

REVIEW

Do social support interventions (“buddy systems”) aid smoking cessation? A review

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Abstract

Objective—To provide an overview of the role of social support in smoking cessation and to critically review evidence regarding the use of “buddy systems” (where smokers are specifically provided with someone to support them) to aid smoking cessation.

Data sources—Studies were located by searching Medline and Psyclit using the key words “smoking”, “smoking cessation”, “social support”, and “buddy”. Additional studies were identified through reference lists. Only studies reported in English and published since 1980 were included.

Study selection—Studies were selected on four criteria: publication in a peer reviewed journal; randomised controlled trial using smokers who wanted to stop; the use of a social support intervention, including a “buddy”; dependent variable of smoking abstinence. Most research in this area does not use a randomised design so only a small proportion of the originally identified studies were included.

Data synthesis—In view of the diverse nature of the studies, a meta-analysis was not attempted. Ten studies were identified: nine were clinic based smoking trials, eight used a group format, and nine used buddies from among smokers’ existing relationships. Support training varied from role play and rehearsal to a simple instruction to call each other regularly. Intervention and follow up periods varied between studies. Two studies showed a significant benefit of the intervention in the short term.

Conclusions—Research methodology in many cases was poor. The evidence would suggest that in the context of a smokers clinic the use of buddies may be of some benefit. There is a lack of evidence regarding the efficacy of the use of buddies in community interventions. This is an important area for future research.

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Smoking is the leading preventable cause of death in industrialised countries, killing three million people each year. In addition millions suffer poor health and a reduced quality of life as a result of its effects.¹ Increasing rates of smoking cessation therefore remains an important health objective.

Most smokers want to stop.² Despite the efficacy and wide availability of nicotine replacement treatment, success rates are still low³ and little is known about specific behavioural interventions that can enhance success rates. There is a need to develop behavioural treatments that can be offered to increase these success rates.

The existence of social support has been identified as a key factor associated with the maintenance of a variety of health behaviours.⁴ Its value is so widely assumed that most smoking cessation interventions include some social support element. This can vary from a general suggestion to “tell your friends and colleagues” (No Smoking Day 1999) to social support interventions in group treatments with partners, colleagues or other smokers trying to stop.⁵ Recent clinical practice guidelines also advocate its use both in the USA⁶ and in the UK.⁷

Support is frequently assessed as a predictor variable in community surveys and interventions.⁸ Researchers have looked at both structural and functional aspects of support. Structural support is the existence of family/friends and other social networks within an individual’s environment. Functional support on the other hand deals with the quality of those relationships and covers such issues as empathic understanding (emotional support), and practical assistance or information provision (instrumental support).⁹ Functional support can be assessed at a general level or specifically related to smoking cessation. A third type of “support” (or its converse) of relevance to smoking cessation is the smoking behaviour of other people within an individual’s social environment—that is, whether partner, friends, and colleagues smoke. These three aspects of social support are closely intertwined, and measurement instruments and research reports do not always clearly differentiate between them.

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Most research has focused on the possible influence of the smoking behaviour of family and friends. Community surveys have found that success in stopping smoking is associated with having a non-smoking partner^{8,10} and not being exposed to smokers in the household and social environment.^{11–13} However, Richmond and colleagues¹⁴ found that while time spent with other smokers was a predictor of abstinence after one year, the number of other smokers in the household was not. In addition different forms of support may be important at different points in the quitting process. For example, Gulliver and colleagues¹⁵ found that having smokers in the social network did not predict relapse in the first seven days (when 40% relapsed) but did at later time points. Measures of general structural support assess an individual's integration into a social structure. It may be that for smoking cessation, this is too crude a measure and that the smoking behaviour of individuals in a network is the key factor. However, it has been found that individuals who are married tend to have higher quit rates than people who have never married, and people who are divorced or widowed.¹⁶

To assess functional support, researchers commonly use measures specific to stopping smoking—for example, the Partner Interaction Questionnaire (PIQ)¹⁷—but more general measures of social support have also been used.¹⁰ It has been shown that the existence of a supportive partner^{15,18} and supportive friends¹⁹ predicts success in stopping smoking. However, again there is some inconsistency. For example, Digiusto and Bird²⁰ found that participants who perceived more social support for quitting at baseline were less likely to be abstinent one week later. Equally Venters and colleagues²¹ found that although perceived social support for stopping was correlated with desire to stop at initial interview, it did not predict abstinence one year later.

Surveys usually assess perceptions of support at a single time point and so do not distinguish between expected support and support that is actually received. In one exception Cohen and Lichtenstein²² found that generally smokers experienced fewer interactions than they expected when they quit. Nevertheless they experienced a higher ratio of positive to negative behaviours than expected. However the relationship between expectation and experience was not associated with outcome. Roski and colleagues²³ found that initial cessation was associated with increased supportive behaviours by spouse, whereas lower rates of undermining behaviours were associated with long term maintenance, suggesting that different aspects of support may be important at different times.

It is of considerable clinical interest to establish whether social support could be harnessed in an intervention. At a societal level one can reduce exposure to smoking by increasing the number of no-smoking offices and shopping centres, for example.²⁴ However, it may be that at the level of an individual intervention, focusing on the support of another individual, or

“buddy” may be more practical. The buddy may be a non-smoker, another smoker trying to stop, an ex-smoker, or even a current smoker. They can either be identified from within an existing social structure—for example, a partner or friend—or they could be previously unknown to the smoker—that is, a new tie.²⁵ That individual can then be given special responsibility to support the smoker in his or her attempt to stop. Such buddy systems are sometimes used to support behaviour change in other areas such as weight loss or alcohol misuse.²⁶

Several community based interventions have included the optional selection and support of a buddy. The participants select these buddies from within their existing social structure, so they are usually a partner, family member or friend. Studies have generally found that having such a buddy is positively correlated with success in stopping smoking.^{27,28} In some circumstances participants who engaged a buddy were three times more likely to quit.²⁹ However, the finding is not universal. For example, Murray and colleagues²⁷ found no additional benefit to women in their sample, and Kviz and associates³⁰ found no benefit to people over 60 years old. Studies found that around a third to a half of participants elected to have a buddy, with no difference in demographics between those who did or did not select one. Kviz and colleagues,²⁹ however, assessed other factors known to be associated with success, and found, for example, that the most determined participants were three times more likely to engage a buddy. Hence there may be a strong selection bias. Although these studies have used large samples they generate only correlational data, rely on verbal reports of smoking status, and are sometimes retrospective.²⁸ In addition baseline levels of social support are not reported. However, the finding that many people engaged a buddy when prompted to suggests the practicality of simple social support manipulations if they can be shown to be effective.

Most smoking cessation clinics offer the support of an individual therapist or a group. The support offered by group treatment is often incidental to the “therapy” as the sessions are typically quite didactic and the therapist is frequently seen as an information provider. However, there have been four studies attempting to manipulate support levels within a smokers group,^{20,31–33} three of which were randomised trials.^{20,32,33} In each case various strategies were used to increase cohesion/improve social support in some groups—for example, by encouraging participation and stressing commitment to the group,^{20,31–33} making public or symbolic gestures and commitments,^{20,31–33} watching video's modelling desired interactions,^{20,32,33} and using buddies.^{20,31} One study compared this to a “self control” group.²⁰ Results have been encouraging with short term improvements in abstinence rates for the social support/increased cohesion group in three of the four studies.^{20,31,32} Where long term follow up was reported benefits were not maintained.^{20,32}

However, the sample sizes were small in these studies (137 and 72 smokers, respectively) so they did not have the power to detect long term effects.

Overall there is a strong suggestion in the literature that social support has a role to play in attempts by smokers to stop. However, prospective randomised trials are required to establish clearly whether social support interventions have a beneficial effect on smoking cessation. The aim of this paper is to critically review experimental evidence testing the hypothesis that the use of buddy support is an effective aid to smoking cessation.

Methods

Studies were located by searching Medline and PsycLit using the key words "smoking", "smoking cessation", "social support", and "buddy". Additional studies were identified through reference lists. Only studies published since 1980 were included as before this most smoking intervention trials were poorly designed with inadequate power and poor outcome assessment.

A study was included if it met the following criteria: (1) it was published in a peer reviewed journal; (2) it was a randomised controlled trial using smokers who wanted to stop; (3) the independent variable was a social support intervention, including the use of a "buddy"; (4) a dependent variable was smoking abstinence.

Results

A total of 10 studies met the criteria for inclusion.^{12 34-42} The majority were clinic based smoking trials using a group format.^{12 34-40} One of the remaining two studies was based in a general practice clinic⁴² and the other was a community based minimal intervention using pamphlets including social support instruction.⁴¹

The "buddy" support interventions were of two broad types. The majority were directed support interventions,²⁵ using populations who identified buddy support before randomisation.^{12 34-41} These studies therefore made use of pre-existing support structures. They attempted to improve the quality of support with training, drawing on previous research to indicate what is beneficial. Only one study fell into the second category of the initiation of new ties.⁴² All the studies involved some level of guidance to buddies and/or smokers regarding how to be supportive. To what extent "support training" was provided varied from intensive group treatments with role playing and rehearsal³⁷ to a simple instruction to call each other regularly.⁴²

Two studies showed a significant effect of the intervention on smoking cessation.^{37 42} Gruder and colleagues³⁷ offered group meetings as an adjunct to a televised self help programme. They randomised "buddies" to either discussion only or support training groups. They found a significant benefit of support training at all time points up to 24 months. West and colleagues⁴² randomised smokers to individual treatment or buddy support in a

smokers clinic in primary care. They found a significant benefit of the buddy intervention maintained to the final follow up one month after quitting (table 1).

Critical evaluation of papers

Many of the studies reviewed had design flaws that would be likely to affect the results.

MEASUREMENT OF OUTCOME

Seven of the studies reviewed had sample sizes below 100 people at baseline. This makes comparison groups very small and reduces the likelihood of detecting any effect.^{12 34-36 38-40} Interestingly two of the three studies with samples above 100 people reported a significant improvement in abstinence rates in the intervention group.^{37 42}

Some studies used not only complete abstinence but also smoking reduction as an outcome measure.^{12 34 36 38} This is of little clinical value as evidence suggests that smokers quickly revert back to previous levels of smoking and that they compensate for reductions in numbers and reduced tar content of cigarettes by changing their smoking style.⁴³ The latter point also means that accurate measurement of reductions in tar and nicotine concentrations is very difficult. Counting or taking self reports of the number of cigarettes smoked, the brands smoked or the weight of cigarette butt left does not accurately reflect an individuals tar and nicotine concentration. Also all but one⁴² of the studies reviewed used point prevalence rate of smoking abstinence as their outcome measure. Typically abstinent was defined as no smoking in the previous week for the later follow ups. This means that participants may relapse following the intervention but stop again using an entirely different method at a later date and be counted as a treatment success. As a result some studies reported more people successful at one year than immediately post treatment.^{35 39} Finally, self reports of smoking can be validated by carbon monoxide measurement and thiocyanate or cotinine analysis. However most studies did not adequately validate self reports^{12 37 39 40} despite the observation that up to 50% of participants may misreport smoking status.⁴⁴

Success rates in smoking interventions tend to be low and people who fail often feel disappointed and do not attend for follow up appointments. It is important, therefore, that results are analysed on an intention to treat basis with people lost to follow up counted as failures; this was not done in two cases.^{34 37} Only one of the other studies⁴² reported their treatment of such cases.

MEASUREMENT OF SUPPORT

Assessments of smoking related support were typically made using the PIQ.¹⁷ The PIQ was originally designed to assess partner support but has since been extended to other contexts. It is a list of positive and negative behaviours that a smoker may experience when trying to stop. Examples of positive behaviour would be "compliment you on not smoking" or "celebrate your quitting with you"; examples of

negative behaviours would be “criticise your smoking” and “refuse to clean up your cigarette butts”. Participants are asked to rate frequency and helpfulness of the behaviour and experienced helpfulness scores are calculated. Studies generally found positive correlations between support and abstinence in their populations irrespective of intervention group.^{12 39 41} One found the ratio of positive to negative scores predicted abstinence³⁷ and another that higher overall support (measured with a single item) was predictive, as was lower negative support measured using PIQ.⁴¹

One problem with this scale is that it may confuse the existence of a smoker in an individual’s network with how supportive they are—for example, “during the past week my partner smoked in my presence”. In addition some of the negative “support” behaviours are only applicable where a person is still smoking and some positive ones are only applicable when the smoker is abstaining (see above). So it would not be surprising to find that the experience of negative behaviour is associated with continued smoking.³⁶ Finally the PIQ is used in various forms, sometimes with 61 items,^{25 39} sometimes with 45,³⁸ sometimes 20,³⁷ and sometimes in a modified form^{36 41} making comparisons between studies difficult.

Studies that asked about perceived functional support typically only did so at a single time point, usually asking the participants remaining at end of treatment.^{37–39} This may be open to reporting biases. Hence people who fail to stop smoking may not remain at the end of treatment and may be more likely to report a lack of social support for stopping. PIQ scores were used in the studies reviewed to determine effectiveness of the intervention and as a predictor for successful abstinence, not to assess baseline differences or changes over time. Two studies^{35 37} found a significant difference between groups in PIQ scores at end of treatment, suggesting that the intervention may have improved functional support as measured by PIQ. However, this did not translate into improved outcome in one of those studies,³⁵ leading its authors to suggest that the PIQ may not be measuring what is beneficial about support.

Two studies asked about general or smoking related support at baseline.^{35 41} The studies did not establish if patients actually utilised the support offered, nor did they distinguish between expected support and support that was actually received.

INTERVENTION

The studies were limited by incomplete reporting, making the design of follow up research more difficult. Where reports were made, interventions were frequently multifactorial—for example, the provision of both support and relapse prevention training in the experimental group³⁷ or attempting to influence not only the existence of support but also its quality.^{35 36 38} This makes it difficult to establish the active ingredient of an effective intervention. In addition, in one study the experimental and control groups had different numbers of visits.³⁵ In

another, sites and not subjects were randomised³⁷ and, of course, none of the studies were double blind so therapist effects cannot be ruled out.

All but one⁴² of the studies reviewed attempted to manipulate social support in the smokers’ natural environment. In most cases this involved selecting only those patients who had a buddy available to them who was prepared to take part, thereby excluding those who did not have such a buddy. Another implication of this is that patients had already gone through the process of identifying and approaching a buddy, who in some cases would even sign consent before randomisation.³⁵ Identified buddies not allocated to the social support condition have already been given a cue to act as a support and may well continue to do so anyway. A further implication of this is that in most cases researchers were attempting to influence pre-existing supportive relationships, often with a spouse. Other behavioural research suggests that these relationships can be very resistant to change.⁴⁵

Most research assessed the use of social support within a clinic context using groups as the treatment method.^{12 34–40} In addition to the cost advantages of treating smokers in this way, groups are postulated to have greater efficacy owing to the social support element inherent in them.^{31 33} This could obscure any effect of the supportive intervention. In addition, where the timing of the groups was reported the majority of the meetings were before the quit date,^{36–39} with most smokers quitting around two weeks before the end of treatment. For most people craving will still be quite strong at this time. It is possible that interactions between smoker and their buddy may change once the support of a formal treatment programme is no longer available and that two weeks is too early in the quitting process for that to occur.

Discussion

Although social support is frequently correlated with success at stopping smoking, the results of buddy interventions for smoking are not impressive. The difficulty of translating the benefits of natural resources to effective interventions is not unique to this field.⁴⁶ However, the poor design of much of the research could be partly responsible for the disappointing results.

Most of the studies occurred within the context of a smokers clinic, offering professional input. The evidence would suggest that in this context the use of buddies may be of some benefit. The positive results were from the only two clinic based studies with samples of over 100. Hence, it may be that other investigations simply lacked the power to detect any effect. However as the studies were so dissimilar no judgments can be made at this point about the form that any intervention should take.

Only one study attempted to influence buddy support in a self-help intervention,⁴¹ so conclusions in this area are even more difficult. They found that the provision of a support guide to be given to two allies had no effect either on outcome or on perceptions of

Table 1 Randomised trials of social support for smoking cessation

Study	Participants	Interventions	Outcome measures	Outcome	Notes
Albrecht <i>et al</i> , 1998 ³⁴	84 pregnant teenagers randomised to usual care (UC), group treatment (TFS) or group plus buddy support (TFSB).	UC: half an hour meetings with the nurse about smoking. TFS: above plus 8 group meetings. TFSB: above plus subject selected buddy to attend all sessions. Buddies were all non-smoking women in same age range.	Abstinence post-intervention. Self reported reductions in smoking and reductions in CO levels.	Abstinence (n), end of treatment: TFSB 3 of 10 people, TFS+UC 5 of 30. Not significant. Difference in consumption between two groups was not reported.	Light smokers (mean CO < 10 ppm at baseline). Combined data of UC and TFS treatment and compared with TFSB. Significant difference in self reports of cutting down.
Ginsberg <i>et al</i> , 1992 ³⁵	99 smokers: randomised to groups receiving nicotine gum, nicotine gum plus psychological treatment, or above plus partner support.	All received 2 mg nicotine gum and materials (NG). Additional psychological treatment (NGPT) included relapse prevention, public commitment and cost benefit discussions. Additional partner support (NGPTPS); training for buddy on support strategies, videotape, signed agreements.	Abstinence at weeks 4, 12, 26, and 52, validated by CO. Measures of support (including PIQ) at each follow up.	Abstinence, end of treatment: NG 71%, NGPT 88%, NGPTPS 71%. Not significant. Abstinence 6 months: NG 34%, NGPT 45%, NGPTPS 42%. Not significant. PIQ scores improved in partner support group.	Deposit returned for completion to week 26. Small groups.
Glasgow <i>et al</i> , 1986 ³⁶	29 smokers in work site randomised to standard smoking control programme or standard programme plus social support.	Controlled smoking (CS): replicated Malott <i>et al</i> ('84, below). Social support condition (CSPS): replicated Malott <i>et al</i> ('84) but smokers selected buddy from non-work environment to support out of the office. Buddy came to 2 sessions and were phoned twice by therapist. Both receive biweekly support manual.	Self reported smoking behaviour (abstinence). CO and salivary thiocyanate assessment. Post treatment and 6 months later. PIQ to assess support.	Abstinence (n) end of treatment: CS 7 of 13 people, CSPS 5 of 14 people. Not significant. Abstinence 6 months: CS 3 of 12 people, CSPS 3 of 13 people. Not significant.	Smoking cessation was preferred outcome of treatment but controlled smoking was also an aim. Analysis of PIQ was conducted on non-abstinent participants only. Therefore results not reported here.
Gruder <i>et al</i> , 1993 ³⁷	50 sites. 793 smokers. 235 in no contact control group, 271 in social support group and 287 in discussion group. All had non-smoking buddy.	Control group (C) received manual and encouraged to watch stop smoking TV programme. In addition, group conditions all met for 3, 90 minute sessions and received 2 follow up calls. All bought non-smoking buddy to second group to meet separately. Discussion group (DG): buddies have general discussion. Social support condition (SS): instruction and role plays on how to get support and offer it. Relapse prevention in last visit and extra manuals. Quit at or after final visit.	Abstinence post-intervention and at 6, 12, and 24 months. PIQ measured for both group conditions at last group session.	Abstinence, end of programme: C 17.4%, NS 26.8%, DG 33.7%, SS 49. Abstinence, 6 months: C 6.4%, NS 17.4%, DG 13.9%, SS 19.2%. Significant difference between support and discussion groups at each follow up ($p < 0.05$). Significant ordering of conditions: support, discussion, "no shows" control. Ratio of positive to negative interactions was greater in support condition. No influence of condition on relapse rates.	People who did not attend any groups but were scheduled to, were analysed separately (NS). About a third of each group did not watch TV or read manual once therefore excluded from analysis.
Malott <i>et al</i> , 1984 ³⁸	24 smokers in work site programme randomised to standard smoking control programme or standard program plus social support.	Controlled smoking (CS): 6 weekly group meetings focused on strategies to support nicotine fading, session 4 subjects decide to quit or not. Partner support (CSPS) condition: as above but subjects buddied up with colleague in the group to contact each day, also given manual and checklists of helpful behaviours.	Measures of abstinence and smoking behaviour, CO measurement. PIQ adapted for colleagues.	Abstinence (n), end of treatment: CS 2 from 12, CSPS 2 from 12. Abstinence (n), 6 months: CS 3 from 11, CSPS: 2 from 12. Not significant.	Smoking cessation was preferred outcome of treatment but controlled smoking was also an aim. Analysis of PIQ was conducted on non-abstinent participants only. Therefore results not reported here.

Table 1 continued on next page

Table 1 Continued

McIntyre-Kingslover <i>et al</i> , 1986 ³⁹	64 smokers in smokers clinic. 31 in standard treatment and 33 receiving additional spouse training.	Control groups (CG): 6 weekly 2 hour long group meetings. Quit at fourth group. Spouse training (ST): above plus spouse attended all sessions and given guidelines.	Abstinence at 1, 3, 6, and 12 months, verified by informant and CO. Group differences in PIQ.	Abstinence, end of treatment: CG 48.4%, ST 72.7%. Not significant. Abstinence, 6 months: CG 19.4%, ST 27.3%. Not significant. No differences in PIQ scores between intervention and control, PIQ positively correlated with abstinence.	High CO readings attributed to alcohol or marijuana smoking, subject considered a non-smoker. Payment returned if abstained.
Mermelstein <i>et al</i> , 1986 ¹²	64 smokers: 15 spouse training, 21 no spouse training, and 28 "singles".	As above but additional "singles" group with same format as no spouse training group.	Validated abstinence at end of treatment and abstinence 1, 2, 3, and 12 months later, also reductions in smoking at all time points. Corroborated by informants. Support measures at follow up points. General support measured by ISEL support for quitting measured by PIQ also smoking network measures (proportion of smokers in environment).	Abstinence, end of treatment 57.8% overall. Abstinence, 6 months: 31.3% overall. No significant difference between groups (not reported by condition). No significant difference in measures of support.	Couples quitting together put into no training group. Study is follow up to McIntyre-Kingslover ³⁹ above. Reports above study again first.
Nyborg, Nevid, 1986 ⁴⁰	40 smoking couples, 8 in each of 5 conditions, therapist administered <i>v</i> minimal contact crossed with couples <i>v</i> individual training, and "effort only" control group.	8 week programme, week 5 is quit date, nicotine fading before quit. Visits to clinic for therapy plus manual (TA), <i>v</i> manual and weekly therapist initiated phone calls (minimal contact group (MC). "Couples" groups (CT) given instructions for mutual support. "Individual" group (IT) given no additional instruction, individual effort emphasised. Control group given written materials only (CG).	Self reported abstinence end of treatment 3 and 6 month follow up.	Abstinence, end of treatment: TA-CT 50%, TA-IT 37.5%, MC-CT 0%, MC-IT 0%, CG 0%. Abstinence 6 months: TA-CT 25%, TA-IT 12.5%, MC-CT 0%, MC-IT 0%. No significant differences between couples <i>v</i> individual conditions.	No validation. Results reported by couples.
Orleans <i>et al</i> , 1991 ⁴¹	2021 smokers in community sample recruited to "self help quit smoking programme".	4 conditions: 502 received self quitting materials only including advice about nicotine fading, relapse prevention, also general advice how to garner support (M). 501 received above plus specific social support instructions aimed at smokers, ex-smokers, and never smokers, copies to be given to 2 "allies" (MS). 510 above plus 4 follow up phone calls from counsellor and offer of a quit phone line to contact (MST). 508 in usual care group received referral guide and general quit tips pamphlet (C).	Abstinence for a week and a month at 8 and 16 month follow ups. Various other measures of smoking status and desire to quit. Measures of support on Likert scale and using adapted PIQ at 8 months. Cotinine and/or thiocyanate test at 16 months where possible (54% of abstainers).	Abstinence (> 1 week) 8 months: C 16%, M 14.7%, MS 14.2%, MST 23%. Abstinence (> 1 week) 16 months: C 18.2%, M 15.2%, MS 14.2%, MST 23%. No significant difference between M and MS. Significant effect of additional follow up calls ($p < 0.01$). Perceived support correlated with success. Distribution of support manual to allies associated with success at 16 months.	Community based. Minimal intervention.
West <i>et al</i> , 1998 ⁴²	172 smokers in general practice, 70 in "buddy" pairs and 102 in "solo" group.	Nurse led smokers clinic, 4 visits over 5 weeks, quit at visit 2. "Buddy" condition (B): subjects paired with smoker, all subsequent visits with them. Phone calls and bets made. "Solo" condition (S): subjects seen individually.	Continuous abstinence from quit date to 4 week follow up. Verified by CO.	Abstinence, end of treatment: B 27%, S 12%. Significant difference ($p < 0.01$).	

PIQ, Partner Interaction Questionnaire.¹⁷

ISEL, Interpersonal Support Evaluation List.⁴⁹

CO, carbon monoxide.

support. However, they also found no difference between conditions in terms of the number of people invited to help, with only 58% of people in the support condition reporting handing out their guides. Currently then there is no strong experimental evidence that smokers attempting to stop on their own would benefit from approaching a family member or friend to support them.

It is likely that although all the studies reviewed aimed to influence social support, in practice they were manipulating quite different aspects of a broad construct. Interventions involving new ties and interventions using existing ones can both offer the "buddies" various levels of training. However, the latter involve attempting to develop or change an established relationship. In fact, it is not clear that support for stopping smoking has its effect through specific behaviours or if it does, what those behaviours may be. In a small prospective study Ginsberg and colleagues⁴⁷ found that the interactions that predicted a successful quit attempt were not the same as interactions that led to a perception of support in smokers. Buddies from an intervention using new ties on the other hand may benefit from a sense of "common adversity". Hence in the study reviewed they stopped smoking together, playing dual roles of supporter and supported. Equally, as the relationships were new they were unaffected by previous roles and so may have been prepared to make more effort. Therefore, there is a need for further research into the interpersonal process by which support of different types has an effect.

Overall there is enormous scope for research in this area using improved methodologies. Primarily better quality research is required to examine the benefit of different forms of buddy intervention in different contexts of smoking cessation—for example, community interventions, smokers clinics, primary care. Equally, the benefits of support interventions may differ for different populations. Much of the research has required pre-existing support as an inclusion criterion. However, it may be that socially isolated smokers benefit more from such interventions. Equally people with smokers in their social environments may benefit more from a buddy; thus Pirie and colleagues²⁸ reported that having a buddy was particularly important for people with spouses who smoked. Also the influence of the smoking behaviour of the buddy requires examination. For example, Kviz and colleagues²⁹ found that even though engaging a buddy was beneficial overall, the quit rate was near zero among people who chose to buddy up with continuing smokers. Interestingly West and colleagues,⁴² using new ties, found no evidence that relapse in one member of a pair was associated with relapse in the other. The role of different aspects of buddy support also requires elucidation. For example, the relationship between expected and received support may be of significance. Research in other areas suggests that if a person is disappointed with the levels of support they receive in a crisis that may be associated with a poorer outcome.⁴⁸ Stopping

smoking could be seen as an example of such a crisis. In addition, even if smokers perceive support within their social environment they may not utilise it.

The time course of any influence of social support also needs further examination. Gruder and colleagues³⁷ found the benefit of their intervention was maintained in the long term. West and associates,⁴² however, did not conduct long term follow up. It is possible that if smokers benefit from the support of a new tie when quitting, they may be expected to have greater relapse rates when the support ends. Whereas pre-existing support may continue its influence over a longer period.

Most treatment packages for smokers recommend the use of social support despite the paucity of the experimental research evidence. Correlational and epidemiological research tends to uphold this recommendation, supported by some encouraging clinic based trials. However, more randomised controlled intervention studies are required to justify its widespread promotion as a smoking cessation aid.

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- Peto R, Lopez A, Boreham J, *et al*. Mortality from smoking worldwide. *Br Med Bull* 1996;52:12–21.
- Hymowitz N, Cummings KM, Hyland A, *et al*. Predictors of smoking cessation in a cohort of adult smokers followed for five years. *Tobacco Control* 1997;6(suppl 2):S57–62.
- Silagy C, Mant D, Fowler G, Lancaster T. Nicotine replacement therapy for smoking cessation. *The Cochrane Library*, Issue 4, 1998. Oxford: Update Software. Updated quarterly.
- Carmody TP. Health related behaviours: common factors. In: Baum A, Newman S, Weinman J, *et al*, eds. *Cambridge handbook of psychology health and medicine*. Cambridge: Cambridge University Press, 1997: 117–21.
- Hajek P. Helping smokers to overcome tobacco withdrawal: background and practice of withdrawal orientated therapy. In: Richmond R, ed. *Interventions for smokers an international perspective*. Baltimore: Williams & Wilkins, 1994: 29–46.
- Fiore MC, Bailey WC, Cohen SJ, *et al*. *Smoking cessation*. Clinical Practice Guideline No 18. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, April 1996. (AHCPR Publication No 96–0692.); <<http://text.nlm.nih.gov>>.
- Raw M, McNeill A, West R. Smoking cessation guidelines for health professionals: a guide to effective smoking cessation interventions for the health care system. *Thorax* 1998;53(suppl 5):S1–19.
- Hanson BS, Isacson SO, Janzon L, *et al*. Social support and quitting smoking for good. Is there an association? Results from the population study, 'men born in 1914', Malmö, Sweden. *Addict Behav* 1990;15:221–33.
- Sutherland V. Psychological support for health professionals. In: Baum A, Newman S, Weinman J, *et al*, eds. *Cambridge handbook of psychology health and medicine*. Cambridge: Cambridge University Press 1997: 307–10.
- McBride CM, Currey SJ, Grothaus LC, *et al*. Partner smoking status and pregnant smoker's perceptions of support for and likelihood of smoking cessation. *Health Psychol* 1998;17:63–9.
- Stevens PA, Greene JG, Primavera LH. Predicting successful smoking cessation. *J Social Psychol* 1982;118:235–41.
- Mermelstein R, Cohen S, Lichtenstein E, *et al*. Social support and smoking cessation and maintenance. *J Consult Clin Psychol* 1986;54:447–53.
- Warnecke RB, Flay BR, Kviz FJ, *et al*. Characteristics of participants in a televised smoking cessation intervention. *Prev Med* 1991;20:389–403.
- Richmond RL, Kehoe LA, Webster IW. Multivariate models for predicting abstinence following intervention to stop smoking by general practitioners. *Addiction* 1993;88:1127–35.
- Gulliver SB, Hughes JR, Solomon LJ, *et al*. An investigation of self-efficacy, partner support and daily stresses as predictors of relapse to smoking in self-quitters. *Addiction* 1995;90:767–72.
- Waldron I, Lye D. Family roles and smoking. *Am J Prev Med* 1989;5:136–41.
- Mermelstein RJ, Lichtenstein E, McIntyre KO. Partner support and relapse in smoking cessation programs. *J Consult Clin Psychol* 1983;51:456–66.

- 18 Coppotelli HC, Orleans CT. Partner support and other determinants of smoking cessation maintenance among women. *J Consult Clin Psychol* 1985; **53**:455-60.
- 19 Morgan GD, Ashenberg ZS, Fisher EB. Abstinence from smoking and the social environment. *J Consult Clin Psychol* 1988; **56**:298-301.
- 20 Digiusto E, Bird KD. Matching smokers to treatment: self control versus social support. *J Consult Clin Psychol* 1995; **63**:290-5.
- 21 Venters MH, Kottke TE, Solberg LI, et al. Dependency, social factors and the smoking cessation process: the doctors helping smokers study. *Am J Prev Med* 1990; **6**:185-93.
- 22 Cohen S, Lichtenstein E. Partner behaviors that support quitting smoking. *J Consult Clin Psychol* 1990; **58**:304-9.
- 23 Roski J, Schmid LA, Lando HA. Long-term associations of helpful and harmful spousal behaviors with smoking cessation. *Addict Behav* 1996; **21**:173-85.
- 24 Department of Health. *Smoking kills: a White Paper on tobacco*. The Stationary Office, London, 1998.
- 25 Gottlieb BH. Marshaling social support: the state of the art in research and practice. In: Gottlieb BH, ed. *Marshaling social support: formats, processes and effects*. Newbury Park, California: Sage, 1988: 11-51.
- 26 English K, Goldstein H, Shafer K, et al. Promoting interactions among preschoolers with and without disabilities: effects of a buddy skills-training program. *Exceptional Children* 1997; **63**:229-43.
- 27 Murray RP, Johnston JJ, Dolce JJ, et al. Social support for smoking cessation and abstinence: the lung health study. *Addict Behav* 1995; **20**:159-70.
- 28 Pirie PL, Rooney BL, Pechacek TF, et al. Incorporating social support into a community-wide smoking cessation contest. *Addict Behav* 1996; **22**:131-7.
- 29 Kviz FJ, Crittenden KS, Madura KJ, et al. Use and effectiveness of buddy support in a self help smoking cessation program. *American Journal of Health Promotion* 1994; **8**:191-201.
- 30 Kviz FJ, Crittenden KS, Clark MA, et al. Buddy support among older smokers in a smoking cessation program. *Journal of Aging and Health* 1994; **6**:229-54.
- 31 Hajek P, Belcher M, Stapleton J. Enhancing the impact of groups: an evaluation of two group formats for smokers. *Br J Clin Psychol* 1985; **24**:289-94.
- 32 Etringer BD, Gregory VR, Lando HA. Influence of group cohesion on the behavioural treatment of smoking. *J Consult Clin Psychol* 1984; **52**:1080-6.
- 33 Lando HA, McGovern PG. The influence of group cohesion on the behavioral treatment of smoking: a failure to replicate. *Addict Behav* 1991; **16**:111-21.
- 34 Albrecht S, Stone CA, Payne L, et al. A preliminary study of the use of peer support in smoking cessation programs for pregnant adolescents. *Journal of the American Academy of Nurse Practitioners* 1998; **10**:119-25.
- 35 Ginsberg D, Hall SM, Rosinski M. Partner support, psychological treatment and nicotine gum in smoking treatment: an incremental study. *Int J Addictions* 1992; **27**:503-14.
- 36 Glasgow RE, Klesges RC, O'Neill HK. Programming social support for smoking modification: an extension and replication. *Addict Behav* 1986; **11**:453-7.
- 37 Gruder CL, Mermelstein RJ, Kirkendall S, et al. Effects of social support and relapse prevention training as adjuncts to a televised smoking cessation intervention. *J Consult Clin Psychol* 1993; **61**:113-20.
- 38 Malott JM, Glasgow RE, O'Neill K, et al. Co-worker social support in a worksite smoking control program. *J Appl Behav Anal* 1984; **17**:485-95.
- 39 McIntyre-Kingslover K, Lichtenstein E, Mermelstein RJ. Spouse training in a multicomponent smoking cessation program. *Behav Ther* 1986; **17**:67-74.
- 40 Nyborg KF, Nevid JS. Couples who smoke, a comparison of couples training versus individual training for smoking cessation. *Behav Ther* 1986; **17**:620-5.
- 41 Orleans CT, Schoenbach VJ, Wagner EH, et al. Self help quit smoking interventions: effects of self help materials, social support instructions and telephone counseling. *J Consult Clin Psychol* 1991; **59**:439-48.
- 42 West R, Edwards M, Hajek P. A randomized controlled trial of a 'buddy' system to improve success at giving up smoking in general practice. *Addiction* 1998; **93**:1007-11.
- 43 Waller RE, Froggatt P. Product modification. *Br Med Bull* 1996; **52**:193-205.
- 44 Lando HA, Hellerstedt WL, Pirie PL, et al. Brief supportive telephone outreach as a recruitment and intervention strategy for smoking cessation. *Am J Public Health* 1992; **82**:41-6.
- 45 Jacobson NS, Follette WC, Revenstorf D, et al. Variability in outcome and clinical significance of behavioral marital therapy: a reanalysis of outcome data. *J Consult Clin Psychol* 1984; **52**:497-504.
- 46 Heller K, Thompson MG, Trueba PE, et al. Peer support telephone dyads for elderly women: was this the wrong intervention? *Am J Community Psychol* 1991; **19**:53-74.
- 47 Ginsberg D, Hall SM, Rosinski M. Partner interaction and smoking cessation: a pilot study. *Addict Behav* 1991; **16**:195-202.
- 48 Brown GW, Andrews B, Harris T, et al. Social support, self-esteem and depression. *Psychol Med* 1986; **16**:813-31.

A Terminal Habit



Airport terminals around the world have taken to providing glassed-in smoking rooms where desperate smokers huddle in the putrid fog while other passengers breathe easy outside and wonder about the spectacle.