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Article

Professional's Attitudes Do Not Influence Screening and Brief Interventions Rates for Hazardous and Harmful Drinkers: Results from ODHIN Study

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Abstract

Aims: To determine the relation between existing levels of alcohol screening and brief intervention rates in five European jurisdictions and role security and therapeutic commitment by the participating primary healthcare professionals.

Methods: Health care professionals consisting of, 409 GPs, 282 nurses and 55 other staff including psychologists, social workers and nurse aids from 120 primary health care centres participated in a cross-sectional 4-week survey. The participants registered all screening and brief intervention activities as part of their normal routine. The participants also completed the Shortened Alcohol and Alcohol Problems Perception Questionnaire (SAAPPQ), which measure role security and therapeutic commitment.

Results: The only significant but small relationship was found between role security and screening rate in a multilevel logistic regression analysis adjusted for occupation of the provider, number of eligible patients and the random effects of jurisdictions and primary health care units (PHCU). No significant relationship was found between role security and brief intervention rate nor between therapeutic commitment and screening rate/brief intervention rate. The proportion of patients screened varied across jurisdictions between 2 and 10%.

Conclusion: The findings show that the studied factors (role security and therapeutic commitment) are not of great importance for alcohol screening and BI rates. Given the fact that screening and brief intervention implementation rate has not changed much in the last decade in spite of increased policy emphasis, training initiatives and more research being published, this raises a question about what else is needed to enhance implementation.

INTRODUCTION

Despite strong evidence for the effectiveness and cost-effectiveness of screening and brief alcohol intervention (SBI) in primary health care settings (PHC) (Anderson, 1996; Fleming *et al.*, 2002; Moyer *et al.*, 2002; Kaner *et al.*, 2007; ScHARR Public Health Collaborating Centre, 2009) implementation is still considered to be far too low in relation to the proportion of patients with risky and heavy drinking seen in PHC (Anderson, 2009; Nilsen, 2010; Drummond *et al.*, 2013). In a review of effectiveness of strategies to implement SBI in primary health care it was seen that implementations effectiveness (material utilization, screening and BI rates) generally increased with the intensity of the implementation effort. Nevertheless, in all reviewed studies, the overall effect was rather modest (Nilsen *et al.*, 2006).

A numbers of barriers such as lack of time and resources as well as inadequate support hamper SBI in PHC (Nilsen *et al.*, 2006; ScHARR Public Health Collaborating Centre, 2009; Nilsen, 2010. Insufficient knowledge and skills by staff have been suggested as important barriers in several reports, including negative attitudes among practitioners not agreeing that SBI is a legitimate part of their work (Anderson, 2009; Nilsen, 2010).

In order to overcome some of these barriers a number of implementation projects have been conducted during the last decade. These studies mainly focus on professional education and organizational barriers, but do not address staff attitudes. Studies that offered tailored strategies, including work on attitudes did not seem to be successful in changing negative attitudes. More research into PHC practitioner's role security, therapeutic commitment and motivation for BI implementation has been suggested in order to gain more knowledge on how to design effective implementation strategies (Funk *et al.*, 2005; Nilsen *et al.*, 2006).

There is some evidence that with more positive role security and therapeutic commitment providers are managing more patients with risky and heavy drinking (Shaw *et al.*, 1978; Anderson *et al.*, 2003). In a recent cross-sectional survey of 2345 GPs in eight European jurisdictions a high level of role security was expressed but less therapeutic commitment (Anderson *et al.*, 2014). Providers with higher values of role security and therapeutic commitment reported managing a higher number of patients with risky and heavy alcohol use.

One study in primary care with a tailored multi-faceted programme to increase role security and therapeutic commitment in the Netherlands showed an increase of the GPs therapeutic commitment but not role security, one year after the programme was implemented (Keurhorst *et al.*, 2014). Screening and BI rate did not improve, probably due to no change in role security and therapeutic commitment (van Beurden *et al.*, 2012; Keurhorst *et al.*, 2014). A similar study in the US resulted in both improved role security and therapeutic commitment but again no improvement on screening and BI rates was observed (Seale *et al.*, 2012).

Underlining, however, the importance of role security and therapeutic commitment, in an overview by Anderson in 2009, it was found that although training and support has shown to have some effects on the implementation of BI, the absence of means of increasing role security and therapeutic commitment of participants in such educational programmes might diminish the effect and in certain cases could even be harmful to those who have low levels of role security and therapeutic commitment at baseline (Anderson, 2009).

Survey data of GPs in the UK, both in 1999 and 2009, showed high levels of role security but lack of therapeutic commitment. The reason given for the lack of progress was practical limitations for preventive service such as lack of time and support rather than attitudinal (Wilson *et al.*, 2011).

In summary, the evidence so far is not conclusive regarding the relation between role security and therapeutic commitment among primary health care professionals and SBI rates. Furthermore, the relationship has mostly so far been examined among GPs using cross-sectional self-reporting of number of patients managed. It is important from a public health perspective to investigate and enhance effective implementation strategies to increase activities in SBI for hazardous and harmful alcohol consumption in primary health care).

The present study reports results of a 4-week survey performed before the implementation of the optimizing delivery of health care intervention (ODHIN) study and analysis the existing levels of SBI rates in five European jurisdictions in relation to role security and therapeutic commitment by the participating primary healthcare professionals.

METHODS

The ODHIN study is a cluster randomized factorial trial undertaken in 120 primary health care units (PHCUs) in Catalonia, UK, the Netherlands, Poland and Sweden (Keurhorst *et al.*, 2013). To assess the relationship between role security and therapeutic commitment and SBI behaviour we used data collected at baseline before the start of the main implementation study.

Study setting and participants

Each of the 120 participating PHCUs had approximately 5000–20,000 registered patients. In Poland, since practitioners normally operate as single-handed entities working with other practitioners in one building, two or three practitioners and their staff working in one building were considered as one PHCU. Those units who agreed to

participate in the study were volunteers drawn from administrative or academic registries of PHCU at national or regional levels in the participating jurisdictions.

Eligible providers in each unit included any fully trained GPs, nurses, social workers, psychologists or practice assistants with a non-temporary employment contract involved in medical and/or preventive care. In Poland only GPs participated in the study. At the start of the study all eligible providers within the PHCU were identified by the research team and the study was explained to them in an introductory meeting. In the introductory meeting interested providers were given a short overview of the study and asked to sign an informed consent if interested in participating. An option was given to sign the consent form within a week. Interested providers not able to participate in the introductory meeting were given a personal introduction by a lead contact person appointed by the PHCU for the trial.

A total of 746 individual providers agreed to take part and signed an informed consent form; 409 GP's, 282 nurses and 55 'other staff' entailing psychologist, social workers and nurse aids.

In some jurisdictions, the PHCU received a basic research fee for participating in the ODHIN study. In The Netherland the fee to each PHCU was €250, in Poland €500–750 and in Sweden €2500. In Catalonia and UK no basic research fee was given.

Measures

Screening and brief intervention

During the four-week measurement period, the participating providers were asked to manage hazardous and harmful drinking patients as close as possible to their usual routines. Thus, each provider had to decide when a screening was appropriate to perform during a consultation and then register each screening and brief intervention activity on a special tally sheet designed for the study, with the exception of Catalonia who used their electronic patient records. The tally sheets included AUDIT-C scores (i.e. identification of at risk patients) with additional boxes to indicate the type of brief advice that was delivered to the patients at risk.

Patients were to be screened for hazardous or harmful alcohol consumption with the AUDIT-C questions. Screen positives were defined in Catalonia and UK as men and women who scored ≥5 on AUDIT-C, and in Poland, The Netherlands and Sweden as men who scored ≥5 and women who scored ≥4 on AUDIT-C as per jurisdiction definitions of hazardous or harmful drinking. During the baseline measurement period, no specific instructions were given concerning the length and content of the brief intervention but if any advice was given (including only handing over a leaflet) this was to be recorded as a brief intervention.

Screening and brief advice rates

Screening and brief advice were measured on paper tally sheets. The screening rate was calculated as the number of patients screened divided by the number of patients eligible for screening in the time frame, i.e. all visit to the PHCU being 18 years of age or older per participating provider times 100. The brief advice rate was calculated as the number of screen positive patients that received oral brief advice, or were referred to another provider in or outside the practice for brief advice, divided by the total number of screen positive patients per participating provider times 100. Information was also collected on the number of screen negatives who received brief advice.

Role security and therapeutic commitment

Role security and therapeutic commitment of the participating providers in working with patients with alcohol use disorders were measured by the short version of the Alcohol and Alcohol Problems Perception questionnaire (SAAPPQ) (Anderson, 1985; Anderson and Clement, 1987). Respondents were informed that the questions are designed to explore the attitudes of staff working with people with alcohol use disorders. The term alcohol use disorders was not defined. The questionnaire comprised 10 statements, which addressed five subscales: (a) role adequacy (b) role legitimacy; (c) motivation; (d) task specific self-esteem; and (e) work satisfaction. Responses to the statements were scored from 1 (strongly disagree) to 7 (strongly agree). Scores on the subscales 'role adequacy' and 'role legitimacy' were merged to form an index of 'role security', as described by Anderson and Clement (1987), originally derived from the full Alcohol and Alcohol Problems Perception Questionnaire (AAPPQ) (Cartwright, 1980) with a total score ranging from 4 to 28. The subscales relating to 'self-esteem', 'motivation' and 'work satisfaction' were merged to an index of 'therapeutic commitment' with a score ranging from 6 to 42 as described by Anderson and Clement (1987), originally derived from the full AAPPQ (Cartwright, 1980). 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.

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'.

The SAAPPQ was derived from the full AAPPQ, which had been developed and validated as part of the Maudsley Alcohol Pilot Project (MAPP) set up to design a comprehensive community response to alcohol problems (Shaw *et al.*, 1978). Scores on the indices of role security and therapeutic commitment were found to be predictive of the involvement of primary care providers (including general practitioners and social workers) in managing alcohol problems. Providers who were role insecure were also therapeutically uncommitted. By providing training and support in their role, providers increased their experience and effectiveness in managing alcohol problems, reflected through increased role security and therapeutic commitment.

Practice and provider characteristics

Besides the SAAPPQ questionnaire, the survey also included questions regarding practice and provider characteristics. These concerned age, sex and profession of the individual provider. Profession were divided into GP, Nurse or other staff including psychologist, social worker or nurse aids.

Analysis

The primary outcomes of the multilevel analysis (individuals nested within PHCU nested within jurisdictions) were screening and brief advice rates. The distribution of screening rate per provider was highly positive skewed and a logarithmic transformation did not help to normalize the distribution, therefore screening rate was dichotomized at the median and analysed by logistic regression (Table 1).

The distribution of BI rate per provider was skewed in more than one direction and therefore it was categorized into three categories; low, middle and high BI rate and analysed by ordered logistic regression with cut points Low: BI-rate ≤0.4; Middle: BI-rate >0.4 and <1; High: BI-rate = 1 (Table 1). The distribution of BI rate was multimodal

with a low peak at 0 with 19% of the observations (85/443 = 19%) and a ceiling effect at 1 with 55% of the observations (244/443 = 55%). A cut point of 0.4 was therefore chosen so approximately half of the observations strictly lower than 1 were between 0 and 0.4 (102/443 = 23%), and half between 0.4 and 1 (97/443 = 22%).

The analysis of SBI rate in relation to role security and therapeutic commitment was performed with a multilevel regression analysis taking into account the hierarchical structure of the data (individuals nested within PHCU nested within jurisdictions) with random intercept in order to examine the association of screening and BI rate with role security and therapeutic commitment adjusted for occupation of the provider, number of eligible patients (for the analysis of screening rate) and numbers screened (for the analysis of BI rate).

Effect modification analysis was performed for possible interaction between role security and therapeutic commitment with occupation by adding the appropriate interaction term to the adjusted multilevel regression model. Multilevel logistic regression models adjusted for the random effects of PHCU and jurisdiction were then calculated separately by occupation. Effect modification analysis to assess jurisdiction-by-occupation interaction was performed by adding a random slope effect for occupation at the jurisdiction level to the multilevel regression model. Multilevel logistic regression models adjusted for the random effect of PHCU were then calculated separately by jurisdiction for GPs, nurses and 'other staff'.

The statistical analysis was performed using STATA 13.0. A level of 5% was considered as statistically significant.

RESULTS

Study population

A total of 746 individual providers from 120 PHCU signed an informed: 409 GPs, 282 nurses and 55 'other staff' entailing psychologist, social workers and nurse aids. The number of eligible providers per practice averaged 6.2, which ranged from 2.75 to 9.96 across the jurisdictions. Most participants managed to screen at least one patient but 160 providers (21.4%) did not record screening a single patient during the 4-week survey period. The proportion of non-active providers was highest for GP's (28.9%) (Table 2).

The number of registered patients averaged 10,000 across the 120 practices, with averaged 1500 eligible consultations per practice during the four-week baseline period. Thus the included PHCUs take care for a population of 1.2 million people, and saw about 179,954 eligible patients during the four-week period.

Screening and brief intervention rates

A total of 9609 patients (5.3%) were screened. The mean screening rate ranged from 1.7% in Poland to 9.8% in Sweden (Table 3).

A total of 1626 (16.9%) patients had a positive AUDIT-C score ranging from 4.7% of the screened patients in Catalonia to 43.4% in UK (Table 4). Of these positive screened patients 1202 (73.9%) were given a brief intervention. The proportion of screened positive receiving brief intervention varied from 59.2% in Catalonia to 94.2% in Poland.

Role security and therapeutic commitment

On average the providers scored 21.00 (SD 3.51) on role security and 27.20 (SD 4.67) on therapeutic commitment, which could be regarded as providers felt secure and were therapeutic committed. GP's had a slightly higher role security than all other providers but the lowest therapeutic commitment; this was highest for the staff group 'others' (Table 5). For all staff categories the Swedish staff had both the highest role security therapeutic commitment. In a series of separate bivariate correlation analysis between the screening and brief intervention rates and role security and therapeutic commitment in various staff categories and in each jurisdiction, all correlations were small and non-significant except for the 'other staff' category ($n = 21$) in the Netherlands (Spearman correlation between screening rate and role security, $r = 0.55$ ($P = 0.01$)).

Table 1. Median and interquartile range of screening and BI rate in the five participating jurisdictions

Jurisdictions	Screening		Brief interventions	
	Sample	Median screening rate (IQR)	Sample	Median BI rate (IQR)
Catalonia	239	4.0% (0.9–9.6%)	110	66.7% (0.0–100.0%)
UK	122	2.4% (0.3–6.9%)	90	100.0% (87.1–100.0%)
The Netherlands	153	2.7% (0.6–13.5%)	109	100.0% (50.0–100.0%)
Poland	66	0.0% (0.0–1.4%)	25	100.0% (100.0–100.0%)
Sweden	166	6.5% (1.4–21.1%)	109	100.0% (42.2–100.0%)
Total	746	3.1% (1.0–11.2%)	443	100.0% (50.0–100.0%)

Table 2. Participating providers in each jurisdictions divided into staff categories and active and non-active participation (*having screened at least one patient during the 4-week measurement period*)

Jurisdictions	GP		Nurse		Other		Total	
	Active	Non-active	Active	Non-active	Active	Non-active	Active	Non-active
Catalonia	105	20	105	8	0	1	210	29
UK	52	20	33	4	10	3	95	27
The Netherlands	64	24	41	3	15	6	120	33
Poland	31	35	0	0	0	0	31	35
Sweden	39	19	72	16	19	1	130	36
Total	291	118	251	31	44	11	586	160

Table 3. Characteristics of numbers of screened patients in relation to numbers of eligible patients and numbers of providers for each participating jurisdiction

Jurisdictions	Numbers of participating providers	Numbers of eligible patients	Numbers of patients screened	Proportion of patients screened[a] %
Catalonia	239	83,327	5325	6.4
UK	122	26,104	1042	4.0
The Netherlands	153	25,366	1388	5.5
Poland	66	31,615	527	1.7
Sweden	166	13,542	1327	9.8
Total	746	1,79,954	9609	5.3

[a]Calculated as total numbers of patients screened divided with the total numbers of eligible patients for each jurisdictions times 100.

Table 4. Screening rate, positive screening rate and brief intervention rate for each jurisdiction

Jurisdictions	Numbers screened positive	Proportion of patients screened positive %	Numbers receiving brief intervention	Proportion of patients with a positive screening receiving brief intervention
Catalonia	250	4.7	148	59.2
UK	452	43.4	390	86.3
The Netherlands	465	33.5	335	72.0
Poland	103	19.5	97	94.2
Sweden	356	26.9	232	65.2
Total	1626	16.9	1202	73.9

Table 5. Mean (SD) score for role security (RCB)[a] and therapeutical commitment (TCB)[b] divided into jurisdiction and occupation

Jurisdictions	GP mean (SD)		Nurses mean (SD)		Others mean (SD)		Total mean (SD)	
	RSB	TCB	RSB	TCB	RSB	TCB	RSB	TCB
Catalonia	20.31 (2.55)	27.30 (3.14)	18.85 (3.08)	26.65 (4.11)	–	–	19.62 (2.89)	26.98 (3.63)
UK	22.35 (3.13)	27.39 (4.26)	20.41 (3.93)	28.54 (3.69)	20.06 (4.03)	28.64 (6.32)	21.52 (3.60)	27.87 (4.34)
The Netherlands	20.93 (3.67)	25.05 (3.99)	19.64 (3.17)	25.75 (4.16)	17.52 (3.16)	25.94 (2.24)	20.08 (3.64)	25.38 (3.85)
Poland	21.71 (3.11)	25.04 (5.55)	–	–	–	–	21.71 (3.11)	25.04 (5.55)
Sweden	24.29 (2.28)	29.44 (5.25)	22.36 (3.18)	29.35 (5.36)	23.60 (3.28)	30.95 (5.73)	23.17 (3.03)	29.57 (5.36)
Total	21.59 (3.25)	26.76 (4.54)	20.29 (3.56)	27.61 (4.69)	20.36 (4.27)	28.36 (5.21)	21.00 (3.51)	27.20 (4.67)

[a]The scale range from 0 to 28.
[b]The scale range from 0 to 42.

Screening rate in relation to role security

The association between role security and screening rate was statistically significant (OR = 1.07, 95% CI = [1.01, 1.14], $P = 0.02$) in the multilevel logistic regression analysis adjusted for occupation of the provider, number of eligible patients and the random effects of jurisdiction and PHCU. In this analysis, the screening rate was significantly higher among nurses (OR = 8.31, 95% CI = [4.99, 13.87], $P < 0.001$) and other staff (OR = 7.02, 95% CI = [3.07, 16.03], $P < 0.001$) compared to GPs. The number of eligible patients of the individual provider did not influence the association between role security and the screening rate ($P = 0.06$).

There was a statistically significant effect modification between role security and occupation ($P = 0.04$). Therefore the multilevel analysis was stratified by occupation. Role security was related to a statistically significant increase in screening rate in function of role security among 'other staff' (OR = 1.39, 95% CI = [1.06, 1.83], $P = 0.02$). The association between role security and screening rate was not statistically significant neither among GPs (OR = 1.06, 95% CI = [0.96, 1.16], $P = 0.25$), nor among nurses (OR = 1.05, 95% CI = [0.94, 1.16], $P = 0.39$).

There was a significant effect modification between jurisdiction and occupation ($P = 0.003$). Therefore the multilevel analyses were stratified by occupation and jurisdiction. There was a statistically significant difference between jurisdiction among GPs ($P = 0.04$) where Poland and Sweden were the only jurisdictions with an odds ratio lower than 1 (NS), and among nurses ($P = 0.005$) where the Netherlands were the only jurisdictions with an odds ratio lower than 1 (NS). No effect modification was seen for the 'other staff' group ($P = 0.87$) where all jurisdictions had an odds ratio higher than 1 (NS).

Screening rate in relation to therapeutic commitment

The association between therapeutic commitment and screening rate was not statistically significant (OR = 1.02, 95% CI = [0.98, 1.07], $P = 0.36$) in the multilevel logistic regression analysis adjusted for occupation of the provider, number of eligible patients and the random

effects of jurisdiction and PHCU. In this analysis, the screening rate was significantly higher among nurses (OR = 7.17, 95% CI = [4.40, 11.68], $P < 0.001$) and other staff (OR = 5.70, 95% CI = [2.56, 12.69], $P < 0.001$) compared to GPs. The number of eligible patients of the individual provider did influence the association between therapeutic commitment and the screening rate (OR = 0.998, 95%CI = [0.997, 1.000], $P = 0.04$).

There was an effect modification between therapeutic commitment and occupation ($P = 0.02$). Therefore the multilevel analysis was stratified by occupation. The odds ratio of screening rate in function of therapeutic commitment were not statistically significant but were higher than 1 both for GPs (OR = 1.04, 95% CI = [0.97, 1.11], $P = 0.27$) and 'other staff' (OR = 1.15, 95% CI = [0.93, 1.43], $P = 0.19$), and lower than 1 for nurses (OR = 0.94, 95% CI = [0.87, 1.01], $P = 0.11$).

There was a significant effect modification between jurisdiction and occupation ($P = 0.003$). Therefore the multilevel analyses were stratified by occupation and jurisdiction. There was a statistically significant difference between jurisdiction among GPs ($P = 0.04$) where Poland and UK were the only jurisdictions with an odds ratio lower than 1 (NS), and nurses ($P = 0.004$) where UK was the only jurisdiction with an odds ratio higher than 1 (NS). No effect modification was seen for the 'other staff' category ($P = 0.82$) where all jurisdictions had an odds ratio higher than 1 (NS).

BI-rate in relation to role security

The association between role security and BI rate was not statistically significant (OR = 1.00, 95% CI = [0.94, 1.06], $P = 0.93$) in the multilevel ordered logistic regression analysis adjusted for occupation of the provider, numbers screened and the random effects of jurisdiction and PHCU. In this analysis, the BI rate was significantly different between nurses versus GPs (OR = 0.63, 95% CI = [0.40, 1.00], $P = 0.048$), but was not significantly different between other staff versus GPs (OR = 0.61, 95% CI = [0.28, 1.35], $P = 0.23$. The number of screened patients of the individual provider did influence the association between role security and the BI rate (OR = 0.99, 95% CI = [0.98, 1.00], $P = 0.006$).

There was no evidence of effect modification between role security and occupation ($P = 0.87$), and neither between jurisdiction and occupation ($P = 0.49$).

BI rate in relation to therapeutic commitment

The association between therapeutic commitment and BI rate was not statistically significant (OR = 0.99, 95%CI = [0.94, 1.04], $P = 0.74$) in the multilevel logistic regression analysis adjusted for occupation of the provider, screened numbers and the random effects of jurisdiction and PHCU. In this analysis, the BI rate was significantly different between nurses versus GPs (OR = 0.63, 95% CI = [0.41, 0.99], $P = 0.04$), but was not significantly different between other staff versus GPs (OR = 0.63, 95% CI = [0.28, 1.39], $P = 0.25$). The number of screened patients of the individual provider did influence the association between therapeutic commitment and the BI rate (OR = 0.99, 95%CI = [0.98, 1.00], $P = 0.007$). There was no evidence of effect modification between therapeutic commitment and occupation ($P = 0.71$), and neither between jurisdiction and occupation ($P = 0.49$).

DISCUSSION

The aim of this study was to explore how role security and therapeutic commitment relates to actual SBI rates. However the only significant but weak association (OR = 1.07, 95%CI = [1.01, 1.14], $P = 0.02$) was found for role security and screening rate. The number of eligible patients of the individual provider did not influence the association between role security and the screening or BI rate.

A significant effect modification was seen between role security and occupation where the staff group 'other' was the only group that displayed a significant increase in screening rate with increasing role security. We found no significant relationship between therapeutic commitment and screening rate in the multilevel analysis. We neither found a significant relationship between role security and therapeutic commitment in relation to brief intervention rates.

The null-findings in our study concerning factors influencing screening and BI rate could on one hand suggest that other factors not studied might be more important (e.g. clinical priorities, management support or workload) or there could be a disjoint between practitioners' attitudes (as reflected in role security and therapeutic commitment) and their behaviour (as measured by screening and BI rate). We know that there can be a gap between intention and behaviour and that this might be explained by other factors at play that we did not measure such as other clinical priorities, management support or logistical challenges such as workload.

The null-findings could imply that the SAAPPQ is not a valid instrument for differentiating primary health care providers in their approach to screening and brief intervention for hazardous and harmful drinking. However, we do not think that this is the case. The SAAPPQ was derived by factor analysis (Anderson and Clement, 1987) as a shortened survey version of the full AAPPQ, which had been developed and validated as part of the MAPP set up to design a comprehensive community response to alcohol problems (Shaw *et al.*, 1978). The MAPP found that primary care providers (physicians and social workers) failed to recognize and respond to drinking problems because they felt anxieties about their role adequacy through not having the information and skills necessary to recognize and respond to drinkers; and, anxieties about their role legitimacy through being uncertain as to whether or how far drinking problems came within their responsibilities (Shaw *et al.*, 1978). Primary care providers who experienced anxiety about these areas were defined on the basis of their responses to the AAPPQ as role insecure. Role insecurity was found to be caused by deficiencies either in primary health care providers' training or in their working situation. Role insecurity was expressed at the emotional level as therapeutic commitment, which measures motivation. Various versions of the AAPPQ were used by Cartwright and his colleagues but all contained within them a series of statements about working with clients with alcohol-related problems with which the respondent was asked to indicate the extent of agreement on a seven point scale ranging from 'strongly agree' to 'strongly disagree'. For each scale a score was obtained by summing the individual item scores. Reliability and validity data relating to these scales have been reported (see Cartwright, 1980; also see Clement, 1986; Lightfoot and Orford, 1986; Bush and Williams, 1988). By providing training and support in their role, providers in the MAPP increased their experience and effectiveness in managing alcohol problems, reflected through increased role security and therapeutic commitment.

The SAAPPQ has been widely used in different countries and cultures over sustained periods of time (UK, see Anderson, 1985; Wilson *et al.*, 2011; nine-country WHO study, see Anderson *et al.*, 2003, 2004; six-country AMPHORA study, see Drummond *et al.*, 2013 and the eight-country ODHIN study, see Anderson *et al.*, 2014). In all these studies, individual country and cross-country distributions of the role security and therapeutic commitment scales have been normally distributed with only relatively small variations in means and standard deviations between countries.

In cross-sectional surveys, scores on both role security and therapeutic commitment have been associated with differential provider behaviour. For example, cross-sectional surveys based on self-reported SBI outcome have found that both role security and therapeutic commitment are associated with an increased number of patients managed for hazardous drinking and alcohol problems (Anderson *et al.*, 2003, 2014). The associations may be explained by self-report data, with no external means of validation. Further, when surveys find a strong association between role security and therapeutic commitment with reported number of patients managed for heavy drinking, we do not know if it is role security and therapeutic commitment that predicts a higher number of patients reported as managed, or if it is that providers who report that they have managed a higher number of patients, score higher on role security and therapeutic commitment. However, similar to the present survey, when objective measurements of behaviour are used, the WHO Phase III survey failed to find role security and therapeutic commitment being associated with higher screening and BI rates (Anderson *et al.*, 2004).

Interestingly, and in support of the validity of the SAAPPQ scales in differentiating provider behaviour, the WHO Phase III study, found that, whereas training and support increased general practitioners' screening and brief intervention rates, it only did so for practitioners with initially high role security and therapeutic commitment. Surprisingly, the provision of training and support did not improve attitudes towards working with drinkers, and, for those who were already insecure in their role and who were therapeutically uncommitted, made attitudes worse, suggesting that training and support needs to be tailored to baseline attitudes. Also, in the WHO study, engagement in screening and brief intervention activity did not improve subsequent attitudes. For practitioners who were already insecure in their role, experience in brief interventions actually made their role security worse. In the ODHIN trial, we will be investigating the extent to which training and support and financial reimbursement change SAAPPQ scores over time, and the extent to which changes in SBI activity over time are related to changes in SAAPPQ scores over time (Keurhorst *et al.*, 2013).

In general the participating providers in the current study displayed a fairly high level of role security but lower therapeutic commitment. In four of the jurisdictions (Spain, UK, Netherlands and Poland), a survey of a regional (Catalonia and UK) or national representative sample of general practitioners has also measured role security and therapeutic commitment (Anderson *et al.*, 2014). The providers in the present study had higher role security (mean 21.00, SD 3.51) than the representative sample (mean 20.55, SD 2.94), anova, $F = 13.7$, $P < 0.001$; they also had higher therapeutic commitment (mean 27.20, SD 4.67) than the representative sample (mean 24.67, SD 4.74), anova, $F = 129.3$, $P < 0.001$. Comparing only the GPs in the present sample with the GPs in this national representative sample we found that they had higher role security (mean 21.59, SD 3.25) than the representative sample (mean 20.55, SD 2.94), anova, $F = 25.4$, $P < 0.001$. They also had higher therapeutic commitment (mean 26.76, SD 4.54) than the representative sample (mean 24.67, SD 4.74), anova, $F = 57.75$, $P < 0.001$.

A 10-year comparison between GP's attitudes and practices showed a stable high role security and relative low therapeutic commitment, especially low levels of motivation and job satisfaction, when working with either risky or heavy drinkers (18). From these findings it appears that increasing therapeutic commitment remains to be a great challenge in future SBI implementation projects and calls for new translational designs of 'personalized implementation' in order to match the individual providers needs and interest (Wilson *et al.*, 2011; van Beurden *et al.*, 2012).

Screening rates

The proportion of patients screened varied across jurisdictions between 2 and 10% (Table 3), which is comparable with the WHO phase III study performed more than a decade ago (Funk *et al.*, 2005). In the present study the median screening rate was 3% and the IQR 1–11%, compared to a median screening rate on 1% and IQR on 0–11% in the WHO phase III study. Although the number of participating providers and thereby eligible patients varied considerable between jurisdictions no systematic difference was seen concerning screening rate in each jurisdiction (Table 3). However, in Catalonia where the numbers of eligible patients was far higher than in the remaining jurisdictions only 5% of the screened patients were screened positive in contrast to around 20–50% in the remaining jurisdictions (Table 4). This difference in screened positive might be explained by difference in the various jurisdictions concerning the average age of patients seeking PHC as well as frequency of visits.

Strengths and limitations

The strength of the present study is that it is an empirical study aiming at actually measuring the proportion of patients managed instead of a cross-sectional study were participants are asked to estimate the proportion of patient managed with hazardous or harmful drinking. However, a limitation is that we used self-completion tally sheets by staff or computerized medical records. Also, the included PHCU were heterogenic within and across jurisdictions, which on the other hand might reflect real practice.

CONCLUSION

Our study found no evidence that SBI rates were largely influenced by role security or therapeutic commitment. We only found a weak relationship between screening rate and higher role security. Given that the behaviour, as measured with SBI rates, has not changed much in the last decade in spite of increased policy emphasis, training initiatives and more research being published, this raises a question about what else is needed to increase implementation. The findings show that the studied factors are of lower importance for alcohol screening and BI rate and other factors such as clinical priorities, management support or workload might be more important for the implementation of SBI.

Another question to find answer to is what is an appropriate level of screening or if it is meaningful to try to increase screening rate more than the 5% level as found in this study.

The results of the forthcoming ODHIN implementation trial might give some new insight on the importance of the effect of three different implementation strategies (training plus support, financial reimbursement and referral opportunities to an internet-based brief advice programme) on screening and brief advice rates (Keurhorst *et al.*, 2013). These strategies might show to be more important than changing attitudes alone that have a modest relationship to activity. It may also be that we have not yet identified the key ingredient necessary for implementation. Should we be thinking about more direct marketing of SBI to the general population rather than relying on implementation via practitioners?

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CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

Anderson P. (1985) Management of alcohol problems in general practice. *BMJ* **290**:1873–5.

Anderson P. (1996) The effectiveness of general practitioners' advice in reducing the risk of alcohol. In Lawrence M, Neil A, Fowler G, Mant D (eds). *Prevention of Cardiovascular Disease: An Evidence-Based Approach, Volume 2nd*. Oxford: Oxford University Press.

Anderson P. (2009) Overview of interventions to enhance primary-care provider management of patients with substance-use disorders. *Drug Alcohol Rev* **28**:567–74.

Anderson P, Clement S. (1987) The AAPPQ revisited: the measurement of general practitioners' attitudes to alcohol problems. *Br J Addict* **82**:753–9.

Anderson P, Kaner E, Wutzke S, *et al.* (2003) Attitudes and management of alcohol problems in general practice: descriptive analysis based on findings of a WHO international collaborative survey. *Alcohol Alcohol* **38**:597–601.

Anderson P, Kaner E, Wutzke S, *et al.* (2004) Attitudes and managing alcohol problems in general practice: an interaction analysis based on findings from a WHO collaborative study. *Alcohol Alcohol* **39**:351–6.

Anderson P, Wojnar M, Jakubczyk A, *et al.* (2014) Managing alcohol problems in general practice in Europe: results from the European ODHIN survey of general practitioners. *Alcohol Alcohol* **49**:531–9.

Bush RA, Williams RJ. (1988) Generalist health and welfare workers' response to alcohol related problems: role legitimacy and the need for role support, an example from an Australian rural community. *Drug Alcohol Depend* **22**:105–11.

Cartwright AKJ. (1980) The attitudes of helping agents towards the alcoholic client: the influence of experience, support, training and self esteem. *Br J Addict* **75**:413–31.

Clement S. (1986) The identification of alcoholrelated problems by general practitioners. *Br J Addict* **81**:257–64.

Drummond C, Wolstenholme A, Deluca P, *et al.* (2013) Alcohol interventions and treatment in Europe. In Anderson P, Braddick F, Reynolds J, Gual A (eds). *Alcohol Policy in Europe: Evidence from AMPHORA*. 2nd edn. The AMPHORA Project. http://amphoraproject.net/w2box/data/e-book/Chapter%209%20-%20AM_E-BOOK_2nd%20edition%20-%20July%202013.pdf (3 March 2015, date last accessed).

Fleming MF, Mundt MP, French MT, *et al.* (2002) Brief physician advice for problem drinkers: long-term efficacy and benefit-cost analysis. *Alcohol Clin Exp Res* **26**:36–43.

Funk M, Wutzke S, Kaner E, *et al.* (2005) A multicountry controlled trial of strategies to promote dissemination and implementation of brief alcohol intervention in primary health care: findings of a WHO Collaborative Study. *J Stud Alcohol* **66**:379.

Kaner EF, Beyer F, Dickinson HO, *et al.* (2007) Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database Syst Rev* **18**:CD004148.

Keurhorst MN, Anderson P, Spak F, *et al.* (2013) Implementing training and support, financial reimbursement, and referral to an internet-based brief advice program to improve the early identification of hazardous and harmful alcohol consumption in primary care (ODHIN): study protocol for a cluster randomized factorial trial. *Implement Sci* **24**:11.

Keurhorst M, van Beurden I, Anderson P, *et al.* (2014) GPs' role security and therapeutic commitment in managing alcohol problems: a randomised controlled trial of a tailored improvement programme. *BMC Fam Pract* **17**:70.

Lightfoot PJC, Orford J. (1986) Helping agents' attitudes towards alcohol-related problems: situations vacant? A test and elaboration of a model. *Br J Addict* **81**:749–59.

Moyer A, Finney J, Swearingen C, *et al.* (2002) Brief interventions for alcohol problems: a meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. *Addiction* **97**:279–92.

Nilsen P. (2010) Brief alcohol intervention–where to from here? Challenges remain for research and practice. *Addiction* **105**:954–9.

Nilsen P, Aalto M, Bendtsen P, *et al.* (2006) Effectiveness of strategies to implement brief alcohol intervention in primary healthcare. A systematic review. *Scand J Prim Health Care* **24**:5–15.

ScHARR Public Health Collaborating Centre. (2009) Screening and Brief Interventions for Prevention and Early Identification of Alcohol Use Disorders in Adults and Young People. http://admin.nice.org.uk/nicemedia/live/11828/45665/45665.pdf (3 March 2015, date last accessed).

Seale JP, Velasquez MM, Johnson JA, *et al.* (2012) Skills-based residency training in alcohol screening and brief intervention: results from the Georgia-Texas 'Improving Brief Intervention' Project. *Subst Abus* **33**:261–71.

Shaw S, Cartwright A, Spratley T, *et al.* (1978) *Responding to Drinking Problems*. Baltimore MD: University Park Press, 1–269.

van Beurden I, Anderson P, Akkermans RP, *et al.* (2012) Involvement of general practitioners in managing alcohol problems: a randomised controlled trial of a tailored improvement programme. *Addiction* **107**:1601–11.

Wilson G, Lock C, Heather N, *et al.* (2011) Intervention against excessive alcohol consumption in primary health care: a survey of GPs' attitudes and practices in England ten years on. *Alcohol Alcohol* **46**:570–7.