

**TITLE PAGE****Support for community pharmacy-based alcohol interventions: A Scottish general public survey.**

Niamh Fitzgerald, Institute for Social Marketing, UK Centre for Tobacco and Alcohol Studies, School of Health Sciences, University of Stirling

Elaine Youngson, School of Pharmacy and Life Sciences, Robert Gordon University

Scott Cunningham, School of Pharmacy and Life Sciences, Robert Gordon University

Margaret Watson, Health Services Research Unit, University of Aberdeen

Derek Stewart, School of Pharmacy and Life Sciences, Robert Gordon University

**Corresponding Author**

Derek Stewart, Professor of Pharmacy Practice, School of Pharmacy and Life Sciences, Robert Gordon University, Riverside East, Garthdee Road, Aberdeen, UK. AB10 7GJ.

d.stewart@rgu.ac.uk +44(0)1224 262432

The authors have no conflicts to declare.

The study was funded by Robert Gordon University.

## **ABSTRACT**

### **Background**

Community pharmacy teams are recognised by health agencies as vital to increasing capacity in the provision of public health services. Public awareness and support of these services in general, and relating to safe alcohol consumption in particular, have yet to be established.

This study aimed to determine the Scottish general public's views regarding the role and involvement of community pharmacists in reducing alcohol consumption amongst customers and alcohol-related harm.

### **Methods**

A cross-sectional survey of 6,000 adults in Scotland randomly sampled from the electoral register. The piloted questionnaire contained items on: those health professions which could potentially advise on safer alcohol consumption; areas of safer alcohol consumption on which pharmacists could advise; attitudes towards pharmacist involvement; and demographics.

### **Results**

Of the 1573 respondents (a 26.6% response rate), more than half (56.4%, 888) agreed that pharmacists could advise on safer alcohol consumption. Those agreeing expressed high levels of support ( $\geq 70\%$  agreement) for all activities, particularly referring people to other individuals or organisations, discussing recommended alcohol consumption limits and how consumption may affect health. There was a high level of agreement of trust that pharmacists would discuss issues confidentially (68.7%, 1080), with a similar proportion (64.3%, 1011) agreeing that they would be concerned over privacy in a community pharmacy.

### **Conclusion**

Public support exists for pharmacist involvement in reducing alcohol consumption amongst customers and alcohol-related harm, with some concern over privacy. These findings warrant consideration as models of practice are developed and evaluated. Given the widespread

availability of pharmacies and the ease of access to professional advice, there is potential for pharmacists to impact safer alcohol consumption although the efficacy of alcohol brief interventions remains to be demonstrated.

**KEYWORDS**

Alcohol drinking, pharmacy, public health, questionnaires, Scotland

## INTRODUCTION

Alcohol consumption causes around 3.3 million deaths annually and is responsible for 5.1% of the global burden of disease.<sup>1</sup> Consumption of alcohol, in particular at higher levels, is associated with liver and cardiovascular disease, many cancers, mental health problems and with an increased risk of accidents, violence and injuries.<sup>2</sup> Hazardous, harmful and dependent alcohol consumption harms families, relationships, businesses and government.<sup>3</sup> One in 20 deaths in Scotland is attributable to alcohol<sup>4</sup>, with estimates of the total personal, social and economic cost of alcohol in Scotland equating to £7.5 billion per year.<sup>5</sup>

The contribution of community pharmacy to public health has been recognised and valued for many years by policy makers and the public<sup>6-9</sup> with evidence of benefit in smoking cessation,<sup>10</sup> cardiovascular disease,<sup>11</sup> diabetes,<sup>12</sup> emergency hormonal contraception<sup>13</sup> and obesity.<sup>14</sup> Support for these roles has been expressed by the United Kingdom Government<sup>15</sup> and professional bodies.<sup>16</sup>

Over the past decade, there has been growing interest in the potential role for pharmacists in reducing alcohol consumption and related harm<sup>17</sup> yet, there is limited evidence of efficacy to inform service development. Studies have demonstrated the feasibility and acceptability of pharmacists delivering alcohol brief interventions (ABIs).<sup>18-25</sup> Studies with pharmacy customers in England and New Zealand suggest broad support for pharmacists taking on this role.<sup>26,27</sup> While small studies of the general public's views on the public health role of pharmacists more broadly indicate some reservations, particularly about privacy.<sup>28,29</sup>

This study aimed to determine the Scottish general public's views regarding the role and involvement of community pharmacists in reducing alcohol consumption amongst customers and alcohol-related harm.

## **METHODS**

### ***Study design***

A cross-sectional survey using a mailed questionnaire.

### ***Questionnaire development***

The questionnaire was developed then reviewed for face and content validity by an expert panel of two academic pharmacists, one practitioner working in substance abuse and one health policy maker in Scotland, all with expertise in alcohol related developments. The questionnaire was piloted by mailing to a random sample of 500 members of the general public in Scotland aged 18 years and over, along with a letter inviting participation stating the research background and aims, and a reply paid envelope. Piloting resulted in minimal changes to questionnaire wording and format. The questionnaire contained items on: health professionals who could potentially advise on safer alcohol consumption (12 items); specific areas of safer alcohol consumption on which pharmacists could advise (8 items); attitudes towards pharmacist involvement in advising on safer alcohol consumption (10 items); the Fast Alcohol Screening Test (FAST)<sup>30</sup> (4 items); recommended alcohol consumption limits (5 items); health services utility (7 items); and demographics, with definitions and labels informed by Scotland's Census 2011 (6 items).<sup>31</sup> Closed questions and 5-point Likert scale attitudinal statements were used. Pictures of common alcohol beverages and their units were provided for completion of FAST.

### ***Sampling***

The final version of the questionnaire was mailed in November 2011 to a random sample of 6000 members of the general public ( $\geq 18$  years) in Scotland, obtained from the electoral roll. While the roll is updated annually by sending a canvass form to every house in Scotland, it only includes those who return the form and agree to their information being in the public domain.<sup>32</sup> A sample size of 6,000 was calculated to allow for a response rate of around 25% and to permit sub-group analysis. One thousand responses would give a precision of 3% with confidence of intervals of 95%. The following evidence based strategies adopted to maximise the response rate included: an invitation letter from an academic institution; provision of a reply paid envelope; up to two reminders sent to non-respondents at monthly intervals; and entering respondents into a prize draw for £50 of shopping vouchers.<sup>33</sup>

Data were entered into SPSS version 21.0 and analysed using descriptive and inferential statistics. Demographic data were compared to Scottish census 2011 data. Respondent postcodes were used to determine their Scottish Index of Multiple Deprivation (SIMD) quintiles<sup>34</sup> and compared to national data. FAST scores were calculated and those scoring  $\geq 3/16$  deemed to be hazardous/harmful drinkers.

Chi-square tests were used to determine any associations between categorical variables (e.g. sex, hazardous/harmful drinking) and the outcomes of those agreeing or disagreeing/unsure that pharmacists could advise on safer alcohol consumption. Independent sample t-test was used for the continuous variable of age. P values  $\leq 0.05$  were considered statistically significant.

### ***Ethics***

This study was approved by the Ethics Panel of the School of Pharmacy & Life Sciences at Robert Gordon University, UK; the North of Scotland Research Ethics Committee advised that the study was exempt from NHS ethical review.

## RESULTS

A total of 1573 completed questionnaires were returned (response rate of 26.6%, adjusted for those returned undelivered). Demographic data are given in Table 1.

*Insert Table 1 here*

Mean respondent age was 56.6 years (standard deviation 24.0), 59% (970) were male and almost all (98.4%, 1548) were white. While SIMD codes were generally similar to Scottish population data, respondents were older, more likely to be retired and male, and less likely to be single, in education and training or unemployed. Nearly one third of respondents (30.6%, 482) had a FAST score  $\geq 3$ , indicative of harmful or hazardous drinking: although the figures are not directly comparable, the Scottish Health Survey 2013 found that 25% of men and 12% of women had an AUDIT score of 8 or more indicating drinking at a hazardous or harmful level.<sup>35</sup>

Respondents were generally unaware of recommended alcohol consumption levels, with almost half answering 'don't know' in response to questions on: recommended maximum number of units of alcohol that a man should consume in one week (46.9%, 738); recommended maximum number of units of alcohol that a man should consume in one day (47.9%, 753); recommended maximum number of units of alcohol that a woman should consume in one week (50.0%, 786); recommended maximum number of units of alcohol that a woman should consume in one day (49.1%, 772); and recommended number of alcohol free days that men and women should have each week (49.7%, 782).

More than half (56.4%, 888) of respondents agreed that pharmacists could advise on safer alcohol consumption. Responses for all professions are given in Figure 1.

*Insert Figure 1 here*

Table 2 gives associations of demographic and other variables and those agreeing or disagreeing/unsure that pharmacists could advise on safer alcohol consumption.

*Insert Table 2 here*

There were significant differences in relation to deprivation category (least deprived more likely to agree,  $p=0.045$ ), sex (males more likely to agree,  $p=0.041$ ) and highest level of education (those possessing a university qualification more likely to agree,  $p=0.007$ ). There were no differences in terms of the other variables tested: age ( $p=0.265$ ); ethnicity ( $p=0.383$ ); health status ( $p=0.481$ ); harmful/hazardous drinkers ( $p=0.387$ ); and those using a community pharmacy in the last three months ( $p=0.108$ ).

The number of respondents agreeing that pharmacists could advise on safer alcohol consumption (56.4%, 888) was statistically significantly less than pharmacist involvement in the management of drug misuse (74.4%, 1170,  $p<0.0001$ ), smoking (68.3%, 1074,  $p<0.005$ ); and sexually transmitted disease (58.8%, 925,  $p<0.005$ ). There were no statistically significant differences when compared to views on pharmacy involvement in the management of heart disease (65.0%, 1022,  $p=0.226$ ) and obesity (64.2%, 1010,  $p=0.443$ ).

Those respondents who were supportive of pharmacist involvement in promoting safer drinking were also asked about their agreement on specific ways in which pharmacists could be involved. High levels of support ( $\geq 70\%$  agreement) were obtained for all activities:



“referring people to other individuals (such as doctors) or organisations (such as voluntary services and self help groups) who could help with alcohol drinking” (88.5%, 786); “recommended drinking limits” (86.8%, 771); “how drinking may affect or be affecting their health” (86.3%, 766); “how to measure alcohol units in common drinks” (85.2% 757); “options of reducing the risks from drinking alcohol” (84.9%, 754); “ideas and tips for sticking to plans to change drinking” (81.5%, 724); “positives and negatives of drinking” (78.4%, 696); and “how much alcohol they are drinking” (70.0%, 622).

Responses to attitudinal statements are given in Table 3. The highest levels of agreement were confidence in pharmacists discussing how alcohol impacts health (70.0%, 1101), and trust that such issues would be discussed confidentially (68.7%, 1080). Respondents were more comfortable discussing alcohol with a doctor than a pharmacist (77.5%, 1219) and were concerned of the lack of privacy in a community pharmacy when discussing alcohol (64.3%, 1011).

*Insert Table 3 here*

## **DISCUSSION**

This is the first published large-scale survey of the views of a general public population on the involvement of community pharmacists in advising on safer alcohol consumption. Results indicate that the Scottish general public is supportive, with more than half of respondents agreeing that pharmacists could advise on safer alcohol consumption. Furthermore, more than two-thirds expressed their confidence and trust in pharmacists discussing issues relating to alcohol. This finding is in line with that of a recent small street-based survey of the general public<sup>24</sup> and builds on findings of support from studies undertaken with customers recruited directly through community pharmacies<sup>26,27</sup> and with recipients of alcohol brief interventions

in community pharmacy feasibility studies.<sup>18-25</sup> It also builds on existing knowledge of public trust in pharmacists more widely, as evidenced in narrative and systematic reviews of pharmacy based public health activities.<sup>10-14</sup>

The level of support for pharmacist involvement in alcohol was less than that for other public health focused activities such as smoking cessation. This may reflect greater public awareness, perhaps partly through media advertising of smoking-related community pharmacy services and pharmacy based products. Interestingly, those with a university education were statistically significantly much more likely to agree to pharmacist involvement in advising on safer alcohol consumption. While the reason for this difference is unknown, it may reflect a greater awareness of the level and depth of education and training which pharmacists have undertaken. Male respondents and those residing in areas less deprived were also more likely to agree, although the level of significance was much lower. Qualitative phenomenological research is required to provide in depth data and understanding of these issues.

Approximately three quarters of respondents stated a preference for discussing alcohol with their doctor, rather than a pharmacist, and a majority noted concerns around privacy in pharmacies. The expressed preference to discuss these issues with a doctor may reflect existing relationships and/or a lack of awareness of the expertise of the pharmacist. Focus groups with 26 members of the general public in Scotland on experiences of pharmacy services also identified many preferred to see a doctor as pharmacy was seen to offer incomplete services which did not co-ordinate well with other primary-care services.<sup>36</sup> The issue of privacy is commonly raised in studies with the general public, particularly in relation to public health interventions.<sup>28,29,36</sup> However, those using pharmacy services are

much less likely to raise concerns of privacy.<sup>37</sup> It seems possible that the general public who are not accessing clinical services through pharmacies may be unaware of recent contractual developments such as the requirement for pharmacies to have consultation rooms.

Nonetheless, privacy in pharmacies warrants consideration as models of practice are developed and evaluated, focusing on issues of how and in what point in their contact with the pharmacy team will those in need of alcohol brief interventions be identified and offered support without compromising privacy.

Almost one-third of respondents self-reported a FAST score indicative of harmful or hazardous drinking: this is slightly higher than that found by the Scottish Health Survey using the AUDIT,<sup>38</sup> although the measures are not directly comparable.<sup>35</sup> Those with scores indicative of harmful or hazardous drinking were no more likely to be supportive of pharmacist involvement in advising on safer alcohol consumption than the remainder. It may be that those with FAST scores of 3 or above were unaware that they were consuming alcohol to harmful or hazardous levels (as awareness was generally low). It would also be surprising if some of those consuming at higher levels, who were aware of the risks but not wishing to address them, would want their consumption to be explored and addressed when they are accessing other services in a pharmacy.

Approximately half of the respondents were unable to answer questions relating to recommended alcohol consumption limits. This is a much higher level of awareness than in a previous study with supermarket customers in Scotland<sup>39</sup> but as with other studies internationally,<sup>40,41</sup> illustrates that a large proportion of the population remain unaware of what constitutes lower-risk alcohol consumption. These results highlight the need for increasing awareness of the general public, although it is important to note that awareness-

raising alone is considered a less effective strategy for tackling alcohol problems than policies aimed at reducing affordability and availability.<sup>42,43</sup> Nonetheless, many members of the public may benefit if community pharmacy provision enables increased access to effective alcohol brief interventions.

While the number of responses obtained exceeded the number required for a precision of 3% with a confidence interval of 95%, we acknowledge that the study findings are limited by the low response rate of 26.6% and hence the results should be interpreted with caution. There is the potential for response bias: respondents were similar to the Scottish general population in terms of deprivation, however more likely to be older and male, and so decreasing the likelihood of generalisability to younger, more female populations. Differences in healthcare systems and cultures between Scotland and elsewhere may limit generalisability to other countries. There may also have been issues of social desirability bias and the validity of the self reported data could not be established.

This study provides evidence about the acceptability to the general public of the provision of alcohol interventions by community pharmacists. Studies have also shown that pharmacists broadly welcome supporting safer alcohol consumption as an expanded role, albeit with some concerns about having time to take it on and their likely training needs.<sup>19,44</sup> The Scottish Government has also demonstrated its support for pharmacist involvement in safer alcohol consumption.<sup>45</sup> While the national target for the delivery of ABIs introduced in 2008, focused initially only on primary care (and did not include pharmacies), emergency and antenatal settings (ref Scottish Government Health Department 2008), community pharmacy-led ABI was later included within various 'wider settings'.<sup>45</sup>

It has been argued that feasibility studies should lead to efficacy trials (to determine if a model intervention can work under ideal circumstances), then effectiveness trials (to determine if an efficacious intervention can work in real-world conditions), which should in turn precede implementation studies (to determine how to achieve routine delivery of an effective intervention).<sup>46,47</sup> There has been both a pilot and full randomised controlled trial of such interventions: the former was not powered to, and the latter failed to yield evidence of effectiveness.<sup>20,21,48</sup> Neither would have been considered efficacy studies, and there is as yet therefore no good evidence supporting the efficacy or effectiveness of ABIs in the pharmacy setting. Despite this, implementation has progressed in an increasing number of sites.<sup>49-51</sup> The next phase of research should involve an efficacy (rather than effectiveness) trial, i.e. using ideal conditions and informed by emerging evidence on alcohol brief intervention design and content more generally<sup>52</sup> as well as by the increasing body of evidence specific to community pharmacy as cited above. Such a trial should also be constructed so as to recognise emerging thinking on sources of bias in behavioural intervention trials, which is one hypothesised reason for lack of effectiveness in previous trials.<sup>53</sup>

Given the widespread availability of community pharmacies and the ease of access to professional advice, involving pharmacists in advising on safer alcohol consumption, including the provision of ABIs, has the potential to impact on public health at relatively little cost. This research has further demonstrated the acceptability of pharmacist involvement on this topic, and further research on the efficacy of a model intervention is now needed prior to any widespread service delivery.

## **ACKNOWLEDGEMENTS**

The research team gratefully acknowledge the input of Andrew McAuley, Janie Sheridan, Ranjita Dhital and Lucy Skea to questionnaire design and Aine Burke, Greg Headspeath, Jacqueline Hay, Maeve Leahy, Matthew Hamilton, Fiona Leavy, Stacey Beats, Stephen Hemingway, Craig McDonald and Linda Adams to data collection and input. Funding was provided by Robert Gordon University. Summary findings were presented orally at the Royal Pharmaceutical Society Conference, Birmingham, UK, 2013.

## **CONFLICTS OF INTEREST**

The authors have no conflicts of interest to declare.

## **KEY-POINTS**

- The Scottish general public is supportive of community pharmacist involvement in the provision of alcohol interventions..
- Key areas of support are around pharmacists referring people to other individuals or organisations, discussing recommended alcohol consumption limits and how consumption may affect health.
- Given the widespread availability of pharmacies and the ease of access to professional advice, there is potential for pharmacists to impact safer alcohol consumption, if efficacious interventions can be developed.

## REFERENCES

1. World Health Organisation. Global Status Report on Alcohol and Health. Geneva: 2014.
2. Friedland D, Brunton I, Potts J. Falls and traumatic brain injury in adults under the age of sixty. *Journal Community Health* 2014;39(1):148–50.
3. Room R, Ferris J, Laslett AM, Livingston M, Mugavin J, Wilkinson C. The drinker's effect on the social environment: a conceptual framework for studying alcohol's harm to others. *Int J Environ Res Public Health* 2010;7(4):1855–71.
4. Grant I, Springbett A, Graham L. Alcohol attributable mortality and morbidity: alcohol population attributable fractions for Scotland. National Services Scotland, Scottish Government, Edinburgh: 2009.
5. Johnston MC, Ludbrook A, Jaffray MA. Inequalities in the distribution of the costs of alcohol misuse in Scotland: a cost of illness study. *Alcohol Alcohol* 2012;47(6):725–31.
6. Anderson S. Community pharmacy and public health in Great Britain, 1936 to 2006: how a phoenix rose from the ashes. *J Epidemiol Community Health* 2007;61:844–848.
7. Anderson C, Blenkinsopp A, Armstrong M. Feedback from community pharmacy users on the contribution of community pharmacy to improving the public's health: a systematic review of the peer reviewed and non-peer reviewed literature 1990-2002. *Health Expect* 2004;7:191–202
8. Eades CE, Ferguson JS, O'Carroll RE. Public health in community pharmacy: a systematic review of community pharmacist and consumer views. *BMC Public Health* 2011;11:1–45.
9. Agomo CO. The role of community pharmacists in public health: a scoping review of the literature. *JPHSR* 2012;3(1): 25-33.
10. Saba M, Diep J, Saini B, Dhipayom T. Meta-analysis of the effectiveness of smoking cessation interventions in community pharmacy. *J Clin Pharm Ther* 2014;39(3), 240-247.

11. Santschi V, Chiolero A, Burnand B, Colosimo AL, Paradis G. Impact of pharmacist care in the management of cardiovascular disease risk factors: a systematic review and meta-analysis of randomized trials. *Arch Internal Med* 2011;171(16):1441-1145.
12. Evans SD, Watson E, Eurich DT, Taylor JG, Yakiwchuk EM, Shevchuk Y, et al et al. Diabetes and cardiovascular disease interventions by community pharmacists: a systematic review. *Ann Pharmacother* 2011;45(5):615-628.
13. Hametz I, Hodgkiss F, Sheehy C. Review of the Community Pharmacy Public Health Service for Smoking Cessation and Emergency Hormonal Contraception. Scottish Government: Edinburgh, 2011. ISBN 978 1 780455174.
14. Gordon J, Watson M, Avenell A. Lightening the load? A systematic review of community pharmacy-based weight management interventions. *Obes Rev*2011;12(11): 897-911.
15. Department of Health. Choosing Health Through Pharmacy: A Programme for Pharmaceutical Public Health 2005–2015. Department of Health: London, 2005.
16. Royal Pharmaceutical Society. Professional Standards for Public Health Practice for Pharmacy For pharmacists and pharmacy teams working in England and Wales. Royal Pharmaceutical Society: London, 2014
17. McAuley A, Watson M, Stewart D et al. Increasing capacity in alcohol screening and brief interventions: A role for community pharmacy? NHS Health Scotland: Edinburgh, 2012. Available at <http://www.healthscotland.com/documents/5757.aspx> [Accessed Jan 2015]
18. Dhital R, Greene R, Lovejoy A. Feasibility of an alcohol screening service in a community pharmacy. *Int J Pharm Pract* 2005;13:R84.
19. Fitzgerald N, McCaig D, Watson H, Thomson D, Stewart D. Development, implementation and evaluation of a pilot project to deliver interventions on alcohol issues in community pharmacies. *Int J Pharm Pract* 2008;16:17-22.



20. Dhital R, Whittlesea C, Norman IJ, Murrells T, McCambridge J. Randomised trial of brief alcohol interventions delivered by community pharmacists. *Alcoholism and Drug Addiction* 2014;27(S1):35.
21. Watson M, Fitzgerald N, Jaffray M, et al. A pilot study of alcohol screening and brief interventions in community pharmacies. *Addic Sci ClinPract* 2012; 7(S1):A22.
22. Krska JA, Stokes E, Mackridge A. Following up users of a pharmacy-based screening and brief intervention service. *Addic Sci Clin Pract*2013;8(S1):A41.
23. Khan NS, Norman IJ, Dhital R, McCrone P, Milligan P, Whittlesea CM. Alcohol brief intervention in community pharmacies: a feasibility study of outcomes and customer experiences. *Int J Clin Pharm* 2013;35(6):1178–87.
24. Krska J, Mackridge AJ. 2014. Involving the public and other stakeholders in development and evaluation of a community pharmacy alcohol screening and brief advice service. *Public Health* 2014; 128(4):309–316.
25. Mackridge AJ, Krska J, Stokes EC, Heim D. Towards improving service delivery in screening and intervention services in community pharmacies: a case study of an alcohol IBA service. *J Public Health* 2015:p.fdv010–.
26. Sheridan J, Stewart J, Smart ROS, McCormick R. 2012. Risky drinking among community pharmacy customers in New Zealand and their attitudes towards pharmacist screening and brief interventions. *Drug Alcohol Rev*2012;31(1):56–63.
27. Dhital R, Whittlesea CM, Norman IJ, Milligan P. Community pharmacy service users' views and perceptions of alcohol screening and brief intervention. *Drug Alcohol Rev* 2010;29(6):596–602.
28. Krska J, Morecroft CW. Views of the general public on the role of pharmacy in public health. *J Pharm Health Serv Res* 2010; 1(1):33–38.

29. Saramunee K, Krska J, Mackridge A, Richards J, Suttajit S, Phillips-Howard P. How to enhance public health service utilization in community pharmacy?: General public and health providers' perspectives. *Res Soc Adm Pharm* 2012;10(2):272-284.
30. Hodgson R. The Fast Alcohol Screening Test. *Alcohol Alcohol* 2002;37(1):61–66.
31. Scotland's Census 2011. Available at: <http://www.scotlandscensus.gov.uk/> [Accessed Jan 2015]
32. Electoral Commission Scotland. Available at <http://www.electoralcommission.org.uk/scotland>[Accessed Jan 2015]
33. Edwards P, Roberts I, Clarke M, DiGuseppi C, Wentz R, Kwan I, et al. Methods to increase response rates to postal questionnaires. *Cochrane Database Syst Rev* 2007; 2(2).
34. The Scottish Government. Available at <http://www.scotland.gov.uk/Topics/Statistics/SIMD>[Accessed Jan 2015]
35. Bradshaw P, Bromley C, Corbett J, Day J, Doig M, Dowling S, et al. The Scottish Health Survey, Edinburgh: Scottish Government, 2013.
36. Gidman W, Cowley J. A qualitative exploration of opinions on the community pharmacists' role amongst the general public in Scotland. *Int J Pharm Pract* 2013;21(5): 288-296.
37. Lowrie R, Johansson L, Forsyth P, Bryce SL, McKellar S, Fitzgerald N. Experiences of a community pharmacy service to support adherence and self-management in chronic heart failure. *Int J Clin Pharm* 2013;36(1):154-162.
38. Saunders JB, Aasland OG, Babor TF, De la Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption--II. *Addiction* 1993; 88(6):791–804.

39. Gill JS, O'May F. People seem confused about sensible drinking messages. *BMJ* (Clinical research ed.) 2006; 332(7536):302–303.
40. Bendtsen P, Karlsson N, Dalal K, Nilsen P. Hazardous drinking concepts, limits and methods: low levels of awareness, knowledge and use in the Swedish population. *Alcohol* 2011;46(5):638–645.
41. Ohtsu T, Kokaze A, Shimada N, Kaneita Y, Shirasawa T, Ochiai H, et al. General consumer awareness of warnings regarding the consumption of alcoholic beverages. *Acta Medica Okayama*, 2010;64(4):225–232.
42. Knai C, Petticrew M, Durand MA, Eastmure E, Mays N. Are the Public Health Responsibility Deal alcohol pledges likely to improve public health? An evidence synthesis. *Addiction* 2015.
43. Babor TF, Caetano R, Casswell S, Edwards G, Giesbrecht N, Graham K, et al. *Alcohol: No Ordinary Commodity: Research and Public Policy* 2nd ed, Oxford University Press: Oxford, 2010.
44. McCaig D, Fitzgerald N, Stewart D. Provision of advice on alcohol use in community pharmacy: a cross-sectional survey of pharmacists' practice, knowledge, views and confidence. *Int J Pharm Pract* 2011;19:171-178.
45. Scottish Government Health Department, 2008. HEAT (H4) Alcohol Brief Interventions - National Guidance on Data Reporting 2008-9.
46. Flay BR. Efficacy and effectiveness research in the development trials and other phases of health promotion programs. *Preventive Medicine* 1986;15(5):451-474.
47. Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, and Petticrew M. *Developing and evaluating complex interventions : new guidance*, 2008.

48. Dhital R, Norman I, Whittlesea C, Murrells T, McCambridge J. The effectiveness of brief alcohol interventions delivered by community pharmacists: randomised controlled trial. *Addiction* 2015.
49. Kaner EF, Beyer F, Dickinson HO, Campbell F, Schlesinger F, Heather N et al. Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database Syst Rev*2007;2.
50. O'Donnell A, Anderson P, Newbury-Birch D, Schulte B, Schmidt C, Reimer J et al. The Impact of Brief Alcohol Interventions in Primary Healthcare: A Systematic Review of Reviews. *Alcohol Alcohol* 2013;agt170.
51. Kaner EFS, Brown N, Jackson K. A systematic review of the impact of brief interventions on substance use and co-morbid physical and mental health conditions. *Mental Health Substance Use* 2011;4(1):38–61.
52. Gaume J, McCambridge J, Bertholet N, Daepfen JB. Mechanisms of action of brief alcohol interventions remain largely unknown - a narrative review. *Front Psychiatry* 2014;5.
53. McCambridge J, Kyprilou K, Elbourne D. In randomization we trust? There are overlooked problems in experimenting with people in behavioral intervention trials. *J Clin Epidemiol* 2014;67(3):247–53.

## TABLES AND FIGURES

Table 1 Respondent demographics, N=1573

Characteristic		Scottish census data 2011 <sup>31</sup>
Mean age (SD)	56.6 years (24.0)	48.1 years
Sex, % (n)		
Male	61.7 (970)	47.8%
Female	37.3 (587)	52.2%
Missing	1.0 (16)	
Living arrangements, % (n)		
Married/co-habiting	58.2 (915)	57.1
Single/never married	13.7 (216)	26.9
Widowed	11.7 (184)	7.2
Divorced	11.0 (173)	6.2
Separated	3.5 (55)	2.6
Missing	1.9 (30)	
Working, % (n)		
Full-time	44.4 (699)	45.0
Retired	33.6 (529)	14.2
Part-time	9.1 (143)	12.7
Unable to work due to disability or illness	5.8 (92)	4.9
Looking after family, home	2.4 (37)	3.4
Unemployed and seeking work	2.2 (35)	11.0
In education or training	0.7 (12)	8.8
Missing	1.7 (26)	

Highest level of education, % (n)		
No formal qualification	28.3 (445)	26.8
University degree	20.7 (326)	26.1
Higher or A levels	16.2 (255)	14.3
HND or HNC	15.6 (245)	9.7
Other	15.9 (250)	23.1
Missing	3.3 (52)	
Ethnicity, % (n)		
White	98.4 (1548)	96.0
Black	0.3 (5)	0.7
Mixed	0.3 (5)	0.4
Asian	0.2 (3)	2.7
Other	0.1 (2)	0.2
Missing	0.6 (10)	
Scottish Index of Multiple Deprivation		
quintiles, <sup>30</sup> % (n)		
1 (most deprived)	16.1 (254)	19.0
2	17.3 (284)	19.5
3	18.5 (304)	20.1
4	22.5 (370)	20.8
5 (least deprived)	21.1 (347)	20.8
Missing	0.9 (14)	
Health status in the last three months, % (n)		N/A
Excellent	12.3 (193)	
Very good	32.5 (511)	

Good	30.2 (475)	
Fair	16.4 (258)	
Poor	6.2 (97)	
Missing	2.5 (39)	
FAST scores, % (n)		N/A
<3	68.0 (1070)	
$\geq 3$	30.6 (482)	
missing	1.3 (21)	
Number of contacts with health services in the last three months, median (IQR)		N/A
GP	1 (0-2)	
Accident and emergency	0 (0)	
Hospital admission	0 (0)	
Accessing a pharmacy for medicines or advice	1 (0-3)	

---

**Figure 1 Percentage of respondents agreeing that professionals could advise on safer drinking**

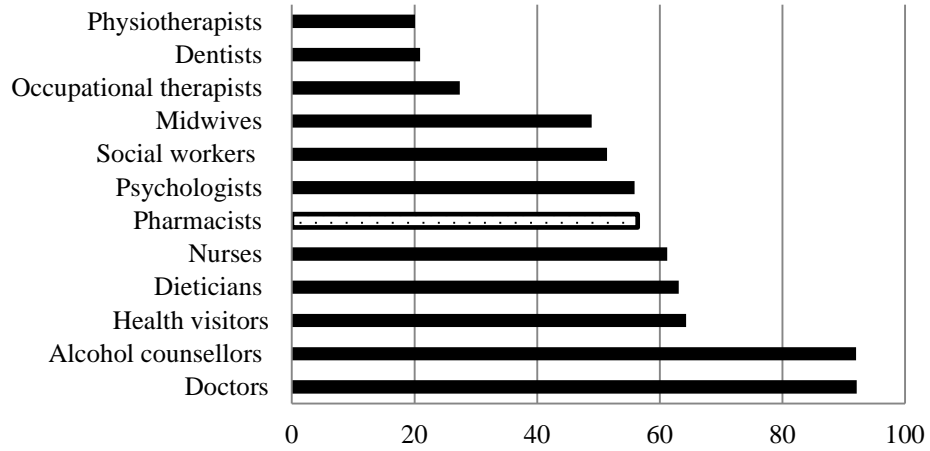




Table 2 Comparison of those responding ‘yes’ that pharmacists could advise on safer alcohol consumption to those responding ‘no’ or ‘don’t know’

Characteristic	Yes	No/ Don’t know	Significance
Mean age (SD)	55.0 years (29.0)	57.0 years (14.8)	0.265 <sup>+</sup>
Sex, % (n)			
Male	66.2 (348)	33.8 (178)	0.041 <sup>++</sup>
Female	60.7 (533)	39.3 (345)	
Highest level of education, % (n)			
University degree	69.4 (213)	30.6 (94)	0.007 <sup>++</sup>
Other	61.0 (675)	39.0 (432)	
Ethnicity, % (n)			
White	99.0 (875)	1.0 (9)	0.383 <sup>++</sup>
Other	99.4 (519)	0.6 (3)	
Scottish Index of Multiple Deprivation quintiles, <sup>30</sup> % (n)			
1 (most deprived)	60.7 (133)	39.3 (86)	0.045 <sup>++</sup>
2	60.3 (153)	39.7 (101)	
3	60.6 (168)	39.4 (109)	
4	60.8 (208)	39.2 (134)	
5 (least deprived)	70.3 (218)	29.7 (92)	
Health status in the last three months, % (n)			
Excellent	63.7 (114)	36.3 (65)	0.481 <sup>++</sup>
Very good	65.8 (312)	34.2 (162)	
Good	60.6 (264)	39.4 (172)	
Fair	60.3 (135)	39.7 (89)	

Poor	63.2 (55)	36.8 (32)	
Hazardous/harmful drinker (FAST score $\geq 3$ )			
yes	61.2 (271)	38.8 (172)	0.43 <sup>++</sup>
no	63.3 (609)	36.7 (353)	
Accessed a pharmacy for medicines or advice in the last 3 months			
Yes	64.2 (596)	35.8 (332)	0.108 <sup>++</sup>
No	59.8 (272)	40.2 (183)	

---

<sup>+</sup>independent samples t-test; <sup>++</sup> Chi square

Table 3 Responses to attitudinal statements on aspects of pharmacists advising on safer alcohol consumption (N=1573) (median underlined)

<b>Statement</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Unsure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	<b>Missing</b>
<b>(number of missing responses)</b>	<b>Agree</b>	<b>% (n)</b>	<b>% (n)</b>	<b>% (n)</b>	<b>Disagree</b>	<b>% (n)</b>
	<b>% (n)</b>				<b>% (n)</b>	
I would feel comfortable about discussing alcohol with a pharmacist	15.7 (247)	<u>35.1 (552)</u>	16.6 (261)	20.3 (320)	9.9 (155)	2.5 (38)
I think that other people would feel comfortable about discussing alcohol with a pharmacist	5.3 (83)	19.9 (313)	<u>48.8 (768)</u>	17.9 (282)	5.8 (92)	2.2 (35)
I would prefer to discuss alcohol with my doctor rather than a pharmacist	39.3 (618)	<u>38.2 (601)</u>	9.3 (147)	9.2 (145)	1.3 (21)	2.6 (41)
I think that other people would prefer to discuss alcohol with their doctor rather than a pharmacist	30.6 (482)	<u>41.4 (651)</u>	22.0 (346)	3.4 (54)	0.7 (11)	1.8 (29)
I trust that pharmacists would discuss alcohol	28.0 (440)	<u>40.7 (640)</u>	22.6 (355)	4.8 (76)	1.6 (25)	2.4 (37)

confidentially

I think that other people trust that pharmacists 14.4 (227) 33.9 (534) 42.1 (663) 6.0 (94) 1.5 (24) 2.0 (31)

would discuss alcohol confidentially

I feel confident that pharmacists could discuss 22.8 (358) 47.2 (743) 18.4 (290) 7.4 (117) 2.1 (33) 2.1 (32)

how alcohol impacts health

I think that other people feel confident that 11.4 (179) 34.6 (545) 41.8 (658) 8.1 (127) 1.9 (30) 2.2 (34)

pharmacists could discuss how alcohol

impacts health

I would be concerned about my privacy in a 28.9 (454) 35.4 (557) 13.9 (219) 15.2 (239) 4.6 (72) 2.1 (32)

pharmacy when discussing alcohol

I think that other people would be concerned 27.2 (428) 36.9 (580) 25.3 (398) 6.7 (105) 2.1 (33) 1.9 (29)

about their privacy in a pharmacy when

discussing alcohol

---