



NURSING INTERVENTIONS AIMED AT QUITTING SMOKING

Mona Mohammed Alanazi, Areej Massad Alnufai, Alotaibi, Meshal Mohammed, Fahad Makki Mahworry, Mohammed Abdullah Hussien Alnodali, Tariq Ebrahim Alhumaid, Khaled Ali Alshahrani, Mohammed Ahmed Karshami, Fatimah Mohammed Abutalib, Samah Awad Almobarak, Amal Faraj Algamdi, Najwa Awad Almubark, Saleh Abdullah Aldukhail, Mohammed Nasser Alotaibi, Mohammed Mutlaq Althobaiti

Abstract

This review examines the effectiveness of nursing interventions in helping adults quit smoking. Forty-two trials met the inclusion criteria, with interventions delivered by nurses to adult smokers in various healthcare settings. The analysis focused on nurse-provided advice, counseling, and strategies to support smoking cessation. The review found that nursing interventions can increase quit rates compared to usual care. Pooled data from studies showed a 28% increase in quit rates at follow-up for those receiving a nursing intervention. High-intensity interventions, involving more frequent contact and support from nurses, did not show a statistically significant advantage over low-intensity interventions. Interventions delivered as part of cardiac rehabilitation programs yielded the most promising results.

Keywords: smoking cessation, nursing interventions, adult smokers, quit rates.

Introduction:

Globally, there is a growing number of deaths and disabilities linked to tobacco use (mostly cigarettes). While tobacco consumption is still stable in wealthy nations, it has reached epidemic proportions in many developing nations (Davis 2007; West 2006; DHHS 2004). The prevalence of cigarette smoking may be decreased by the following two factors: (1) 79% to 90% (Coultas 1991) of smokers want to stop (NIH 2006); and (2) 70% of smokers see a healthcare provider annually (Cherry 2003). As nurses see the greatest number of patients globally, they may have a significant impact on the decline in tobacco use (Percival 2003; Whyte 2003).

Physicians' advice to quit smoking has been proven to be beneficial by systematic reviews (Langley, 2004). According to the Agency for Health Care Research and Quality Clinical Practice Guideline (AHRQ 2000), doctors should strongly encourage their patients who smoke to give up. While the recommendation suggests that all doctors provide interventions, the results for advice from non-physician clinicians have been less conclusive. If the nursing profession wants to support the American Nurses Association's viewpoint that patient education and preventative



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healthcare interventions to cease tobacco use should be part of nursing practice, a study of the role that nursing plays in helping people quit smoking is important (ANA 1995). Because of the unique circumstances and motivations of pregnant women, interventions for pregnant smokers have been reviewed elsewhere. The purpose of this review is to analyze and synthesize randomized clinical trials in which nursing provided smoking cessation interventions. As a result, the review centers on the nurse as the intervention provider, rather than on a specific type of intervention.

Participants' types

Trials in which 'recent quitters' were classified as smokers were included; however, sensitivity analyses were conducted to determine whether they differed from trials that excluded such individuals. Participants were adult smokers, 18 years and older, of either gender, recruited in any type of healthcare setting, with the exception of studies that had recruited pregnant women exclusively.

Intervention Types

Nursing intervention was defined as the provision of advice, counselling, and/or strategies to help patients quit smoking. The review includes cessation studies that compared usual care with an intervention, brief advice with a more intensive smoking cessation intervention or different types of interventions. Studies of smoking cessation interventions as a part of multifactorial lifestyle counselling or rehabilitation were included only if it was possible to discern the specific nature and timing of the intervention, and to extract data on the outcomes for those who were smokers at baseline. Advice was defined as verbal instructions from the nurse to stop smoking' whether or not information was provided about the harmful effects of smoking. Interventions were grouped into low and high intensity for comparison.

Low intensity was defined as trials where advice was provided (with or without a leaflet) during a single consultation lasting 10 minutes or less with up to one follow-up visit. High intensity was defined as trials where the initial contact lasted more than 10 minutes, there were additional materials (e.g manuals) and/or strategies other than simple leaflets, and usually participants had more than one follow-up contact. Studies where patients were randomized to receive advice versus advice plus some form of nicotine replacement therapy (NRT) were excluded, since these were primarily comparisons of the effectiveness of NRT rather than nursing interventions.

Techniques for finding studies through searches

A systematic search of MEDLINE, EMBASE, and PsycINFO as well as manual searches of specialized journals, conference proceedings, reference lists of prior trials, and overviews were used to find trials in the Tobacco Addiction Review Group specialized register (most recent

search completed in July 2007). We looked for trials that included the terms "nurse" or "health visitor" in the title, abstract, or keywords and assessed their relevance. Additionally, we searched the Cumulative Index to Nursing and Allied Health Literature (CINAHL) Data collection and analysis

Data extraction

For each trial, the following data were extracted: (1) author(s) and year; (ii) country of origin, study setting, and design; (i) number and characteristics of participants and definition of "smoker"; (iv) description of the intervention and designation of its intensity (high or low); and (v) outcomes and biochemical validation. The authors extracted data from the published reports independently, and disagreements were settled by referral to a third party. We contacted the original Investigators for more information in trials where the specifics of the methodology were not obvious or if the results were presented in a way that prevented the extraction of important data. We continued to treat participants who were lost to follow-up as smokers. Only participants who passed away before follow-up or who were known to have relocated to an untraceable address were omitted from totals.

Evaluation of Quality

(iv) Detection bias-systematic differences in outcome assessment: Empirical evidence only indicates that systematic differences in the assessment of impact magnitude arise from the control of selection bias at entry (Schulz 1995). We employed a three-point rating system: an A would indicate that the best efforts had been made to minimize selection bias (for example, by creating a randomly generated assignment table before contacting potential participants); a B would indicate that there was some doubt about the process and timing of the random assignment creation; and a C would indicate that the group allocation had unquestionably not been sufficiently hidden.

Data Analysis: Since this evaluation was last updated, the Cochrane Tobacco Addiction Group's recommended method of data analysis has changed, and as a result, we have modified how we summarize the treatment's results. For summing individual trial outcomes and estimating the pooled effect, we now utilize the risk ratio instead of the odds ratio. Unless the event rates are extremely low, treatment effects will appear bigger when expressed as odds ratios than when expressed as risk ratios. For instance, the risk ratio is 2.0 $(20/100)/(10/100)$ if 20 out of 100 participants in the intervention group and 10 out of 100 in the control group have withdrawn, but the odds ratio is 2.25 $((20/80)/(10/90))$. While there are situations where odds ratios would be better, there's a chance that they'll be perceived as risk ratios instead, which would magnify the treatment impact (Deeks seks 2006). In this case, we determined that a set of studies was

OUTCOMES

Study description: 42 trials matched the inclusion requirements. Published between 1967 and 2007, they were of nursing interventions for adults who used tobacco, mainly cigarettes, to help them quit. The Table of Included Studies has 43 studies in total since one experiment (Sanders 1989a; Sanders 1989b) was divided into two halves with randomization at each stage. As a result, it is classified as two different trials here. The original meta-analysis, which contrasted a nurse intervention with normal care or minimal intervention control, included thirty research. A comparison of two nursing strategies with varying components or contact counts was presented in nine studies. Four research' findings were not included in a meta-analysis.

are discussed individually. The studies that made up a meta-analysis's sample sizes varied from 25 to 2700, but they were usually between 150 and 500. There were 16 trials conducted in the United States, 9 in the United Kingdom, 3 in Canada, 2 in Australia, Denmark, Japan, The Netherlands, Norway, and Spain, and 1 each from South Korea and Sweden. With hospitalized patients, seventeen trials intervened (Taylor 1990; Only one study (Vetter 1990) did not use randomly selected samples; the majority of trials used convenience sampling.

Inform participants up front that they will be taking part in a study to help people quit smoking. The majority of the research did not perform a retrospective power analysis or specify the sample size a priori. The majority of research did not provide "refusal to participate rates." While some studies did not record drop-out rates, the majority attempted to include all participants in their sample and considered those who did not register as ongoing smokers. Studies' dropout rates differed greatly, both before and after informed consent. 79% of individuals receiving standard care in one research were not contacted again (Feeney 2001).

Consequences of interventions.

studies (54%) that are included in this comparison. Within the subset of 24 high intensity trials (12–59%), heterogeneity was more pronounced. One trial (Rice 1994) had a significant negative effect on treatment, and two trials (Canga 2000; Terazawa 2001) had particularly large positive effects. When all 31 studies were pooled using a fixed-effect method, the risk ratio (RR) at follow-up was 1.28, with a 95% confidence interval (CI) of 1.18 to 1.38 (Comparison 01). We used a random effects model to examine the sensitivity of pooling the studies due to their heterogeneity. The calculated effect size and significance (random-effects RR 1.31, 95% CI 1.14 to 1.50) were not significantly affected by this. The fixed-effect estimate (RR 1.27, 95% CI 1.18 to 1.38) was slightly reduced and the heterogeneity not attributable to chance (-17%) was nearly eliminated by excluding the three outlier trials.

We also examined how sensitive these findings would be to removing research that did not corroborate every claim of abstinence, restricting the analysis to studies with an A rating for allocation concealment quality, and excluding studies that had a follow-up of less than a year.

Because there were fewer studies, the confidence intervals widened, but none of these significantly changed the estimates. The results remained unchanged when one study (Bolman 2002) was excluded, since we were unable to directly enter the numbers of quitters for that study.

Impact of the level of intervention

Our indirect comparison between subgroups yielded no evidence of bigger treatment effects in the trials that we defined as utilizing higher intensity interventions. The point estimate for the pooled effect of the seven lower intensity trials in this review update is essentially the same as for the 24 higher intensity trials. This update differs from earlier versions of the review in that the low intensity trials' confidence interval no longer excludes 1. (Risk-reduction ratio 1.28, 95% confidence interval 1.18 to 1.39; risk reduction ratio 1.27, 95% confidence interval 1.09 to 1.62). When we added Hajek 2002—a study for which we were unsure about the classification of the control group—in the previous version, we discovered that the significance in the low intensity subgroup was lost (as mentioned above in the Description of studies section). As previously noted, there was no indication of a treatment effect (RR 1.09, 95% CI 0.92 to 1.29) and the point estimate was further reduced by adding this trial to the low intensity category. The Hajek experiment was done among hospitalized patients with cardiovascular illness, and the overall quit rates were higher than those of the other trials in the low intensity cohort. This trial was given a high weight in the meta-analysis due to the huge number of occurrences.

Our classification of the targeted intervention served as the basis for the separation of low and high intensity subgroups. The trial reports for Lancaster (1999), Boiman (2002), and Curry (2003) highlighted low implementation levels, therefore the impact of transferring them from the high to the low intensity subgroup was examined. As a result, in the low intensity subgroup, the point estimate of effect decreased, while in the high intensity segment, it grew. Effects of varying health conditions and client settings: The pooled estimate of effect is minimal and non-significant if these three studies and Hajek 2002 are included in the low intensity category.

Hospital studies enrolled patients with many health issues; however, a subset of these trials particularly targeted patients with cardiovascular disease. Of these, a small number of therapies addressed several risk factors, whereas the majority alone addressed smoking. Primary care trials typically did not choose participants based on a specific medical condition. In one set of subgroups, we integrated the context and the disease diagnosis (Comparison 02). A significant pooled effect on smoking was shown in four trials that incorporated a nurse-led smoking cessation intervention as part of cardiac rehabilitation (RR 1.39, 95% CI 1.17 to 1.65). Biochemical validation of stopping was not used in three of these studies (Allen 1996, Carisson 1997, Hanssen 2007), and in the fourth (DeBusk 1994), we were unable to get confirmation from the study authors regarding the percentage of dropouts.

Seven trials involving hospitalized smokers with cardiovascular disease showed substantial

heterogeneity (150%) since one of the trials had a significant intervention effect (Taylor 1990). The calculated RR was 1.29 (95% CI 1.14 to 1.45), and using a random-effects model or excluding Taylor 1990 did not change the significance of the effect. The heterogeneity was enhanced by 60% in a sensitivity analysis of the effect of include Hajek 2002 in this category, and the pooled effect was only marginally significant regardless of whether a fixed-effect or random-effects model was applied (Comparison 05). Heterogeneity was eliminated once more by excluding Taylor 1990, however the pooled effect was then minimal and not Interventions of varying intensities: the impact of physiological feedback Effects of additional in-person sessions: A trial conducted in 2001 by Feeney revealed a highly substantial advantage for patients admitted to a coronary care unit who received additional help from an alcohol and drug assessment unit nurse. Conversely, there was a high number of dropouts, especially from the control group, and a very low cessation rate (1/97) among the controls. This might have overestimated the rate of quitting in the control group. Another trial (Alterman 2001) found no benefit from providing four nurse sessions in addition to a nicotine patch; in fact, the control group's quit rate was significantly higher (OR0.36, 95% CI 0.15 to 0.85), and no explanation was provided for the intervention group's lower than expected quit rates. In a trial conducted in 2006, Tonnesen found that the high and low intensity groups of participants receiving either nicotine sublingual tablets or a placebo experienced about equal rates of cessation (all in comparison).

Findings from research not incorporated into the meta-analysis: Five studies were found (Sanders 1989a; Family Heart 1994;

OXCHECK 1994; Campbell 1998; Steptoe 1999), wherein nurses provided primary care patients with intervention. All but Sanders 15830 targeted healthy patients and addressed several cardiovascular risk factors. Campbell 1998 was the exception. The latter drew in those suffering from coronary heart disease. Despite meeting the primary inclusion criteria, the design of four of the trials precluded data extraction for meta-analysis in a format that could be compared to previous research. Only a random sample of the control group was followed up in the other (Sariders 1969a). As such, we address these trials in isolation.

Only 25.9% of patients booked and kept an appointment for a cardiovascular health screening, according to Sanders 1989a, a study that queried smokers who were seeing their family doctor about getting one. Both the attendees (4.7%) and the non-attendees (3.3%) had quit smoking before the one-month follow-up, and the percentage of those who had done so at one month and one year was higher than the usual care controls (0.9%). This implies that the structured nursing intervention had little additional impact and that the offer to schedule a health screening could have served as an anti-smoking intervention in and of itself.

OXCHECK 1994 employed similar health checks, but since the homes were randomized to get the health check in a different year, we do not have comparable statistics for that program. The percentage of smokers in the intervention group who reported quitting within the last year

was compared by the authors to patients who were there for their one-year follow-up and controls who were there for their first health check-up. They discovered no variations in the percentages who stated they had given up smoking the year before.

Conclusion:

One suggested lifestyle change was quitting smoking. The Family Heart 1994 research included nurse-led cardiovascular screening for males aged 40 to 59 and their partners. Up to three further visits were extended invitations to cigarette smoking. Smoking's Effects on Practice The review's findings point to the possible advantages of patient interventions provided by nurses. It will be difficult to make smoking cessation therapies routine practice so that all patients can be asked about their tobacco use and receive guidance on how to stop, as well as support and follow-up. When combined with counseling for behavioral modification, nicotine replacement therapy has been demonstrated to increase the success rate of cessation. As such, it is a valuable supplement to nursing interventions rather than a stand-alone treatment (Stead 2008). Research indicates that lengthier, multi-contact interventions provided by nurses with a focus on cardiac rehabilitation or health promotion are more effective than shorter, single-contact interventions from nurses who combine work on smoking cessation with other responsibilities.

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