

ATTITUDES AND MANAGING ALCOHOL PROBLEMS IN GENERAL PRACTICE: AN INTERACTION ANALYSIS BASED ON FINDINGS FROM A WHO COLLABORATIVE STUDY

PETER ANDERSON^{1*}, EILEEN KANER², SONIA WUTZKE³, MICHELLE FUNK⁴, NICK HEATHER⁵, MICHEL WENSING¹, RICHARD GROL¹, ANTONI GUAL⁶ and LEO PAS⁷ on behalf of the WHO BRIEF INTERVENTION STUDY GROUP

¹Centre for Quality of Care Research, University Medical Centre Nijmegen, 229 WOK, PO Box 9101, 6500 HB Nijmegen, The Netherlands, ²Centre for Health Services Research, University of Newcastle upon Tyne, UK, ³Department of Public Health and Community Medicine, University of Sydney, Australia, ⁴World Health Organization, Geneva, Switzerland, ⁵Centre for Alcohol and Drug Studies, University of Northumbria, UK, ⁶Alcohol Unit of Generalitat. Clinical Institut of Psychiatry and Psychology Hospital Clinic, Barcelona, Spain and ⁷Scientific Society of Flemish General Practitioners, Department Research, Belgium

(Received 5 October 2003, first review notified 19 December 2003, in revised form 6 January 2004, accepted 11 January 2004)

Abstract — **Aims:** To determine if GPs' attitudes towards working with drinkers moderated the impact that training and support had on screening and brief intervention activity in routine practice. **Methods:** Subjects were 340 GPs from four countries who were part of a World Health Organization randomized controlled trial to evaluate the effectiveness of training and support in increasing screening and brief alcohol intervention. GPs' self-reported attitudes towards working with drinkers were measured with the Shortened Alcohol and Alcohol Problems Perception Questionnaire. **Results:** Whereas training and support increased GPs' screening and brief intervention rates, it did so only for practitioners who already felt secure and committed in working with drinkers. Training and support did not improve attitudes towards working with drinkers and, moreover, worsened the attitudes of those who were already insecure and uncommitted. **Conclusions:** To enhance the involvement of GPs in the management of alcohol problems, interventions that increase both actual experience and address practitioners' attitudes is required. Such support could take the form of on-site support agents and facilitators.

INTRODUCTION

Primary care health providers have been charged with the responsibility of identifying and intervening with patients whose drinking is hazardous or harmful to their health (Babor and Higgins-Biddle, 2001). Screening and brief intervention (SBI) for alcohol consumption among patients in primary health care provides an opportunity to educate patients about the risks of hazardous and harmful alcohol use. Information about the amount and frequency of alcohol consumption may inform the diagnosis of the patient's presenting condition, and it may alert clinicians to the need to advise patients whose alcohol consumption might adversely affect their use of medications and other aspects of their treatment. Of utmost importance for SBI programmes is the fact that people who are not dependent on alcohol may reduce or stop their alcohol consumption with appropriate assistance and effort. Once dependence has developed, reducing or stopping alcohol consumption is more difficult and often requires specialized treatment.

Although SBI programmes are effective (Moyer *et al.*, 2002), with very favourable benefit–cost ratios (Fleming *et al.*, 2002), primary care health workers commonly report that they are reluctant to screen and advise patients in relation to alcohol use (Roche and Richard, 1991; Roche *et al.*, 1991, 1996; Richmond and Mendelsohn, 1996; McAvoy *et al.*, 1999; Kaner *et al.*, 1999a; Cornuz *et al.*, 2000; Aalto *et al.*, 2001; Kaariainen *et al.*, 2001). Among the reasons most often cited

are lack of time, inadequate training, fear of antagonizing patients, the perceived incompatibility of alcohol brief intervention with primary health care, and the belief that those who are dependent on alcohol do not respond to interventions.

A meta-analysis of interventions to engage general practitioners (GPs) in the management of alcohol problems found significant increased effects for the intervention group compared with the control group of between 8% and 18% (Anderson *et al.*, 2004). General practitioners who report that they manage more patients with alcohol problems express increased role security and therapeutic commitment in their role as measured by the Short Alcohol and Alcohol Problems Perception Questionnaire (Anderson and Clement, 1987; Anderson *et al.*, 2003). Role security measures role adequacy, for example '*I feel I can appropriately advise my patients about drinking and its effects*'; and role legitimacy, for example, '*I feel I have the right to ask patients questions about their drinking when necessary*'. Role insecurity is expressed at the emotional level as therapeutic commitment which measures motivation, for example '*pessimism is the most realistic attitude to take toward drinkers*'; task-specific self-esteem, for example, '*all in all I am inclined to feel I am a failure with drinkers*'; and work satisfaction, for example, '*in general, it is rewarding to work with drinkers*'. Thus, it is important to investigate the extent to which general practitioners' attitudes moderate the relationship that support and training can have on delivering screening and brief alcohol interventions. Acting as moderators, role security and therapeutic commitment could affect both the strength and the direction of the relationships between support and training and screening and brief intervention rates (Baron *et al.*, 1986). It has also been proposed that providing support and training and the experience of SBI would in turn lead to strengthened role security and increased therapeutic commitment (Shaw *et al.*, 1978).

*Author to whom correspondence should be addressed at: Centre for Quality of Care Research, University Medical Centre Nijmegen, 229 WOK, PO Box 9101, 6500 HB Nijmegen, The Netherlands. Tel: +31243445130, Fax: +31243443137, E-mail: pdanderson@compuserve.com.

This paper reports on additional analysis of data from a World Health Organization (WHO) collaborative randomized controlled trial which demonstrated the effectiveness of training and support in promoting SBI screening and brief intervention by GPs for hazardous and harmful alcohol consumption (Gomel *et al.*, 1998; Kaner *et al.*, 1999b; Funk *et al.*, 2003). Two questions are asked: (i) do existing role security and therapeutic commitment moderate the relationship between support and increased screening and brief intervention? and (ii) do the provision of support, and undertaking SBI, lead to strengthened role security and therapeutic commitment over time and, if so, are the relationships moderated by existing role security and therapeutic commitment?

METHODS

The data utilized were from Australia, Belgium, Catalonia and England, and compared the impact of a high training and support group with a control group and also provided measurements of role security and therapeutic commitment of GPs.

The screening and brief intervention programme

The SBI programme, 'Drink-less' (Gomel *et al.*, 1994), based on a package of proven efficacy (Babor *et al.*, 1992), was translated and adapted for each participating country. Physicians and receptionists were asked to screen all eligible patients (patients aged 16 years of age and over who were not repeat attendees, who were well enough to complete the questionnaire, and who understood the native language of the country) using the WHO's AUDIT Questionnaire (Saunders and Aasland, 1987; Babor *et al.*, 2001) or a modification of this (Degenhardt *et al.*, 2001). The study design required receptionists to hand out screening questionnaires while patients waited to see the physician, and then to place a sticker on the patient's medical record to prevent repeat screening. Receptionists and physicians kept a tally of the number of patients who were not screened.

During the consultation, physicians scored the AUDIT questionnaires with a template to identify at-risk patients, using a cut-off score of 8 or more. Brief advice of 5–10 min was provided to at-risk patients using an advice card designed specifically for the study. Patients were given a self-help booklet that reinforced the advice. Carbon copies of completed screening questionnaires were collected to calculate the numbers of hazardous drinkers. The questionnaires included a section for the physician to record whether a patient had been advised and/or given a self-help booklet. At the end of the 12 week intervention period unused program materials were counted to verify the SBI rates (see below), blind to which support group the GP was allocated.

General practitioners and their allocation to the training and support and control groups

The GPs were random samples selected from databases of practitioners maintained by national or regional health authorities or by academies and associations of GPs who had requested and agreed to use an alcohol SBI program in an earlier trial (Funk *et al.*, 2003). This trial, which had randomly selected 2924 GPs from the databases of practitioners,

evaluated the effectiveness of three different marketing conditions (direct-mail, tele-marketing and academic detailing) in promoting the dissemination of the program. Of the 2924 GPs, 1366 (47%) requested the SBI programme, and 632 (22%) agreed to use the programme (46% of those who had requested the programme). Request and programme use were higher for the academic detailing and tele-marketing groups than for the direct mail group (Funk *et al.*, 2003). Of the 632 GPs who agreed to use the programme, 340 were randomly allocated either to a training and support (intervention) group ($n = 172$) or to a control group ($n = 168$), stratified by previous marketing condition and blind to the knowledge of the individual practitioner. The remaining 292 GPs were allocated to other support groups less intensive than the training and support group and not used by all four countries. Only one GP per practice was selected. The random selection of GPs and the random allocation to the intervention or control group occurred either via the use of random number tables and/or computer-based using random sample generation (e.g. SPSS).

In the control group, the package, containing written guidelines for implementation and the collection of research data, was either dropped-off or mailed to each practice without demonstration or ongoing training or support. In the training and support (intervention) group, both physicians and receptionists received initial outreach training in the implementation of the program. Use of the programme materials was demonstrated and procedures for collecting research data were detailed. They were provided with ongoing support and advice regarding program implementation issues via alternate fortnightly telephone calls and visits throughout the 12-week study period. Outreach training and ongoing support addressed a range of problems likely to be encountered during programme implementation. These included: attitudes and beliefs of the physician and receptionists (e.g. motivation and self-efficacy); patient intervention issues (e.g. difficulties with raising the topic of alcohol and negative patient reactions); structural/logistic issues (e.g. time constraints and other commitments); and practical suggestions for screening and counselling.

Screening and brief intervention rates

SBI rates were calculated blind as to whether the GP had been allocated to intervention or control. The screening rate for each GP was the number of patients screened during the 12-week intervention period divided by the number of patients eligible for screening (as defined above) $\times 100$. The brief intervention rate for each GP was the number of patients advised or given a self-help booklet during the 12-week intervention period divided by the total number of hazardous drinkers $\times 100$. The number of hazardous drinkers was identified independently by researchers from the results of the AUDIT questionnaire, using a cut-off score of 8 or more.

Both screening and brief intervention rates were highly skewed, with large proportions of general practitioners scoring zeros. The median value of the screening rate was 7.5% and of the brief intervention rate 2.8%. It was decided to dichotomize the sample into those with low activity ($< 20\%$ for screening and $< 10\%$ for brief intervention) and those with high activity ($\geq 20\%$ for screening and $\geq 10\%$ for brief intervention). A screening rate of 20% means, for an individual GP, that 20%

of eligible patients were screened and a brief intervention rate of 10% means that 10% of at-risk patients were advised or given a self-help booklet. Dichotomization was used to overcome the problem of skewness and to prepare the data (as dependent variables) for logistic regression analysis. It was decided to base the point of dichotomization on screening and intervention rates that might have clinical meaning and to result in an allocation in which approximately two thirds of the total sample of GPs were in the low activity groups and one third in the high activity groups. Varying the point of the dichotomization such that approximately two thirds of the total sample of GPs were in the high activity groups made no overall difference to the findings.

Role security and therapeutic commitment

Role security and therapeutic commitment were measured by responses to the SAAPPQ. The SAAPPQ is a validated instrument based on factor analysis (Anderson and Clement, 1987) of the original alcohol and alcohol problems perception questionnaire developed and validated by Cartwright (1980). The questionnaires were handed to the GPs at their place of work, where they were completed at baseline prior to the commencement of the study, and 3 months after the end of the study (6 months post baseline). The questionnaire asks the GP to indicate agreement to each of 10 statements on a 7-point Likert scale from 7 (strongly agree) to 1 (strongly disagree). The responses were summed within the two scales of role security and therapeutic commitment, as described above. Individual missing values for any of the items in a domain were assigned the mean value of the remaining items of the domain before summation. GPs were dichotomized by the median value at baseline into those with higher or lower role security (the top three items of the 7-point scale representing positive views versus the bottom four items representing negative views) and higher or lower therapeutic commitment (the top four items of the 7-point scale representing positive views versus the bottom three items representing negative views). Dichotomization was used to prepare the data (as dependent variables) for logistic regression analysis.

GPs were also dichotomized into those with higher or lower role security and higher or lower therapeutic commitment by the median value at 6-month follow-up, and into those with increased role security and therapeutic commitment between baseline and 6-month follow-up and those with not.

Analysis

The whole dataset was combined and analyzed at the level of the individual general practitioner. Multilevel logistic regression analyses were used to calculate odds ratios (OR) with 95% confidence intervals, with country as a nesting random factor, using SASv6.12, macro:glimmix. The gender and the age of the general practitioner were entered in the regression analyses. Interactions were tested and sub-group analyses performed to study the moderating impacts of baseline role security and therapeutic commitment.

RESULTS

The distribution of the variables by country is shown in Table 1.

Approximately one fifth of GPs in the control group scored high on SBI rates, whereas approximately two fifths of the general practitioners in the training and support group scored high on SBI rates. Whilst over two thirds (69.9%) of the total sample of GPs felt role secure, less than one fifth (16.4%) felt therapeutically committed. Calculations of the intra-class correlations estimated that 13.7% of the variance in screening rates, 22.2% of the variance in brief intervention rates and 12.3% of variance in expressed role security and therapeutic commitment were explained by the country or region of the general practitioner.

Of the 277 out of 340 GPs (81.5%) who completed the measure of role security and therapeutic commitment at baseline, 149 (54%) completed the scales 3 months after the end of the intervention period (6 months following the baseline measurement). A higher proportion of GPs with higher role security (67%) completed the 6-month follow-up questionnaire than GPs with lower role security (42%) ($\chi^2 = 15.7$, $P < 0.001$). The difference between those with higher therapeutic commitment (60%) and lower therapeutic commitment (52%) was not significant ($\chi^2 = 1.64$, $P = 0.124$). Whereas the difference in the proportion of GPs who completed the 6-month follow-up questionnaire between the training and support group (60%) and the control group (52%) was not significant, ($\chi^2 = 2.01$, $P = 0.098$), a higher proportion of GPs in the high screening (76%) and high brief intervention (70%) groups completed the 6-month follow-up questionnaire than general practitioners in the low screening (46%) ($\chi^2 = 20.64$, $P < 0.001$) and low brief intervention (48%) ($\chi^2 = 12.0$, $P < 0.001$) groups.

Table 1. Variables by country

Country/ region	GPs (n)	In training and support group	Scoring high on screening rates (%)		Scoring high on brief intervention rates (%)		Scoring in top half of possible	Scoring in top half of possible
			Control group	Training and support group	Control group	Training and support group		
Australia	76	55.3	32.4	59.5	26.5	61.9	85.5	19.7
Belgium	129	46.5	17.4	25.0	16.3	40.5	50.5	11.4
Catalonia	50	56.0	22.7	53.6	23.2	31.7	74.0	16.0
England	85	49.4	16.3	28.6	27.3	57.1	81.8	21.8
Total	340	50.6	20.8	39.0	22.6	45.3	69.9	16.4

Table 2. Odds ratios (95% CI) for the impact of the independent variables, training and support, baseline role security and baseline therapeutic commitment on high screening and high brief intervention rates*

Independent variables	High screening rates n = 277	High brief intervention rates n = 277
Training and support	2.2 (1.3–3.1)	2.8 (1.6–4.0)
Baseline role security	1.4 (0.8–2.0)	1.5 (0.9–2.1)
Baseline therapeutic commitment	0.9 (0.5–1.3)	0.7 (0.4–1.1)

*Separate multilevel logistic regression analyses for each independent variable on its own with country as random nesting factor.

Table 3. Odds ratios (95% CI) for the impact of training and support on screening and brief intervention rates in the presence of high and low baseline role security and high and low baseline therapeutic commitment*

		High screening rates	High brief intervention rates
Baseline role security	Low	0.8 (0.3–1.3)	1.3 (0.5–2.1)
	High	4.3 (2.1–6.5)	4.7 (2.3–7.1)
Baseline therapeutic commitment	High	1.3 (0.5–2.1)	2.1 (0.9–3.3)
	Low	3.5 (0.5–2.1)	3.4 (1.7–5.1)

*Separate multilevel logistic regression analyses for each independent variable on its own with country as random nesting factor.

Table 4. Odds ratios (95% CI) for the impact of the independent variables, training and support, high screening rates and high brief intervention rates on increased role security and increased therapeutic commitment at 6-month follow-up*

Independent variables	Increased role security at 6-month follow-up n = 149	Increased therapeutic commitment at 6-month follow-up n = 149
Training and support	1.1 (0.5–1.7)	0.8 (0.4–1.2)
High screening rates	1.2 (0.5–1.9)	1.5 (0.7–2.3)
High brief intervention rates	1.0 (0.5–1.5)	1.0 (0.5–1.5)

*Separate multilevel logistic regression analyses for each independent variable on its own with country as random nesting factor.

Do existing role security and therapeutic commitment affect the relationship that training and support has on screening and brief intervention rates?

Whereas training and support was associated with increased SBI rates (Table 2), baseline role security and therapeutic commitment were not.

Baseline role security and therapeutic commitment affected the relationship that training and support had with SBI rates. Training and support were only associated with increased SBI in the presence of high baseline role security and high baseline therapeutic commitment; with low baseline role security and

Table 5. Odds ratios (95% CI)* for the impact of training and support, high screening rates and high brief intervention rates on increased role security and therapeutic commitment at 6-month follow-up in the presence of high and low baseline role security and high and low baseline therapeutic commitment

Baseline role security	Increased role security			
	Baseline Therapeutic commitment		Increased therapeutic commitment	
Training and support	Low	0.2 (0.03–0.4)	Low	0.5 (0.1–0.9)
	High	2.0 (0.8–3.2)	High	1.2 (0.4–2.0)
High screening rates	Low	2.2 (0.5–3.9)	Low	0.8 (0.2–1.4)
	High	1.1 (0.4–1.8)	High	1.9 (0.7–3.1)
High brief intervention rates	Low	0.5 (0.1–0.9)	Low	0.8 (0.2–1.4)
	High	1.8 (0.7–2.9)	High	1.0 (0.4–1.6)

*Separate multilevel logistic regression analyses for each independent variable on its own with country as random nesting factor.

low baseline therapeutic commitment, training and support were not associated with increased SBI (Table 3).

Do training and support and undertaking screening and brief intervention lead to increased role security and therapeutic commitment over time?

For GPs with high role security and therapeutic commitment at baseline, the odds ratios for having high role security at 6-month follow-up was 0.6 (95% CI = 0.25–0.95) and for therapeutic commitment was 0.6 (95% CI = 0.3–0.9). Neither training and support nor high SBI rates were associated with increased role security and therapeutic commitment at 6-month follow-up (Table 4).

The baseline level of role security and therapeutic commitment affected the relationships that training and support and high SBI rates had with increased role security and therapeutic commitment at 6-month follow-up (Table 5). For GPs with low role security and low therapeutic commitment at baseline, training and support made the role security and therapeutic commitment worse over time. Undertaking high SBI rates had no impact on increases in role security and therapeutic commitment at 6-month follow-up for those practitioners who were already role secure and therapeutically committed. Undertaking high brief intervention rates actually made those who were already insecure in their role at baseline worse over time.

DISCUSSION

The findings demonstrated that GPs' initial attitudes affected the relationship that training and support had on increased SBI. Further, initial attitudes affected the relationships that training and support and SBI had on subsequent changes in attitudes. Training and support only increased SBI rates for those who were already role secure and therapeutically committed. Providing support did not improve subsequent role security and therapeutic commitment and, for those who were already role insecure and therapeutically uncommitted, actually made their role security and therapeutic commitment

worse. The experience of SBI did not increase role security and therapeutic commitment. For those who were already role insecure, the experience of brief interventions actually made role security worse.

The strength of the present analysis lies in the fact that it includes objective reported outcome measures for SBI rates from a large number of GPs (340) across four countries and regions. The analysis allowed for the inference of paths of causality. Role security and therapeutic commitment and the provision of training and support were measured prior to the measurement of SBI rates. Data were collected on screening and brief intervention rates for all participating GPs. There were subsequent measurements of role security and therapeutic commitment after the training and support intervention and the experience of SBI. However, only 54% of the GPs completed the attitudes questionnaire at 6-month follow-up. GPs who completed the questionnaire were more likely to have higher role security and to be more active in screening and brief intervention than GPs who did not complete the questionnaire. This suggests that the negative impact of training and support on GPs with low role security and therapeutic commitment at baseline might have been greater had all the GPs been followed up.

In general, the sample was less secure in their role and less therapeutically committed than the similar, but much larger, sample of GPs across nine countries analyzed in earlier survey-based work from the World Health Organization collaborative study (Anderson *et al.*, 2003b). The GPs undertook little activity for the management of alcohol problems, with as little as one in five of the control group (most equivalent to normal general practice) screening $\geq 20\%$ of their patients and advising $\geq 10\%$ of their at-risk patients.

In the present study, although providing training and support did increase SBI rates, its full potential was not realized, probably because the emotional responses of the GPs were not addressed. In the training and support group, GPs received initial training in the use of the programme with a practice based visit, together with ongoing advice and support on programme implementation issues addressing the attitudes and beliefs of the GPs, patient intervention issues and structural and logistic issues. It is difficult to judge the quality with which the individual interventions were given, and it may have been that the short initial training session and continued support were not sufficient to deal with the emotional responses that are raised in the management of alcohol problems.

Shaw *et al.* (1978) proposed that simple education alone would not be enough to improve GPs' management of alcohol problems, and that a combination of education and training and the provision of a supportive working environment would be required. At the practice level, there is some evidence to support the value of on-site support agents (e.g. facilitators) to act as role models, coaches and colleagues in shared care arrangements for dealing with what could be described as more sensitive and non-traditional areas of care (Richmond and Anderson, 1994; Rush *et al.*, 1995).

It may be that intensive interventions targeted at professional development and organizational changes in the practice are required. An intervention that provided 2.5 h training in counselling, supplemented with an office-based support system that screened patients, cued providers to intervene and made

patient materials available, had a major impact on improving alcohol counselling as measured at patient exit interview (OR = 12.9; 95% CI = 10.1–15.8). This effect was stable over 32 months of follow-up (Adams *et al.*, 1998).

It may also be that the responsibility for SBI should be shared more broadly throughout the primary health care team. The less well explored option of the role of the practice nurse could be further developed (Deehan *et al.*, 1998; Tomson *et al.*, 1998; Andréasson *et al.*, 2000; Owens *et al.*, 2000; Lock *et al.*, 2002).

Finally, the calculations of the intra-class correlations showed that a sizeable proportion of the variance in role security and therapeutic commitment, and in SBI, were explained by the country or region of the GP. Thus, although the results were consistent across the countries, it may be that the provision of support would need to be adjusted to the particular characteristics of the primary health care system and possibly to wider cultural factors in each society. This is the aim of the ongoing Phase IV study of the WHO collaborative project on the detection and management of alcohol-related problems in primary health care (Heather, 2001).

In conclusion, although professionally and organizationally based programmes can lead to an increased engagement of GPs in screening and delivering brief intervention for hazardous and harmful alcohol consumption, the situation appears to be more complicated in that there is an interaction between the provision of support, the GPs' attitudes and the management of alcohol problems. Indeed, in the absence of role security and therapeutic commitment, the impact of professionally and organizationally based programmes is considerably diminished. Although the importance of acquiring experience of dealing with drinking problems in a supportive environment has been emphasized as a crucial element in securing professional commitment for the detection and management of alcohol problems, unless the emotional responses of GPs are taken into account, the impact of such support will not achieve its full potential. This should be an approach that future research and programme development should bear in mind.

REFERENCES

- Aalto, M., Pekuri, P. and Seppa, K. (2001) Primary health care nurses' and physicians' attitudes, knowledge and beliefs regarding brief intervention for heavy drinkers. *Addiction* **96**, 305–111.
- Adams, A., Ockene J., Wheller, E. and Hurley, T. (1998) Alcohol counselling: physicians will do it. *Journal of General Internal Medicine* **13**, 692–698.
- Anderson, P. and Clement, S. (1987) The AAPPQ Revisited. Measurement of general practitioners' attitudes to alcohol problems. *British Journal of Addiction* **82**, 753–759.
- Anderson, P. (1996) *Alcohol and primary health care*. WHO Regional Publications. European Series No 64. WHO Regional Office for Europe.
- Anderson, P., Kaner, E., Wutzke, S., Wensing, M., Heather, N. and Grol, R. (2003) Education, role support and the management of alcohol problems in general practice. *Alcohol and Alcoholism* **38**, 597–601.
- Anderson, P., Laurant, M., Kaner, E., Grol, R. and Wensing, M. (2004) The engagement of general practitioners in the management of alcohol problems: a systematic review and meta-analysis. *Journal of Alcohol Studies* **65**(2), 191–199.
- Andréasson, S., Hjalmarsson, K. and Rehman, C. (2000) Implementation and dissemination of methods for prevention of

- alcohol problems in primary health care: a feasibility study. *Alcohol and Alcoholism* **35**, 525–530.
- Babor, T. F., Lauerman, R., Kranzler, H., McRee, B., Korner, P., Wiber, C. and Possente-Good, S. (1992) Farmington, USA. In *Project on Identification and Management of Alcohol-Related Problems Report on Phase II: a Randomized Clinical Trial of Brief Interventions in Primary Care*, Babor, T. F. and Grant, M. eds, pp. 191–209. World Health Organization, Geneva, Switzerland.
- Babor, T. F. and Higgins-Biddle, J. C. (2001) Brief Intervention For Hazardous and Harmful Drinking. A Manual for Use in Primary Care. Geneva: World Health Organization WHO/MSD/MSB/01.6b.
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B. and Monteiro, M. G. (2001) *The Alcohol Use Disorders Identification Test. Guidelines for Use in Primary Care*. Geneva: World Health Organization WHO/MSD/MSB/01.6a.
- Baron, R. M. and Kenny, D. A. (1986) The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* **51**, 1173–1182.
- Cartwright, A. J. K. (1980) The attitudes of helping agents to the alcoholic client: the influence of experience, support, training and self-esteem. *British Journal of Addiction* **77**, 413–431.
- Cornuz, J., Ghali, W. A., Di Carantonio, D., Pecoud, A. and Paccaud, F. (2000) Physicians' attitudes towards prevention: importance of intervention-specific barriers and physicians' health habits. *Family Practice* **17**, 535–540.
- Deehan, A., Templeton, L., Taylor, C., Drummond, C. and Strang, J. (1998) Are practice nurses an unexplored resource in the identification and management of alcohol misuse? Results from a study of practice nurses in England and Wales in 1995. *Journal of Advanced Nursing* **28**, 592–597.
- Degenhardt, L., Wutzke, S. W., Conigrave, K. M. and Saunders, J. B. (2001) The validity of an Australian modification of the AUDIT questionnaire. *Drug and Alcohol Review* **20**, 143–154.
- Fleming, M. F., Mundt, M. P., French, M. T., Manwell, L. B., Stauffacher, E. A. and Barry, K. L. (2002) Brief Physician Advice for Problem Drinkers: Long-Term Efficacy and Benefit–Cost Analysis. *Alcoholism: Clinical and Experimental Research* **26**, 36–43.
- Funk, M., Wutzke, S., Kaner, E., Anderson, P., Pas, L., McCormick, R., Gual, A. and Barfod, S. (2003) A multi-country randomised controlled trial of strategies to promote dissemination and implementation of brief alcohol intervention in primary health care: Findings of a WHO Collaborative Study. *Addiction*. In Press.
- Gomel, M., Saunders, J. B., Burns, L., Hardcastle, D. and Sumich, M. (1994) Dissemination of early intervention for harmful alcohol consumption in general practice. *Health Promotion Journal of Australia* **4**, 65–69.
- Gomel, M. K., Wutzke, S. E., Hardcastle, D. M., Lapsley, H. and Reznik, R. B. (1998) Cost-effectiveness of strategies to market and train primary health care physicians in brief intervention techniques for hazardous alcohol use. *Social Science and Medicine* **47**, 203–211.
- Heather, N. (2001) *WHO collaborative project on identification and management of alcohol-related problems in primary health care. Phase IV: development of country-wide strategies for implementing early identification and brief intervention in primary health care (Study Protocol)*. Copenhagen: World Health Organization Regional Office for Europe.
- Kaariainen, J., Sillanaukee, P., Poutanen, P. and Seppa, K. (2001) Opinions on alcohol-related issues among professionals in primary, occupational, and specialized health care. *Alcohol and Alcoholism* **36**, 141–146.
- Kaner, E. F., Heather, N., McAvoy, B. R., Lock, C. A. and Gilvarry, E. (1999a) Intervention for excessive alcohol consumption in primary health care: attitudes and practices of English general practitioners. *Alcohol and Alcoholism* **34**, 559–566.
- Kaner, E. F., Lock, C. A., McAvoy, B. R., Heather, N. and Gilvarry, E. (1999b) A RCT of three training and support strategies to encourage implementation of screening and brief alcohol intervention by general practitioners. *British Journal of General Practice* **49**, 699–703.
- Lock, C. A., Kaner, E., Lamont, S. and Bond, S. (2002) A qualitative study of nurses' attitudes and practices regarding brief alcohol intervention in primary health care. *Journal of Advanced Nursing* **39**, 333–342.
- McAvoy, B. R., Kaner, E. F., Lock, C. A., Heather, N. and Gilvarry, E. (1999) Our Healthier Nation: are general practitioners willing and able to deliver? A survey of attitudes to and involvement in health promotion and lifestyle counselling. *British Journal of General Practice* **49**, 187–190.
- Monteiro, M. G. and Gomel, M. (1998) World Health Organization project on brief interventions for alcohol-related problems in primary health care settings. *Journal of Substance Abuse* **3**, 5–9.
- Moyer, A., Finney, J. W., Swearingen, C. E. and Vergun, P. (2002) Brief interventions for alcohol problems: a meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. *Addiction* **97**, 279–292.
- Owens, L., Gilmore, I. T. and Pirmohamed, M. (2000) General Practice nurses' knowledge of alcohol use and misuse: A questionnaire survey. *Alcohol and Alcoholism* **35**, 259–262.
- Richmond, R. L. and Anderson, P. (1994) Lessons from conducting research in general practice for smokers and excessive drinkers: the experience in Australia and the United Kingdom. 3. Implementation of intervention programmes. *Addiction* **89**, 49–62.
- Richmond, R. L. and Mendelsohn, C. P. (1998) Physicians' views of programs incorporating stages of change to reduce smoking and excessive alcohol consumption. *American Journal of Health Promotion* **12**, 254–257.
- Roche, A. M. and Richard, G. P. (1991) Doctors' willingness to intervene in patients' drug and alcohol problems. *Social Science and Medicine* **33**, 1053–1061.
- Roche, A. M., Guray, C. and Saunders, J. B. (1991) General practitioners' experiences of patients with drug and alcohol problems. *British Journal of Addiction* **86**, 263–275.
- Roche, A. M., Parle, M. D. and Saunders, J. B. (1996) Managing alcohol and drug problems in general practice: a survey of trainees' knowledge, attitudes and educational requirements. *Australia and New Zealand Journal of Public Health* **20**, 401–408.
- Rush, B. R., Crowe, T. G., Powell, L. Y. and Ellis, K. S. (1995) Substance Abuse Facilitator Model: health promotion training for family physicians. *Journal of Continuing Education in the Health Professions* **15**, 106–116.
- Saunders, J. B. and Aasland, O. G. (1987) *WHO Collaborative Project on the Identification and Treatment of Persons with Harmful Alcohol Consumption. Report on Phase I: Development of a Screening Instrument*. Geneva: World Health Organization.
- Shaw, S., Cartwright, A., Spratley, T. and Harwin, J. (1978) *Responding to drinking problems*. Croom Helm, London, UK.
- Tomson, Y., Romelsjo, A. and Aberg, H. (1998) Excessive drinking—brief intervention by primary health care nurse. A randomized controlled trial. *Scandinavian Journal of Primary Health Care* **16**, 188–192.