvement, decision making, independent thinking, advertising techniques, coping with anxiety, communication skills, social skills, assertiveness); homework; a self improvement project. Duration: 12 1hr sessions over 12w Deliverer: Peers: high schoolers from a neighbouring school recruited through advertisement, 4hr training workshop. Supervised by a teacher and project staff. Control: no programme Delivered by peers - see Botvin 1980 for similar programme delivered by outside health specialists and Botvin 1983 for delivery by classroom teachers
Outcomes	Smoking: Self-reported smoking (last month, and last week). Pretest smokers excluded from analysis Saliva samples collected, 25% subsample analyzed for thiocyanate Follow up: 1yr after post-test Process: no data on programme adherence.

Study	Botvin 1983
Methods	Country: USA Site: 7 schools in suburban New York Focus: smoking prevention Design: schools randomly assigned, 2 to each of two experimental and 3 to control Analysis: X2, ANCOVA
Participants	Number at pretest & post-test: 902, of whom 92% nonsmokers Age: 7th grade; Gender: not stated; Ethnicity: 91% W Total at baseline = 902 7th graders; the numbers at pretest giving their smoking status ranged from 891 to 911; and the number at the 1yr follow up ranged from 605 to 633 (67%); no attrition analysis
Interventions	Direct comparison of long or short delivery format LST: immediate physiologic effects of smoking, self image, self improvement, decision making, advertising techniques, coping with anxiety, communication skills, social skills, assertiveness, techniques for resisting peer pressure to smoke Experimental Grp 1. LST taught in 15 1hr sessions as part of science or health curriculum, over 15w Experimental Grp 2. LST in intensive minicourse format, 15 sessions, consecutive days over approx 1m. (1 Exp 2 school also had 8 session booster between post-test and 1yr follow up) Delivered by classroom teachers, 1 day workshop training Control: received standard smoking education mandated by NY State; Delivered by classroom teachers - see Botvin 1980 for similar programme delivered by outside health specialists and Botvin 1982 for delivery by peer leaders
Outcomes	Self report of smoking (monthly recall; weekly recall; daily recall) Saliva samples collected but not analyzed.

Study	Botvin 1999
Methods	Country: USA Site: 29 New York junior high schools Focus: reduction in tobacco and motivation to use substances by providing knowledge and skills to resist tobacco, alcohol and drugs. Design: schools randomly assigned to intervention or control groups Analysis: X2 and GLM ANCOVA were used to compare the experimental and control groups.
Participants	2690 7th. grade girls, and 2209 (82%) provided data in the 8th. grade. Smokers had higher attrition rates ($P < 0.0001$), but there was no differential attrition between experimental and control groups. The programme was taught by teachers, who attended a 1 day workshop.
Interventions	1. Experimental Grp: 15 session Life Skills Training Programme, with cognitive-behavioral skills to enhance assertiveness, resist advertising pressures, manage anxiety, communicate effectively, develop strong interpersonal relationships, and problem-specific skills related to drug use influences, including assertiveness skills for use in situations in which students experience pressure from peers to smoke, drink or use drugs. The programme was modified for minority group use by changing the examples and the situations used for the behavioural exercises. They received 10 boosters the following year. Control group: received 10 sessions of an information-only drug programme + 3 boosters the following year.
Outcomes	Smoking was defined as a 9-point index from 1 (never) to 9 (more than 1/day), and CO samples were collected at pre- and post-test.

Study	Coe 1982
Methods	Country: USA Site: 2 classes in 2 public schools in St Louis Metropolitan area Programme type: smoking prevention Method: classes in each school randomized Analysis: comparison of % remaining nonsmokers and becoming smokers
Participants	Number at pretest: 226 7th or 8th graders. Ethnicity: 1 school was 88% B; experimental group had a median age of 13yrs and 56% never-smokers, and 14yrs and 44% never-smokers in the control group. The other school was 89% W with a median age of 12 years and 54% never-smokers in the experimental and 60% in the control group
Interventions	Experimental Group: social influences (peer pressure to smoke, advertising, role plays, and promoting group support for nonsmoking). In one school positive reinforcement offered to the class with greatest reduction in smoking behaviour. Duration: 8 sessions Deliverer: 1st yr medical students who had received 4 hrs training led groups of 15-20 students Control: no intervention
Outcomes	Never smoked/ experimenting (had not smoked within the last 30 days)/ smoker (had smoked at least 1 cig in past 30 days). Saliva samples were collected but results not presented. Follow up: 12m

Study	Spoth 2001
Methods	Country: USA Site: 6th graders in 33 rural schools in 19 contiguous counties in a midwestern US state [Iowa]. Focus: tobacco, alcohol, marijuana prevention Design: ISFP and PDFY programmes: 33 rural schools in a midwestern US state were blocked on school size and proportion in lower income households identified; schools then randomly assigned to 1 of 2 interventions or control: Analysis: multilevel mixed model ANCOVA; dichotomous outcomes by z tests; for the 6ye follow-up growth curve analysis was used;
Participants	Baseline: 1309 eligible families, of whom 667 (51%) completed the pretest; 10th grade follow up: 447 (67%); and 373 families (56%) completed all 5 data assessments across 4yrs; Follow up at age 18: Age: 6th graders, age 11 Gender: 55% F
Interventions	Intervention 1: the 7-session Iowa Strengthening Families Program (ISFP) used concurrent 1 hr sessions for parents and children: parents were taught to clarify expectations; use appropriate discipline; manage strong emotions regarding their child; effectively communicate with their child; and the children's sessions paralleled the parents' sessions and also included peer resistance and peer relationship skills training; during family sessions family members practiced conflict resolution and communication skills and engaged in activities to increase family cohesiveness and positive involvement of the child in the family; Intervention 2: the 5-session Preparing for the Drug Free Years Program (PDFY), which hypothesizes that bonding to prosocial others is a key protective factor against substance abuse, and that bonding with family members facilitates bonding with school and prosocial peers. 4 sessions were for parents only: parents were instructed on risk factors for substance abuse; developing clear guidelines on substance-related behaviours; enhancing parent-child bonding; monitoring compliance with their guidelines and providing appropriate consequences; managing anger and family conflict; and enhancing positive child involvement in family tasks; in 1 session children were instructed on peer resistance skills; Control: 4 mailed booklets (physical and emotional changes in adolescence; and parent-child relationships).
Outcomes	Ever smoked, ever used chewing tobacco, cigs per day, and number of times chewed tobacco in the past month.

Study	Spoth 2002
Methods	Country: USA Site: 36 randomly selected schools in 22 contiguous counties with the same selection criteria as Spoth 2001; Focus: tobacco, alcohol and marijuana prevention; Design: SFP 10 Programme: Schools were randomly assigned to either the LST intervention; or the LST + SFP interventions; or control; Analysis: multilevel ANCOVA analysis controlled for the effects of clustering;
Participants	Pretest: LST 621; LST + SFP 549; control 494; Follow up at 1yr: LST 503; LST + SFP 453; control 416; Gender: LST 45.3% F; LST + SPP 46.5% F; Control 48.3% F
Interventions	Intervention 1: the Strengthening Families Program for Parents and Youth 10-14 (SFP 10, a revision of the Iowa Strengthening Families Program), which used 7 separate concurrent 1 hr sessions for parents and children: those for parents strengthened parental skills in nurturing, setting limits and communication about substances; those for children strengthened prosocial and peer resistance skills. 1yr later families were invited to participate in 4 x 1hr booster sessions; Intervention 2: Life Skills Training, which used homework and 15 x 45-min classes to provide knowledge about substance abuse, and promote youth skills in social resistance, self-management and general social skills, using coaching, facilitating, role modeling, feedback and reinforcement; One intervention group received LST, another both LST + SFP; 3. Control (no statement if received an intervention or usual care).
Outcomes	Self-reported never smoking;

Study	Number followed-up	Early outcomes
Spoth 2001	1,309 eligible families, of whom 667 (51%) completed the pretest; and at 36 months 447 families remained [34%].	
Spoth 2002	Schools in 22 contiguous counties in a midwestern US state, with 20% or more of households in the school district within 185% of the federal poverty level, school district enrolment under 1,300, and all middle school grades to be taught at one location. From this pool 36 schools were randomly selected and matched and randomly assigned to one of two experimental conditions or control	At 12 months: Intervention vs. no-intervention control: No significant differences in new users between Life Skills Training Program (13.9%); LST + Strengthening Families Program (12.1%) and Control (16.7%)

Study	Number followed-up	Early outcomes	Long term outcomes
Botvin 1980	Baseline 281 (of which approx 70% non smokers). Attrition: 6 month follow-up data available for approx 80% of post-test expt group and 74% control	At 6 months: The experimental group had fewer monthly smokers than the control (6% vs 18%, p<0.05).	
Botvin 1982	Baseline 426; 84% followed-up at 1 year; of whom 74% were nonsmokers at pretest. No analysis of attrition.	12m: For baseline non-smokers there were fewer monthly smokers in the experimental (24%) than in the control group (32%, n.s.), and fewer weekly smokers (11% vs. 25%, p <.01); thiocyanate levels remained the same in the experimental group but increased in the control group (p <.05).	
Botvin 1983	Baseline & post-test: 902, of whom 831 were nonsmokers; approx 73% followed at 1 year.	1y: For non smokers at baseline, the smoking rates for both Expt groups compared to control were: monthly smoking 15% vs. 22% (p<.05); 7 day smoking 8% vs. 15% (p<.004); and daily smoking 6% vs. 11% (p <.03). The E2 minicourse group had lower rates of onset of monthly (p <.005), weekly (p <.0008), and daily smoking (p <.008) compared to the control, but there were no differences between the E1 and control groups. There were no significant intervention effects when the E2 and E2 with booster groups were compared, but group n's were small.	
Botvin 1999	2,209 (82%) at 1 year. Smokers had higher attrition rates (p<.0001), but no differential attrition by condition.	At 1 year: less lifetime smoking in the experimental (28%) vs. the control group (34.5%; p<.001), 30-day (8.8%) vs. (12.3%; p<.005), initiation (19.6%) vs. (23.9%; p<.02) and escalation from lifetime to monthly (6.7%) vs. (9.9%; p<.009). A logistic regression controlling for ethnicity, percentage of programme completed, and receiving free lunches showed that the experimental group, compared to control, had a risk of initiating smoking of 0.76 (95%C! = 0.57,1.01), and of escalating of 0.55 (95%CI = 0.35,0.86).	

3.2.5. Studien Setting Gemeinde

Study	Perry 1994
Methods	»Country: USA »Objective: To evaluate the effect on adolescent smoking prevalence of combining a schools based health education programme with a community-wide, population-wide, cardiovascular disease risk factor reduction intervention. »Study site: Schools and communities in two north central USA cities (population approximately 100,000 each). »Programme name: Class of 1989 study: a substudy of the Minnesota Heart Health Program (MHHP). »Design: 2 communities matched for size and socio-economic factors »Analysis: ANCOVA Regression adjustments within and between communities to address variance; covariance adjustment for age and sex, and in 1987-1989, for parental occupation & for pre-intervention differences. Communities assigned to study conditions, schools unit of analysis. Intervention effect tested against school variance.
Participants	»Study size: In the two communities all 11 year olds in the 13 public (USA) schools were invited to participate and were surveyed annually (no further details given). Pre-test 2,401 students with baseline data for the cross-sectional and cohort studies. »Age: 11 year olds »Sex: ? not stated »Ethnicity: ? not stated
Interventions	»Theoretical basis: Social Learning theory and theory developed for the MHHP. »Key components: A Intervention community i) School programme - short term consequences, reasons, alternative options, influences of advertising, peer and adult role models, skills to resist social influences. -public commitment to abstain ii) Population-wide community organisation & education on cardiovascular risks: - population risk factor - community organisation and citizen task forces - adult education - health education using mass media - continuing education of health professionals. B Control community - no school based programmes and no community education. »Duration: Education programme 3 years; Community-wide intervention 5 years. »Intervention deliverer: School activities led by trained peer (same-age) leaders, elected by classmates and who were effective communicators of the social and psychological messages of the programme.
Outcomes	Project staff, trained in classroom administration, administered the survey during a class period. Standardised questions with acceptable reliability and validity, used to obtain information including prevalence of weekly smoking and self-reported smoking history. Saliva thiocyanate levels were measured in a random sample of students in half the classes (n=1076) in 1986. A smoking intensity score was created from the self-reported measures. It related the average daily and weekly smoking, and smoking history (test-retest correlation was .99). »Follow-up: pre-test 1983 annual surveys 1984 - 1989.

Study	Baseline/follow up	Process results	Intermediate outcome	Smoking behaviour
Perry 1994	Young people at pretest for cross-sectional and cohort studies - 2,401. Numbers surveyed 1984- 2453/ 1985- 2416/ 1986- 2164 1987- 2124/ 1988- 1905/ 1989- 1439 Attrition: Non-responders in cohort study 1984- 12%/ 1985- 19%/ 1986- 30% 1987- 34%/ 1988- 41%/ 1989- 55% Response rates for intervention and reference communities were nearly equal except for 1989 in which 55% of intervention and 32% of reference schools responded. Cohort as % of cross section: 1983- 100% 1984- 86%/ 1985- 80%/ 1986- 77% 1987- 74%/ 1988- 75%/ 1989- 75%	None reported	Reported for 1987: Intentions to smoke: ($F=8.9$, $p<0.003$), differences favoured students in the intervention community.	There were no significant differential program effects between the sexes. Cohort: There were significant differences for smoking prevalence and intensity between communities at all follow-up years - in 1989 at the end of high school 14.6% of students were weekly smokers in the intervention community compared with 24.1% in the control community. For the cross-sectional sample there were significant differences between communities in all follow-up years. Saliva thiocyanate levels were significantly lower in the intervention community than in the control community in both the cohort sample (54 vs 39 ug/mL, P = .0002) and the cross-sectional sample (56 vs 41 ug/mL, P=.0009).

Study	Vartiainen 1998
Methods	»Country: Finland »Objective: To evaluate the long term effectiveness of a school- and community-based smoking prevention programme for young people, implemented simultaneously as an adult community-wide cardiovascular disease prevention programme. »Study site: Schools and communities in North Karelia and in an adjoining province. »Programme name: North Karelia Youth Project Design: 3 pairs of matched schools (1 urban, 1 rural) selected from 1 intervention and 1 control community »Analysis: Both individuals and schools used as units of analysis. ANOVA for differences between schools at outset, follow-up and changes. Changes in intervention school pairs compared using t-test and chi square test; analyses of covariance with baseline values as covariants.
Participants	»Study size: Students from three pairs of schools, each pair had one urban and one rural school: A: direct programme, project health educator-led, 314 students. B: county -wide, teacher-led, 299 students. C: control - no intervention, 290 students. »Age: 12 - 13 years at baseline, aged 28 years at follow-up »Sex: m & f
	»Ethnicity: Not stated
Interventions	»Theoretical basis: Social influences approach. »Key components: A i) Community-wide cardiovascular risk reduction activities ii) Direct school programme - 10 x 45 min smoking prevention sessions. B: As A i) plus a school programme of 5 sessions (in 8th grade) led by class teachers trained to disseminate new curriculum in North Karelia (local youth were also involved). C: Control - no special intervention. »Duration: 2 years of school educational interventions (1978-80); adult smoking cessation programme implemented 6 years prior to youth project (1972), and continued throughout the 2 year youth programme. »Intervention deliverer: Project team members carried out most of the intervention. Peer leaders given 10 hrs training to deliver anti-smoking messages in classroom setting; teachers had 5 hrs training.
Outcomes	Surveys undertaken by trained project nurse. Self-reported questionnaire used in schools to obtain information including smoking behaviour and number of cigarettes smoked. Baseline and first post-test surveys also included - questionnaire for parents asking about health, health behaviour, knowledge, attitudes and problems at home. - project nurse or local school nurse carried out physical examinations of students to assess cardiovascular risk. Third, 4th and 5th post-test surveys used postal questionnaires. Also in the 5th survey, project nurses assessed subjects' cardiovascular risk factors at a local health centre. Categories of smoking: 1-2 cigarettes per month/ 1-2 cigarettes per week/ daily/ all smokers (includes all the above categories). »Follow-up: Pre-test 1978; post-test school surveys in 1980 & 1981; postal surveys 1982 & 1986 & 1993 (15 years post-test)

Study	Baseline/follow up	Process results	Intermediate outcome	Smoking behaviour
Vartiainen 1998	A: 314 students B: 299 students C: (control) 290 students Attrition: at 3 years - A 20%/ B 16%/ C 14% at 15 years - A 34%/ B 30%/ C 23%	None reported	None reported	Individual as unit of analysis: Immediately after intervention (1980) one-third fewer students reported smoking once a month in both intervention groups than in control group; results 6 months and 2 years later were similar; at 8 years, effect persisted only in teacher-led programmes. At 15 years, differences between intervention and control schools were not significant. For baseline non-smokers followed up to 28 years of age, significantly fewer students in the intervention than in the control schools took up smoking: health educator-led vs teacher-led vs control schools (30.8% vs 29.3 vs 41.2%) p = 0.02. School as unit of analysis: the preventive effect in the intervention groups vs control groups remains significant in baseline non-smokers. The prevalence of all smokers was 28%, 30%, 30%, and 32% in intervention, and 36% and 46% in control schools-mean prevalence of all smokers was 30% in

Study	Piper 2000
Methods	»Country: USA »Objective: To evaluate the effectiveness of an in-school health promotion programme supplemented with family and community components, on adolescent behaviour. »Study site: Suburbs, small cities and towns in Wisconsin; suburban areas 69% and non-farm country settings 27%. »Programme name: Healthy for Life Project (HFL) »Design: 21 schools matched for baseline risk. Schools chose between Intensive and Age Aproporiate conditions, then randomly assigned to intervention or control »Analysis: ANCOVA or multiple regression equivalent. Individual group adjusted ANOVA, aggregation of scores to the classroom level and hierarchical modeling.
Participants	»Study size: 2,483 students attending 21 middle schools; schools assigned to treatment conditions i) Age Appropriate, 6 schools ii) Intensive, 7 schools iii) Control, 8 schools »Age: 11 - 15 year olds. »Sex: m 48%, f 52% »Ethnicity: White > 92%
Interventions	»Theoretical basis: Social influences model of health promotion and prevention. »Key components: i) Age Appropriate - school: 43 minute lessons delivered daily for 4 weeks in each of 3 years. Curriculum involved: inoculation, use of peer leaders; family values; health advocacy, short term health effects; advertising and media influences; public commitment; peer norms; incentives to attend classes and complete assignments. Parent orientation session prior to programme starting. - Community: HFL community organiser for 6 months of each of the 3 years. ii) Intensive - school: as i) except that the 54-lesson curriculum was delivered in one sequential 12 week block to 7th grade students. - community: as i) except that HFL community organiser assisted the community for 15 months. iii) Control; Standard health education. »Duration: HFL programme over 3 years in i)/ 12 weeks in ii) »Intervention deliverer: HFL was team taught by a teacher hired, trained and supervised by the research team. This teacher was paired with a teacher from participating schools.
Outcomes	Annual self-report survey administered in classroom setting by research staff with teachers present, of students' health related behaviour. These included: use of tobacco in the past month, perception of extent of targeted health related behaviours among peers measured by substance use offers received, and attitudes of parents, peers and self to health behaviours. Measurements of CO in expired air. Bogus pipeline measures. Other measures: teacher's log, observation by trained observers, and feedback surveys from students and parents. »Follow-up: Annually from grade 6 to grade 10

Study	Baseline/follow up	Process results	Intermediate outcome	Smoking behaviour
Piper 2000	1,981 students provided data in both grade 6 and 9, ie 80% of original 6th grade sample. 10th grade response was 68% of the original 6th grade sample. Reasons for this were: need to recruit high schools which had not originally agreed to participate, a late start date for recruitment due to funding constraints, high schools less cooperative than middle schools, saturation of schools with surveys. political concern over the content of the survey.	None reported	Perception of Peer ATOD Use Scale Intensive HFL: 6th Gr 6.5 (2.3)/ 9th Gr 9.5 (2.7) (p<.001)/ 10th Gr 11.3 (2.7) Age Appropriate HFL: 6th Gr 6.4 (1.9)/ 9th Gr 10.2 (2.7)/ 10th Gr 11.6 (2.8) Control: 6th Gr 6.3 (2.1)/ 9th Gr 10.3 (3.0)/ 10th Gr 11.6 (2.9) OLS regression results for scale of perception of peer ATOD use: standard regression (beta) coefficients and significance at 9th and 10th grades: Baseline risk from previous cohort 9th Gr .20 (p < .001)/ 10th Gr .16 (p < .001) T1 behavioural indicator 9th Gr .21 (p < .001)/ 10th Gr .15 (p < .001) Age appropriate Tx condition 9th grade -.01/ 10th grade .03 Intensive Tx condition 9th grade -.19 (p < .001)/ 10th grade -.10 (p<.01)	Past month cigarette use Intensive HFL v control 6th Gr 5% (pre-test)/ 9th Gr 22%/ 10th Gr 28% (p < .01%) Age Appropriate HFL v control: 6th Gr 4%/ 9th Gr 24%/ 10th grade 36% Control: 6th Gr 5%/ 9th grade 24%/ 10th Gr 30% Monthly smoking rates in the intensive condition significantly reduced the likelihood of smoking compared to control (coefficient -0.38, SE 0.15, p<0.05) and in the age appropriate condition the likelihood of smoking was increased compared to control (coefficient 0.4, SE 0.20, ns)

Study	Biglan 2000
Methods	»Country: USA »Objective: To evaluate the effectiveness of a multi-component community-wide intervention to prevent adolescent tobacco use. »Study site: Sixteen communities (populations of between 1,700 to 13,500 people each) in Oregon county. Programme name: Project SixTeen. »Design: 1 of each pair of matched communities randomly assigned to intervention or control. »Statistical Analysis: Random coefficients analysis for nested cross sectional design. Controlled for sex and grade and interactions wih intervention. Social factors also controlled if they contributed to significant variance.
Participants	»Study size: Eight communities received the school based prevention programme only (SBO), and 8 received the SBO plus community interventions. Schools had to agree to implement prevention programme and to be assessed. Successive cross-sectional surveys undertaken of all age eligible (all 7th and 9th grade) students at each time point. A 30% random sample of parents of assessed students were also surveyed. Number of students at each assessment given in results table Parents T1 1303, T2 1400, T3 1390, T4 1430 »Age: 11 and 13 year old students, and their parents. »Sex: - at baseline students m 52% f 48%. - parents m 24% f 76% »Ethnicity: Percentage of minority students ranged from 0.9% (African American) to 6.8% (Hispanic).
Interventions	»Theoretical basis: Social influences, including the use of multiple channels to reach people in a supportive social context. »Key components: A: Control communities School-based programme consisting of 5 sessions over a one week period in grades 6 (11 years) through 12 (17 years) aimed at drug use prevention, (health facts, refusal skills, modelling refusal skills, public commitment and peer led discussion). B: Intervention communities i) school-based programme as in A. ii) media advocacy iii) youth anti-tobacco (YAT) activities iv) family communications (FC) about tobacco through school or civic prompted parent-child activities v) Activities to reduce illegal sales of tobacco to young people. »Duration: 3 year period. Intervention deliverer: Paid community coordinators and youth and adult volunteers. Teachers trained for 2-3 hours by project staff.
Outcomes	Annual school questionnaire survey of students to obtain information about: awareness of smoking prevention and cessation activities, awareness of efforts to prevent illegal sales of tobacco, attitudes toward tobacco, friend's smoking, intentions to smoke and tobacco use. Postal questionnaire sent to parents enclosing $10, used to obtain: ratings of exposure to anti-tobacco information, awareness of efforts to prevent youth access to tobacco, attitudes to the deleterious effects of tobacco use, interactions with other parents about adolescent tobacco use, town support for tobacco access restrictions, support of the community eg school, government officials, and business leaders, for tobacco use prevention programmes. Two follow-up mail prompts and one phone call reminder to parents. Community coordinators monitored weekly the number of community activities. Samples of expired air CO from students. Follow-up: T1 baseline/ T2 one year/ T3 two years/ T4 three years/ T5 four years

Study	Baseline/follow up	Process results	Intermediate outcome	Smoking behaviour
Biglan 2000	Students: 7th grade T1 2187 / T2 2231 T3 2170 / T4 2268 9th grade T1 2251/ T2 2284 T3 2255/ T4 2440 Overall number of parents responding T1 1303/ T2 1400 T3 1390/ T4 1430/ T5 645 (8 communities) - response from parents of 7th grade students T1 91%/ T2 81% T3 77%/ T4 73%/ T5 71% - response from parents of 9th grade students T1 84%/ T2 78% T3 79%/ T4 73%/ T5 78% Attrition: Not applicable	After the first year of intervention, the total amount of activity over the year was correlated with the amount of change in the prevalence of any (includes smokeless tobacco) tobacco use, r = -.61, p<.10. The correlation was not significant for Time 1 to Time 3. However, the correlation between the cumulative number of activities over the three years of the intervention in each community and the community's change in the prevalence of any tobacco use between Time 1 and Time 4 was significant, r=-.75, p<.05. This correlation was apparently due to the correlation of cumulative activities with changes in smoking prevalence between Time 1 and Time 4, r=-.73, p<.05. (Data from an unpublished draft report)	Young people in CI communities reported more negative attitudes toward tobacco use slope t(14 df)=2.31, p=0.036. Their awareness of efforts to prevent illegal sales became significantly more positive (slope, t(14 df)-=2.31, p=0.036), Intentions to smoke over five years were significantly more positive for grade 9 males in SBO communities (t(14 df)=2.87, p=0.0124. - At Time 2 parents in CI communities perceived more town support for tobacco access restrictions (8 communities). - At Time 3, parents in CI communities were aware of more efforts to reduce youth access, and perceived greater town support for access restrictions. - At Time 4, parents in CI communities were aware of more efforts to prevent youth access to tobacco and perceived more town support for access restrictions. There were significant intervention effects over time on the perception of town support for tobacco prevention, and the support of business leaders. There was no evidence of an impact on perceived support from schools or government officials.	Prevalence of cigarette smoking in prior month: Using a random coefficients analysis for nested cross sectional designs the effect of the intervention was not significant. Using pairwise analysis of the effect from time 1 to each of the follow up points, the effects of the intervention were significant at times 2 (p=0.022)and 5 (p=0.038) and approached significance at time 4 (p=0.077, 2 tailed test). The effect was calculated as the difference in the change in prevalence from T1 to the relevant time for the CI condition minus the same change for the SBO condition. At T2 the net change was 4.5% (ie a larger decrease in CP communities), at time 4 it was 2.4%, and at T5 3.8%. Prevalence of smoking in SBO communities increased significantly from T1 to each of the subsequent time points. There was no significant change in the CP condition, suggesting that the intervention prevented an increase in prevalence. There was no evidence that the CP and SBO communities differed on expired CO at any time points.

Study	Kaufman 1994
Methods	»Country: USA »Objective: To evaluate a culturally relevant programme to decrease cigarette use and increase knowledge about the harmful effects of smoking amongst inner city African American adolescents. »Site: Schools, homes and communities in Chicago. »Design: 3 schools randomly assigned to intervention or control »Analysis: ANCOVA (pre-test smoking rate as a co-variate).
Participants	»Study size: Children in the 6th and 7th grades of three public schools in predominantly African American inner city (276 eligible) neighbourhoods. P (programme) 131 students (2 schools) C (control) 76 students (1 school) »Age: 11-12 year olds »Sex: m & f »Ethnicity: Black
Interventions	»Theoretical basis: Cognitive and behavioural skills, and social influences »Key components: P: School plus media programme: School curriculum, including homework which involved parents. Children prompted to read, watch and participate in media interventions: - newspaper curriculum - 8 radio announcements (PSAs), a call-in talk show, a RAP contest - bill board contest C: Media programme only without prompts to participate. »Duration: School curriculum - 7 sessions, including homework; Newspaper curriculum published over 5 consecutive weeks; 8 radio PSAs during Oct and Nov 1989. Intervention deliverer: Classroom teacher. Culturally relevant newspapers and radio used for media intervention.
Outcomes	Media message reach. Confidential questionnaire used to measure student and family substance use, knowledge about cigarettes, attitudes to smoking, social support and minor delinquency - based on validated scales »Follow-up: - one week post intervention - six months

Study	Baseline/follow up	Process results	Intermediate outcome	Smoking behaviour
Kaufman 1994	Programme (P): 131 students (2 schools) Control (C): 76 students (1 school). Attrition: at one week P = 25%, C = 12% at six months P = 32%, C = 25% (incomplete forms, absenteeism, students moving).	Read part of newspaper curriculum, P 65% C 31% (p<.001); heard about radio RAP contest P 64% C 61% (ns); entered RAP contest P 24% C 16% (ns).	P students had a significantly higher pre to post increase in knowledge (-2.51, p <.01) than C students.	Smoking rates between P and C were not significantly different at post-test or at follow-up. Smoking rates for both P and C decreased significantly from pre-test to follow-up (3.20 vs 4.04, p<0.001 - where higher score represents higher level of use).

Study	Pentz 1989
Methods	»Country: USA »Objective: To evaluate the effectiveness of a comprehensive community-based drug prevention programme in reducing the prevalence of gateway drug use in adolescents »Study site: Schools and communities in the greater Kansas City SMSA (population 1.3 million). »Programme name: Midwestern Prevention Project (MPP) »Design: 8 schools randomly assigned to intervention or control, 20 schools assigned to intervention and 14 to control (based on school commitments) »Analysis: Logistic regression. School unit of analysis with all schools pooled for analysis. For parent data set individual was unit of analysis.
Participants	»Study size: i) From 34 schools a 25% cross-sectional sample of students selected randomly by classroom (n=3,371 average) ii) A longitudinal panel of all students from 8 schools (n=1,607) iii) A subsample of parents of students in the panel (n=620). Students aged 11 - 15 years and parents. »Sex: students m 49% , f 51% parents m 17%, f 83% »Ethnicity: students 79% White, parents 88% White. Socio-economic status: students- 39% with one or both parents in professional occupations parents- 44% in professional occupations
Interventions	»Theoretical basis: Social learning theory, transactional & systems theories of environmental change & communication theories. »Key components: a) Mass media coverage of drug prevention, included 16 tv spots, 10 radio and 30 print media events throughout study period. Year 1: (the only component assessed to date): b) 10 school & homework sessions Year 2: as b) plus: c) a parent organisation, communication, and prevention practice programme Year 3: as year 2 plus: d) community organisation training and networking, Year 4: as year 3 plus: e) promotion of local health policy change. »Delayed control: a) only plus usual health education »Duration: 6yrs overall »Intervention deliverer: Teachers of science or health education and 4 student leaders for each class. All given training.
Outcomes	Self reported survey administered to students by trained data collectors, to obtain information about cigarette use in last month and last week, and demographic characteristics. Measure of CO in expired air. Also information about 8 mediating variables: intentions, consequences (negative & positive), knowledge, resistance skills, communication skills, peer norms, friends' reactions. Self report survey for parents distributed to students in school in sealed envelopes, with a return envelope provided for posting. Parent survey asked for reported cigarettes smoked in last week and last month by self, spouse, target child and next older child; rated importance of parent role, personal involvement, and discussion with child about preventing smoking. »Follow-up: Baseline - students 1 year follow-up - students and parents

Study	Baseline/follow up	Process results	Intermediate outcome	Smoking behaviour
Pentz 1989	i) cross-sectional sample (average n=3371) ii) longitudinal panel (n=1607) iii) subsample of parents of students in panel (n=620) Attrition: At one year follow-up from both cohorts = 1%	Programme implementation: adherence - as planned Exposure - mean of 6.47 Deviation from programme - 68% deviated slightly	Intentions: 1% in Intervention (I) vs 7% in Control (C) (p<.01). I less likely to believe in positive consequences, I thought it easier to talk to friends about a drug problem, I more likely to report friends would be unfriendly to drug problem (p<.05). No differences between I & C on negative consequences, external influences, resistance skills and peer norms. Family drug use behaviours were the largest predictors of student drug use at 1 year - OR range: 2.2 to 4.6. Programme transfer at 1yr: I parents perceived less use of cigarettes by their children than C parents (OR 0.34, p<.05) and were more likely to view parent involvement in smoking prevention as important (OR 1.46, p<.01).	Smoking rates increased in both I & C over time, but a reduced rate of increase (last month) reported in I compared with C: 15% vs 22% (p<.05) prevalence respectively at 1yr follow-up. Proportion of smokers: % (95% CI): Last month: I: 3.4 (0.2 to 6.6)/ C: 13.1 (7.5 to 18.8) Last week: I: 4.3 (1.7 to 6.9)/ C: 10.5 (5.6 to 15.5) Schools with a high level of programme implementation had a decrease (from baseline) in cigarette use in the last month of 1.23% compared with a 6.72% increase in schools with low implementation & a 10.95% increase in control schools (p<.05 for difference between high implementation & control). Preliminary analyses at 2yr follow-up (longitudinal panel) suggested that effects were maintained (no further information given).