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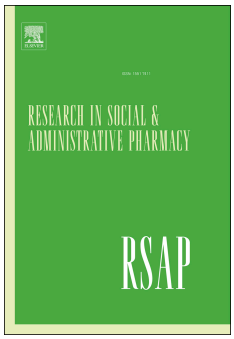

Community pharmacist perceptions of their role and the use of social media and mobile health applications as tools in public health

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RESEARCH PAPER

Community pharmacist perceptions of their role and the use of social media and mobile health applications as tools in public health

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ABSTRACT

Background. A number of barriers prevent community pharmacists (CPs) from impacting public health (PH) outcomes. Social media (SM) and mobile health apps (MH apps) may offer ways to help the public make positive health decisions.

Objectives. To evaluate CP perceptions of their role in PH and the use of SM and MH apps in this regard.

Methods. This was a mixed method study using a cross-sectional survey and follow-up interviews. The survey covered: CPs role in PH; CP use of SM; CP use of MH apps; non-identifiable demographic information. Following ethical approval and piloting, responses were collected on paper and online. The study population was CPs in Greater London, UK (n=2931). A minimum sample size of 340 was calculated (95% confidence interval/5% margin of error). To achieve this, 596 surveys were distributed. Responses (n=257) were analysed using descriptive statistics. Twenty-five respondents were willing to take part in follow-up one-to-one interviews. Twenty interviews were completed as data saturation was achieved after the 14th. Interviews were transcribed and analysed using framework methodology as described by Ritchie and Spencer in 1994.

Results. Survey response rate was 43%. Respondents represented English CPs in terms of age but males and non-whites were over-represented. The majority of CPs accessed SM and MH apps for personal use but did not recommend these in a professional capacity due to lack of awareness and confidentiality/liability concerns. Most would promote an SM health page (78.6%) or MH app (83.7%) if maintained by healthcare professionals (HCPs). Under 35s were more positive about these tools in PH. Two interview themes emerged: The role of CPs in PH; Concerns and opportunities for the use of technology in PH.

Conclusions. Most CPs, particularly those under 30, were positive about the use of SM and MH apps in PH. Training on the use of such tools among the pharmacy team, and an awareness of the availability of evidence-based apps will ensure their wider adoption.

Key words. Community pharmacy; public health; digital health; social media; mobile health applications.

INTRODUCTION

Ten years since the introduction of the community pharmacy contractual framework (CPCF) in England, the delivery of public health services and campaigns by community pharmacists (CPs) are now well established.[1,2] Many CPs play a public health role by running clinics to support people to lose weight, to stop smoking, or to reduce their cardiovascular disease risk, as well as delivering six public health campaigns each year, as directed by NHS England.[3,4] In addition, some community pharmacies are now classified as Healthy Living Pharmacies (HLP), utilising the skills of pharmacy support staff to improve public health.[5] The British government has recently announced funding cuts in England that will have a direct impact on the delivery of pharmacy public health services,[6] with many having to be decommissioned, particularly if they are unable to demonstrate their impact on patient health outcomes.[1]

Advances in digital technology have given healthcare professionals (HCPs), including CPs, opportunities to improve public health.[7–19] In fact, Shaw et al.[11] have pointed out that most "health and wellbeing" happens away from a HCP. The majority of patients see a HCP only once or twice a year and outside of these meetings they need to make their own health-related decisions. In the same report the term E-health was refined into three domains (1) the use of digital devices to monitor or track health; (2) the use of digital tools for communication between HCPs and patients; and (3) the use of digital tools for health data and the use of that

data to influence health advice.[11] E-health interventions that combine all three domains are seen as the gold standard.[11]

Aungst et al.[20] noted that the in-built features of a smartphone e.g. camera and microphone, make them useful devices for communication between HCPs and patients. Their report also noted that high smartphone ownership among all demographics reduces inequalities related to access to the internet and mobile health apps applications (MH apps). MH apps in particular have been investigated for their role in helping the public to adopt positive health behaviours and to manage health conditions and treatments,[21–23] and a number have been shown to include behaviour change theory.[24] Therefore, MH apps may present an effective method of continuing to motivate patients outside of the pharmacy with an added benefit that they do not require an internet connection, although they do need to be regularly updated to ensure that they function to a high standard.[20]

Recent data by the Office of National Statistics (ONS)[25] shows that the majority of the United Kingdom (UK) population are online with 63% of these also having a social media (SM) profile as of 2016; up from 45% in 2011; with Facebook being the most popular platform.[26] Universities teaching undergraduate pharmacists are also starting to incorporate SM into their training.[27] The use of SM has been proposed to potentially challenge traditional health promotion models by Chou et al.[8] However, the study highlighted that it is important to identify which SM platforms patients use before embarking on any interventions that use this technology.[8] In a study by Benetoli et al.[13] CPs noted that Facebook was the most effective SM platform for sharing public health messages due to a number of beneficial design features, such as the ability to share written, photographic and video content as well as the opportunity to comment on content shared by others and to network. In fact, Cain et al.[14]

pointed out that the "community" feel of SM complements the same feelings that people associate with using a community pharmacy.

Examples of how CPs have used SM for public health include the use of video-sharing platform, YouTube, to show patients how to correctly use their inhalers,[13] and using Facebook and Twitter to share information about public health and environmental crises, such as during the Ebola outbreak,[13] and during hurricanes and floods.[14] Video was particularly highlighted as an effective way to share health information with those with low literacy levels.[13] While digital tools are showing promise in terms of their role as tools in public health, HCPs are reminded of the need to adopt "positive professional behaviours" when online.[28–31]

While a number of studies have addressed the use of SM and MH apps in public health,[8,13–19,21–23,30,31] this is the first large scale study of UK CP attitudes and perceptions of these tools in this regard.

Aim

This study explored UK CP perceptions of their role in public health and the barriers that are preventing them from fulfilling this role, if any. It also evaluated CP perceptions of the use of SM and MH apps in pharmacy public health services, focusing on whether demographic factors affect acceptability of SM and MH apps, and how CPs might incorporate such tools into their future service delivery.

METHOD

This was a mixed-methods study investigating CP perceptions of their role in public health and the use of SM and MH apps in this regard. A triangulation method was used with the survey acting as the main tool and the interview used to validate the findings from the survey.[32]

Phase 1 – Survey tool

The perceptions of the general public and HCPs on the use of digital tools in public health had been previously investigated, however, the search highlighted a gap in the knowledge about UK CP perspectives of the role of such tools in public health.[7,9,13–24,29-31,33] A survey tool was, therefore, created to address this gap and consisted of 47 questions divided into 4 sections: the role of CPs in public health; the use of SM by CPs; the use of MH apps by CPs; and demographic data. A 5-point Likert scale (agree, somewhat agree, neither agree nor disagree, somewhat disagree, disagree) was adapted from a study by Shcherbakova and Shepherd[17] who investigated American (Texas State) CP use of digital communication tools. The majority of the remaining questions were closed, with pre-formulated answer choices. An "other" option was provided to allow CPs to enter free text answers if their preferred answer was not listed. An additional removable section explained that the researcher was conducting future interviews. CPs who were interested in taking part in the interview stage were asked to provide their email address and/or telephone number in this section and this was then separated from the main survey by the researcher collecting responses before the survey responses were analysed by another researcher. The survey was internally reviewed for content validity by an expert in the field and assessed for face validity by 2 colleagues. It was piloted by 30 CPs (who were then excluded from the data analysis), and, as a result, minor changes were made to the wording of seven questions. The average time taken to

complete the survey was 20 minutes. The final version of the survey is available in Appendix 1.

Study sample

The study population was all CPs working in community pharmacies (n=1879) in Greater London.[34] The community pharmacy workforce in London report identified that the average number of CPs working in a Greater London community pharmacy was 1.56.[34] The total population size for this study, therefore, was estimated to be 2931 CPs. A recommended minimum sample size of 340 was calculated using Raosoft sample size calculator providing a confidence level of 95% with a margin of error of 5%.[35] A report by Sitzia and Wood[36] noted that mean response rates for face-to-face surveys was 76.6%, therefore, in an attempt to maximise the number of responses, 596 surveys were distributed. Community pharmacies within the research area were assigned a number; this was then randomised using an online randomisation tool. The data collection aspect of this study was carried out by multiple research students (N=6) who were each assigned a different area in Greater London to collect survey responses. The majority of surveys were hand delivered with researchers encouraging face-to-face completion. For those respondents who could not complete the survey immediately, the researcher either agreed a future date to collect the survey or provided them with a stamped address envelope to post the survey back. All CPs were given a participant information sheet (PIS) and asked to complete and return their survey within two weeks. The researcher telephoned every CP after this deadline to check if they had returned their survey and to encourage them to do so if they had not. For those who had misplaced their survey a new one was distributed by post with a stamped addressed envelope included to encourage its return. An online survey was also offered to aid completion. Completion of the survey was accepted as informed consent.

Statistical analyses

Responses were coded and entered into SPSS for Windows, version 23 (International Business Machines (IBM), New York). As the data was non-normally distributed and ordinal in nature, chi-square tests were used to identify any associations between responses. Sub-analyses were performed by respondents' gender, age, ethnicity, type of pharmacy worked in and number of years qualified. An *a priori* level of less than 0.05 ($p<0.05$) was set as significant.

Phase 2 – Semi-structured interviews

Six months after completion of the survey, all respondents who indicated that they were willing to participate in the second phase of the study were invited for a semi-structured interview. Of the 257 CPs who completed the survey, 50 included their contact details for interview. All 50 CPs were sent a PIS, explaining what the interview would entail. Two weeks later they were contacted to confirm if they had read the PIS and to ask if they were still willing to participate in the study. Twenty CPs declined citing "lack of time" as their main reason. Those who confirmed their interest were sent a consent form to sign and return in a stamped-addressed envelope and told that they would be contacted in due course. Twenty-five CPs returned their consent forms and a time schedule for interviews was prepared. Data saturation was achieved following 14 interviews, however, a further six interviews were conducted.[37] Conducting interviews with the remaining 5 CPs was deemed unnecessary and they were thanked for their willingness to participate. The interview schedule was designed to allow respondents to expand on their survey responses and consisted of 19 questions (Appendix 2). This was piloted by 5 CPs (who were then excluded from the data analysis) and no changes were recommended. Interviews were conducted between November and December 2016 by one researcher.

Interviews were conducted either at the place of work of the CP, with only the interviewer and interviewee present, or over the telephone. Each interview took approximately 15 minutes to complete. These were digitally audio-recorded with the permission of the interviewee. Hand-written notes were also taken during the interview. Verbatim written transcripts of each recording were prepared and participants were sent a password-protected digital copy of their own transcript via email and asked to comment on its accuracy. Only one respondent replied to this request and added no new information to the transcript.

Thematic analysis, as described by Braun and Clarke,[38] was used in this study. Initial codes were identified by firstly listening to the recorded interviews and reading and re-reading the written transcripts and hand-written notes. Once all transcripts had been read and re-read and all emerging codes had been identified the analytical framework was developed further.[39] The coded transcripts were checked by a second researcher. A discussion followed between the two researchers and codes were then arranged into broad categories, namely CPs role in public health; Barriers to CP public health role; Opportunities for using technology in public health; and barriers for using technology in public health. These categories were then examined and grouped into two meaningful themes. Coding and thematic analysis, were managed in NVivo qualitative data analysis Software, version 11 (QSR International Pty Ltd). Results are presented as themes with quotes from interviews used to support these. Following a similar approach to Morton et al.[4] participants were provided with pseudonyms indicating: the type of community pharmacy worked in; the participant number; and number of years qualified. For example, participant “IndepCP1 (8 years)” would refer to a community pharmacist working in an independent/small chain pharmacy, qualified for 8 years; while participant “MultiCP1 (5 years)” would refer to a community pharmacist working in a large multiple chain pharmacy and qualified for 5 years.

Ethical approval

The delegated ethical approval team operating within the academic institute of the authors granted ethical approval for the survey tool in March 2016 (1213/045) and the interview schedule on 18th November 2016 (1617/005).

RESULTS

In order to reach the recommended minimum sample size (N=340), 596 surveys were distributed. Of these, a total of 257 were completed, giving a response rate of 43%. Those who completed the survey were mostly under 35, which matches the English CP demographic statistics (**see table 1**). Respondents were not representative of English CP statistics in relation to gender and ethnicity, with male respondents (58%) and non-white respondents (80.8%) being over-represented.

Pharmacist delivery of public health services and campaigns

Regardless of the demographics, over half the respondents (n=140, 54.9%) had delivered at least one public health campaign during the previous year. The most common communication methods used to follow-up with those patients who had interacted with the health campaigns included: face-to-face consultation (63.4%); and telephone call (23.6%). Email correspondence and an interaction on social media accounted for just 4.3% and 1.4% respectively.

Of those who did not deliver any public health campaigns during the previous year (n=115, 45.1%), lack of time (82.6%) was given as the number one barrier that had prevented them from doing so.

Use of social media

Almost three-quarters (n=187, 72.8%) of respondents have an account on SM with 77.5% of these logging on at least once daily. Facebook was the most popular platform followed by LinkedIn, YouTube, Instagram and Twitter. Those under 35 were more likely to have a SM account (p=0.021) as were those working for a pharmacy multiple (p=0.011). There was no association between the type of pharmacy worked in and age.

Over half of those who use SM (n=107, 57.2%) do so in a professional capacity with 34% of these choosing to have separate personal and professional accounts. CPs used SM to connect with other CPs (82.2%); to stay up-to-date with health literature (39.3%); and to connect with other healthcare professionals (37.4%). A minority (15.0%) did so to connect with patients.

Over a third of those who use SM (n=65, 34.9%) were allowed to do so at their workplace. CPs working at independent or small chain pharmacies were more likely to be allowed to use SM at work (p=0.001). Despite being allowed to, only eight respondents used SM at work to promote public health topics. Reasons for not recommending SM health pages included: not aware of any health SM pages (56.4%) and never thought to suggest (42.4%). CPs did note, however, that patients often asked them to discuss information they had found on SM (n = 90, 35.0%). Frequently, the information referred to by patients was inaccurate, with CPs believing it to be from advertisements or unregulated SM pages.

Most CPs were positive about the potential use of SM as a tool in health promotion, however, a large proportion were reluctant to use it in their own communication with patients. In addition, many were unsure about integrating SM into pharmacy services with nearly three-quarters indicating that better guidelines were needed on how CPs could use SM (**see table**

2a). It was noted that the under 35s were consistently more positive about the use of SM in health promotion than the over 35s (**see table 3**). There were no statistical differences in opinions based on gender or ethnicity.

Asked if they would promote an SM health page created and maintained by healthcare professionals over three-quarters (n=202, 78.6%) stated that they would. The under 35s were more likely to recommend such a page ($p<0.001$). Almost two-thirds (n=128, 63.4%) of those who would recommend a SM health page would also be willing to prepare health-related posts for the page with the under 35s being more likely to be prepared to do so ($p<0.001$). Many (66%) would, however, expect some form of remuneration ranging from between £1 and £20 per health post published. Topics to promote included: smoking cessation (95.5%), diabetes (83.2%), physical activity (78.7%), sexual health (77.2%), weight management (77.2%) and alcohol awareness (76.7%).

Liability and accountability (53.8%); concerns about patient confidentiality (51.9%); and lack of understanding of how to use SM (38.5%) were the main reasons given by those who would not recommend a SM page created and maintained by healthcare professionals (n=55).

Use of mobile health apps

Almost two-thirds (n=162, 63%) of respondents have access to a smart phone or tablet device in their pharmacy. Despite this only 13.2% recommend any MH apps to patients for health advice. There were no significant differences based on gender, age, ethnicity or the type of pharmacy worked in. Reasons for not recommending any MH apps included: not aware of any MH apps (61.1%); never thought to suggest it (46.3%); and don't trust MH apps (17.9%).

As with SM, most CPs were positive about the potential use of MH apps as tools in health promotion but again many were reluctant to use them in their own practice currently. A large proportion felt that better guidelines were needed to support CPs to use MH apps. (**see table 2b**) with the under 35s again being more likely to support their use (**see table 3**).

Respondents were positive about recommending a MH app created and maintained by healthcare professionals (83.7%) with the under 35s again more likely to recommend this ($p<0.001$). Recommended topics to include in such an app included smoking cessation (94.9%), physical activity (85%), diabetes (85%), weight management (79.9%) and sexual health (79.4%). Those who would not recommend such an app to patients stated reasons including a concern about patient confidentiality (46.3%), liability and accountability (39.0%).

Interviews

In this study the final sample size was 20 participants. Demographics of those interviewed can be found in **table 4**. Two key themes emerged from the analysis:

- The role of CPs in public health
- Concerns and opportunities for the use of technology in public health

The role of CPs in public health

All interviewees stated that they thought the profession had an important role to play in public health citing reasons including: the pharmacist is accessible without an appointment and pharmacies are in convenient locations.

"I do positively believe that we have a very strong role in public health – in everything – good lifestyle advice, essential in diabetics – overweight, dietary advice, walking – correct exercise for age, stop smoking" IndepCP6 (19 years)

Common barriers identified by interviewees as being limiting factors in their public health role included lack of remuneration, lack of time, poor commissioning decisions and lack of national service commissioning. But one CP in particular felt that the pharmacy profession did not know how to maximise its opportunities.

"I don't think we are that good at proactively offering public health advice and services to people that are just coming in to the pharmacy to collect their prescriptions or buy things over-the-counter. We are not making the most of the opportunities" IndepCP4 (8 years)

Some CPs (n=3/20) felt frustrated by commissioning decisions made within their locality and believed that they could do much more in the domain of public health if they were supported by commissioners.

"We're a 100-hour pharmacy so we are open a lot… when we explain that to the local authority they say, 'The other pharmacy is already offering this service.' Yes, but they are only open 45-hours per week. We're open over two times more… we can't provide the service because they won't provide us with the funding." IndepCP8 (12 years)

"For the majority of public health services there's no consistency – one borough does smoking and not the other. One borough gives vitamins to children and not the other – it's a mess." IndepCP10 (30 years)

This highlights that CPs do not feel listened to by commissioners and that they are being overlooked for new public health service opportunities. The commissioning of the national flu service, however, was highlighted by one interviewee as the exemplar model for pharmacy service commissioning.

"If you look at the flu jab, over the years we are doing more because everyone is doing it. The public is aware that if you want a flu jab you can go to the GP or pharmacy – it's well promoted." IndepCP10 (30 years)

Some CPs (n=7/20) prioritise services based on the remuneration offered. The changing nature of their job role also appears to be a challenge, particularly in relation to finding the time to offer public health services.

"The incentive to do more is always going to be driven by money. I know lots of pharmacists who don't actively take part in certain public health services because they feel it's not remunerated properly." MultiCP8 (18 years)

"… the problem with services is that you have so much else to do. And I do over 12,000 items so you know it's really busy so to go into the consultation room and then come out, you just get daggers from everybody. MultiCP4 (4 years)

Interestingly, the role of pharmacy support staff was highlighted by a number of interviewees (n=5/20) as a way to support patients.

"So I think the pharmacist is important but the role of support staff is even more important as they may be the first person that a patient comes across" MutliCP6 (10 years)

Concerns and opportunities for the use of technology in public health

The majority (n=16/20) of CPs were positive about the use of technology, in particular SM and MH apps, as tools in public health service delivery as a means to enable them to reach those people who do not visit a pharmacy.

"You may appeal to more people on social media who don't necessarily come into your pharmacy." IndepCP4 (8 years)

CPs identified a number of barriers that they felt would prevent them from using technology in public health. The main barriers were related to liability and privacy concerns. However, while some CPs (n=5/20) had concerns about the privacy of patients on digital mediums, others (n=8/20) felt that people today are much more open to sharing information about themselves online. They felt that pharmacy needed to embrace the changing nature of communication or risk being left behind.

"If someone is talking about lower urinary tract infection – it's a personal matter… if you start talking about that in a public forum, it's very sensitive, embarrassing for an adult." IndepCP6 (19 years)

"Modern 21st century people are… much more open to things – it's about sharing, it's about understanding their illness, and it's about using technology… It's a good thing –it's the way

forward, there's no choice, nothing is going to stop it, it's going to happen anyway so we might as well embrace it" IndepCP2 (13 years)

Another concern for CPs (n=6/20) using SM to communicate with the public was the risk of intrusion into their private life. Some (n=3/20) also felt that it would have an impact on the pharmacist-patient relationship.

"The 24-7 nature of social media. Once you're finished a long day you don't want it infiltrating your home so it can tend to be invasive." MultiCP8 (18 years)

"I wouldn't want to socialise with patients on social media, I would like to keep a professional relationship". IndepCP7 (27 years)

Others (n=2/20) worried that face-to-face consultations would decline, possibly revealing that the public cannot make decisions about their own health without HCP support.

"… if we only go to social media then we are really going to lose that face-to-face contact." MultiCP2 (6 years)

CPs (n=7/20) were concerned about the risks of patients misinterpreting information posted on SM as they may be held to account if something went wrong.

"… it's quite difficult to control and you're providing information that could be misunderstood. With some forms of social media you have limited characters e.g. Twitter,

you can't really say everything you need to tell them in that space – I'd be quite wary of the liability involved and you haven't got insurance for your social media profile."

MultiCP8 (18 years)

However, a number of CPs (n=3/20) had already cautiously started using technology in their public health communications with patients while taking a number of steps to reduce any risk of liability associated with their promotion of health information on digital tools.

"We have a pharmacy Facebook page… rather than re-writing our own articles we rather just share articles from NHS choices directly onto social media, because someone could potentially claim that we are giving wrong information – so if we take it from CKS or NHS Choices – we are in safe hands – we share information already created by the NHS."

IndepCP8 (12 years)

Lack of skills in the use of technology was not necessarily seen as a barrier for some pharmacists as they felt that their support staff would have an important role in the use of these new tools. Given the role of pharmacy support staff as health champions in Healthy Living Pharmacies (HLP), there may be scope to expand this role to include the championing of digital interventions.

"… the pharmacist can prepare a message and staff could share it on social media – they're quicker and better at the technology." IndepCP9 (24 years)

On the other hand, a number of CPs (n=3/20) highlighted that, with the right training, they would be happy to utilise technology in their practice.

"Someone needs to hold our hand and guide us through the maze – basic training - youngsters have grown up with these things – they grow up with it from day one – using a computer is no big deal to them – pharmacists in their 50's haven't" IndepCP9 (24 years)

DISCUSSION

This study has identified that Greater London CPs feel that they have an important role to play in public health but that barriers such as lack of time, lack of remuneration and disjointed commissioning decisions are preventing them from doing more. The barriers identified are the same as those noted in previous research,[2] however, what this study highlights is that despite an awareness of what the common barriers have been in the past, nothing has changed. Cain et al.[14] noted that digital mediums could become the preferred sources of information for patients, or they could at least become an alternative to face-to-face contact when this is not possible.[8] These mediums may, therefore, bridge the gap and offer CPs a new approach for communicating public health messages, with Shaw et al.[11] noting that SM offers HCPs an opportunity to provide "just-in-time" advice to patients.

CPs felt that tools, such as SM health pages and MH apps, could be used more often in the delivery of public health services but that these would need to be created and maintained by healthcare professionals. This mirrors findings by Ghafoor et al.[23] who noted that the public were more likely to use a digital health tool if it was endorsed by a trusted source. Interestingly, in this study more CPs were prepared to recommend MH apps than SM health pages. Barriers reported about the use of SM included issues associated with confidentiality and patient privacy as well as the impact on the CP-patient relationship. CPs were also concerned that using SM to communicate with patients could potentially intrude into their personal life. Denecke et al.[31] studied the ethical issues associated with using SM in

444 healthcare and noted that HCPs were often concerned about patient privacy and
445 confidentiality on SM and that these issues would need to be addressed if SM were to be used
446 more often in healthcare. Benetoli et al.[28] pointed out that a CPs online behaviour could affect
447 the public's perceptions of them in their professional role. CPs, therefore, need to be
448 conscious about their professional values online, just as they would in real life. For this
449 reason some CPs in this study chose to have separate SM accounts, with one for their
450 professional life and the other for personal use. Similar findings were also noted by Cain et
451 al.[14]
452
453 Another key finding of this study is that age is a factor in CP perceptions about the use of SM
454 and MH apps in pharmacy public health services. CPs under 30 are more open to using these
455 tools. Similar findings have been previously reported by Shcherbakova and Shepherd[17] who
456 noted that CPs involved in patient online communications in their study were more likely to
457 be younger, recently qualified, and living in metropolitan areas. A previous study[13] noted that
458 some CPs see the pharmacy profession as being risk averse and reluctant to change. Older
459 adults have been noted to be more risk averse than younger adults,[40] which may explain why
460 older CPs are more reluctant to recommend SM and MH apps. In addition, Cain et al.[14]
461 identified that the reasons that HCPs don't use SM to interact with patients is to do with their
462 own familiarity with the software. This theme is similar to that highlighted in the interviews
463 in this study. Those under 30 are more likely to have grown up with SM and MH apps and so
464 are referred to as "digital natives" while those over 30 have been described as "digital
465 immigrants".[41] Therefore, familiarity with and perceptions about the ease of use of these tools
466 may make the under 30s more open to using them in a professional capacity. Many will also
467 have used these new technologies in their undergraduate pharmacy training.[27] This is linked
468 to the Technology Acceptance Model (TAM), which highlights that those who perceive new

technology to be useful and easy to use are more likely to incorporate it into their professional practice.[42] This indicates that improving the digital literacy of CPs, and pharmacy team members in general, is important, with another study[13] pointing out that pharmacy teams may need to learn a whole new "skill set". This study also noted that the use of SM while at work is dependent on the type of community pharmacy worked in. Those working in independent or small chain pharmacies were more likely to be allowed to use SM at work compared to those working for large chain pharmacies.

Despite the majority of CPs using SM and MH apps for personal reasons many stated that they had simply not thought to recommend these to patients, similar to a study from 2010.[30] Some pointed out that they had consciously decided not to recommend these, due to concerns about recommending tools that they didn't know much about themselves. Lack of awareness of the digital tools available was also highlighted by Kayyali et al.[22] A concerning finding in this study, however, is that CPs have been approached by the public to discuss information that they have accessed on digital mediums. CPs often found the information to be inaccurate with the sources cited being advertisements and unregulated SM health pages. These findings were expanded upon in the interviews. This all highlights that the public are already using these digital mediums to search for health information and that CPs cannot ignore this. CPs must strive to incorporate these mediums into their communication with patients to maximise their impact on public health.

In terms of the facilitators that could help CPs in their public health role, pharmacists noted that support staff could be utilised more. This perception is mirrored by the Healthy Living Pharmacy model which recognises the important role that healthcare assistants can play in supporting patients to make positive lifestyle changes.[5] Donovan and Paudyal[5] suggest that

engaging support staff and tailoring training for particular public health topics is the best way to drive the health champion initiative. The concept of the health champion could be expanded further to include a role as a digital champion. As more members of the general public utilise SM and MH apps it is important that the pharmacy profession embraces this change.

CPs in this study also highlighted that they were concerned that face-to-face contact with patients would diminish if these communication tools were used more often. These fears were echoed by CPs and other HCPs in a study by Kayyali et al.[19] Other participants, however, did feel that digital tools would be of particular benefit to CPs as a way to connect with people who do not normally use pharmacies. Similar to telehealth, the use of SM and MH apps will not substitute face-to-face contact but will provide an opportunity for CPs to enhance their role in public health.[43]

The study had a number of limitations. Firstly, the sample demographic was not fully representative of CPs in Greater London and England in terms of gender and ethnicity. While the proportion of under 35s surveyed was equivalent to the local and national statistics, they were consistently more positive in their perceptions of SM in healthcare than the over 35s. This may have skewed the results more favourably for the use of SM in pharmacy public health. Secondly, despite adopting a number of different survey collection strategies the sample size was below that recommended by the sample size calculator to provide a 95% confidence level with 5% margin of error. Thirdly, those who accepted our invitation to take part in the interview may have been more biased towards the use of SM and MH apps in healthcare, however, saturation of themes was achieved. Fourthly, the interchangeable use of the terms customer and patient in the survey tool may have affected CP responses. Finally,

the demographic section of the survey did not ask about participant job role e.g. locum pharmacist, pharmacist manager. As a result, some of the responses from transient CPs may have skewed the data giving the indication that many community pharmacies do not deliver the required six public health campaigns each year.

CONCLUSION

Restrictions in time and lack of remuneration are barriers preventing CPs from being more active in public health. SM health pages and MH apps offer innovative ways to deliver public health messages. CPs do have concerns about the use of these tools in public health, specifically relating to privacy and their own understanding of these mediums, however, they are willing to recommend these to their patients if they are evidence-based and are created and maintained by HCPs. Pharmacists in this study indicated that better guidelines and training need to be provided. These should address topics such as: how to use different SM platforms; how to post information on SM; and how to identify suitable SM resources and MH apps to recommend to patients. This will allow the whole pharmacy team to interact with the public on mediums that they are already using. With a rising public health burden and the already announced NHS funding cuts, the use of SM and MH apps offer CPs an opportunity to enhance their reach in PH and to achieve better PH outcomes.

Conflicts of interest: none

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669 **Table 1:** Demographics of respondents

Survey data	Count (n=)	%	National statistics of community pharmacist workforce (%) England	
Gender (N=257)				
Male	149	58.0	**Male**	40.6
Female	106	41.2	**Female**	59.4
Not stated	2	0.8		
Age (N=257)				
Under 24	19	7.4	**Under 35**	54.1
24-35 years	114	44.4	**Over 35**	45.9
36-45 years	50	19.5		
46-55 years	36	14.0		
56-65 years	35	13.6		
66-75 years	3	1.2		
Ethnicity (N=255)				
White	49	19.2	**White**	61.3
Mixed	12	4.7	**Non-white**	38.7
Indian	93	36.5		
Pakistani	35	13.7		
Bangladeshi	11	4.3		
Other Asian	13	5.1		
Black Caribbean	6	2.4		
Black African	21	8.2		
Chinese	10	3.9		
Any other ethnicity	5	2.0		
Type of pharmacy (N=254)				
Independent/small multiple (2-10 pharmacies)	162	63.8	**Independent/small multiples**	45.21
Large multiple (more than 10 pharmacies)	92	36.2	**Large multiples**	54.79
Years qualified (N=256)				
1-2 years	58	22.7		
3-6 years	69	27.0		
7-10 years	34	13.3		
11-20 years	29	11.3		
21-30 years	32	12.5		
> 31 years	34	13.3		

Table 2a: Pharmacist perceptions of the use of social media

	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree
Social media has a potential to become an established channel for patient–pharmacist communication	18 (7%)	27 (10.5%)	50 (19.5%)	109 (42.4%)	53 (20.6%)
Social media can be effectively used by pharmacists to improve patient communication	11 (4.3%)	35 (13.6%)	58 (22.6%)	101 (39.3%)	52 (20.2%)
Social media needs to be used more at my workplace in communicating with patients	23 (8.9%)	44 (17.1%)	85 (33.1%)	69 (26.8%)	36 (14%)
Social media may enhance pharmacist/patient relationships	19 (7.4%)	29 (11.3%)	81 (31.5%)	80 (31.1%)	48 (18.7%)
Social media may improve patients' quality of life	19 (7.4%)	27 (10.5%)	87 (33.9%)	80 (31.1%)	44 (17.1%)
Social media should be integrated with pharmacy services	29 (11.3%)	34 (13.2%)	77 (30%)	77 (30%)	40 (15.6%)
Social media changes the way patients and pharmacists interact	19 (7.4%)	19 (7.4%)	75 (29.2%)	87 (33.9%)	57 (22.2%)
Social media takes too much time to communicate with patients	22 (8.6%)	47 (18.4%)	85 (33.2%)	63 (24.6%)	39 (15.2%)
Social media may improve patients' knowledge	14 (5.5%)	22 (8.6%)	70 (27.3%)	97 (37.9%)	53 (20.7%)
Social media may cause patients to challenge pharmacists' knowledge	14 (5.4%)	25 (9.7%)	65 (25.3%)	79 (30.7%)	74 (28.8%)
Better guidelines should be provided to help guide the pharmacist on the use of social media	8 (3.1%)	12 (4.7%)	57 (22.2%)	78 (30.4%)	102 (39.7%)

Adapted from the survey tool created by Shcherbakova N, Shepherd M. Community pharmacists, Internet and social media: An empirical investigation. *Res Soc Adm Pharm*. 2014;10:75-85.

Table 2b: Pharmacist perceptions of the use of mobile health apps

	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree
Mobile health apps have the potential to become an established tool in pharmacy service delivery	13 (5.1%)	14 (5.4%)	67 (26.1%)	117 (45.5%)	46 (17.9%)
Mobile health apps need to be used more at my workplace when delivering pharmacy services	12 (4.7%)	38 (14.8%)	90 (35.2%)	87 (34%)	29 (11.3%)
Mobile health apps may improve patients' quality of life	7 (2.7%)	12 (4.7%)	89 (34.6%)	100 (38.9%)	49 (19.1%)
Mobile health apps should be integrated within pharmacy services	15 (5.8%)	25 (9.7%)	91 (35.4%)	90 (35%)	36 (14%)
Mobile health apps change the way patients and pharmacists interact	14 (5.4%)	23 (8.9%)	81 (31.5%)	100 (38.9%)	39 (15.2%)
Mobile health apps may improve patients' knowledge	7 (2.7%)	20 (7.8%)	68 (26.5%)	101 (39.3%)	61 (23.7%)
Mobile health apps may cause patients to challenge pharmacists' knowledge	13 (5.1%)	22 (8.6%)	74 (28.8%)	85 (33.1%)	63 (24.5%)
Better guidelines should be provided to help guide the pharmacist on the use of mobile health apps	7 (2.7%)	7 (2.7%)	67 (26.1%)	73 (28.4%)	103 (40.1%)

Adapted from the survey tool created by Shcherbakova N, Shepherd M. Community pharmacists, Internet and social media: An empirical investigation. *Res Soc Adm Pharm*. 2014;10:75-85.

Table 3: Significant differences in perspectives of pharmacists from different demographics on the use of social media and mobile health apps for health promotion

	% of respondents who somewhat agree or agree	Statistical significance
Social media has a potential to become an established channel for patient–pharmacist communication	under 35s - 71.5% over 35s - 54%	χ^2=11.068, p=0.026
Social media may improve patients' quality of life	under 35s - 57.1% over 35s - 38.7%	χ^2=11.409, p=0.022
Social media changes the way patients and pharmacists interact	under 35s - 65.4% over 35s - 46%	χ^2=16.978, p=0.002
Social media may improve patients' knowledge	under 35s - 65.9% over 35s - 50.8%	χ^2=10.927, p=0.027
Mobile health apps have the potential to become an established tool in pharmacy service delivery	under 35s - 71.4% over 35s - 54.8%	χ^2 =11.524, p=0.021
Mobile health apps need to be used more at my workplace when delivering pharmacy services	under 35s - 56.1% over 35s - 33.9%	χ^2=13.870, p=0.008
Mobile health apps may improve patients' quality of life	under 35s - 67.7% over 35s - 47.6%	χ^2=12.706, p=0.013
Mobile health apps should be integrated within pharmacy services	under 35s - 58.6% over 35s - 38.7%	χ^2=11.590, p=0.021
Mobile health apps change the way patients and pharmacists interact	under 35s - 61.6% over 35s - 46%	χ^2=17.622, p=0.001
Mobile health apps may improve patients' knowledge	under 35s - 76% over 35s - 49.2%	χ^2=25.490, p<0.001
Mobile health apps may cause patients to challenge pharmacists' knowledge	under 35s - 63.1% over 35s - 51.6%	χ^2=14.055, p=0.007

χ^2tests were carried out on responses comparing age, gender and ethnicity. This table only shows those comparisons that were significantly different. As is shown in the table there were statistical differences based on age but not based on gender or ethnicity.

Table 4: Demographics of interviewees

Participant demographics	Count (n=)
Gender	
Male	11
Female	9
Age	
Under 24	1
24-35 years	10
36-45 years	3
46-55 years	4
56-65 years	2
Ethnicity	
White	5
Indian	7
Pakistani	2
Black African	3
Chinese	2
Any other ethnicity	1
Type of pharmacy	
Independent/small multiple (2-10 pharmacies)	12
Large multiple (more than 10 pharmacies)	8

Appendix 1: Pharmacist perceptions of the use of social media as a tool in health promotion

The survey is divided into 4 sections:

A	**The role of pharmacists in public health**
B	**The use of social media by pharmacists**
C	**The use of mobile health applications by pharmacists**
D	**Demographics**

A. The role of pharmacists in public health

A1. Which of the following advanced and enhanced services do you offer in your pharmacy? (Please tick ALL options that apply)

- □ Alcohol screening/brief intervention
- □ Chlamydia screening
- □ Chlamydia treatment
- □ Emergency hormonal contraception
- □ Medicine Use Review
- □ Minor ailments service
- □ Needle and syringe programme
- □ New Medicine Service
- □ NHS health check
- □ Seasonal influenza vaccination
- □ Stop smoking
- □ Supervised administration
- □ Weight management
- □ None (Go to question A9.)
- □ Other

If 'Other', please state:

A2. How do you decide which services are delivered in your pharmacy? (Please tick ALL options that apply)

- □ Dictated by head office
- □ Dictated by local authority
- □ Based on research of health needs of local area (e.g. using PNA report)
- □ Personal choice
- □ Dictated by patient preference
- □ Other

If 'Other', please state:

A3. How do customers become aware of the services you offer? (Please tick ALL options that apply)

- □ Informed by pharmacy staff
- □ Adverts in local papers
- □ Information in pharmacy window
- □ Information on pharmacy website
- □ Information on pharmacy social media page
- □ Information on pharmacy mobile application
- □ Notice in GP surgery
- □ Word-of-mouth
- □ Don't know
- □ Other

If 'Other', please state:

A4. Please specify if you feel any of the following barriers are preventing you from delivering more services in your pharmacy.
(Please tick ALL options that apply)

- □ Lack of time
- □ Patients not interested
- □ Lack of personal interest
- □ Lack of support from local GP
- □ Lack of support from Local Authority
- □ Other
- □ Lack of remuneration
- □ Patients not aware of services offered
- □ Lack of support from management
- □ Lack of support from pharmacy team
- □ Unsuitable consultation room

If 'Other', please state:

A5. Thinking about the current public health initiatives you deliver, and using the scale provided, how effective are they generally at promoting health behaviour change? (0 = not effective at all; 10 = very effective)

0 1 2 3 4 5 6 7 8 9 10

A6. What do you think helps your patients to make a positive health behaviour change? (Please tick ALL options that apply)

- □ Being Accountable to a healthcare professional
- □ Support from a group of similar people
- □ An awareness of the health risks associated with not changing behaviour
- □ Support from family/friends
- □ A behaviour change tool
- □ Don't know
- □ Other

If 'Other', please state:

A7. How do you encourage or support health behaviour change in patients?
(Please tick ALL options that apply)

- □ Explain the benefits of making health-enhancing changes
- □ Help plan changes in small steps over a period of time
- □ Ensure patients understand the consequences of making changes to their health
- □ Set and record goals over a period of time
- □ Help patients feel positive about the change
- □ Encourage patient to share their goals with others
- □ Other

If 'Other', please state:

A8. What resources do you signpost customers to when encouraging them to make health behaviour changes? (Please tick ALL options that apply)

□ Company produced literature
□ Charity produced literature

Please specify: _____ Please specify: _____

□ Health website
□ Social media page

Please specify: _____ Please specify: _____

□ Mobile health app
□ Other

Please specify: _____ Please specify: _____

□ Not applicable

A9. Have you delivered any public health campaigns in the last year? (Please tick ONE option)

□ Yes
□ No (Go to question A13.)

A10. For which of the following topics have you delivered public health campaigns? (Please tick ALL options that apply)

□ Smoking cessation
□ Weight management
□ Diabetes awareness
□ Seasonal healthcare
□ Alcohol awareness
□ Sexual health
□ Physical activity
□ Other

If 'Other', please state:

A11. Where did you deliver your health campaign(s)? (Please tick ALL options that apply)

□ Pharmacy
□ Local school
□ GP surgery
□ Online (Social media page)
□ Shopping centre
□ Community centre
□ Online (Company website)
□ Other

If 'Other', please state:

A12. How did you follow up with those people who interacted with your health campaign(s)? (Please tick all options that apply)

□ Telephone call
□ Newsletter
□ Face-to-face consultation
□ Interaction on social media
□ Other
□ Email correspondence
□ Text message
□ Information leaflet
□ Did not follow up

If 'Other', please state:

Unless you have been directed to answer A13. please now go to section B

A13. What has prevented you from delivering public health campaigns in the last year? (Please tick ALL options that apply)

- □ Lack of time
- □ Patients not interested
- □ Lack of personal interest
- □ Lack of support from Local Authority
- □ Other
- □ Lack of remuneration
- □ Lack of support from management
- □ Lack of support from pharmacy team
- □ Lack of support from local GP

If 'Other', please state:

B. The use of social media by pharmacists

B1. Do you use social media? (Please tick ONE option)

- □ Yes
- □ No (Go to question B12)

B2. Which social media platform(s) do you have an account with? (Please tick ALL options that apply)

- □ Facebook
- □ Twitter
- □ YouTube
- □ Other
- □ LinkedIn
- □ Instagram
- □ Slideshare
- □ SnapChat
- □ Google+
- □ Periscope
- □ Whatsapp
- □ Pinterest
- □ Yik Yak

If 'Other' please state:

B3. How would you best describe your use of social media? (Please tick ONE option)

- □ Exclusively personal
- □ Equal personal and professional
- □ Exclusively professional
- □ Predominantly personal
- □ Predominantly professional
- □ Not applicable

B4. If you use social media for professional purposes, how do you use it? (Please tick ALL options that apply)

- □ To connect with other pharmacists
- □ To connect with patients
- □ For CPD
- □ Other
- □ To connect with other HCPs
- □ To stay up-to-date with health literature
- □ Not applicable

If 'Other' please state:

B5. Do you have different social media accounts for professional and personal use? (Please tick ONE option)

- □ Yes
- □ No

B6. Is your professional social media account anonymised or is your real name visible? (Please tick ONE option)

□ Anonymised □ Not anonymised

B7. If your account is anonymised, what is the reason for this?

B8. Is the use of social media for personal or professional reasons allowed at your workplace? (Please tick ONE option)

□ Yes □ No (Continue to B9.)

If 'Yes', do you use it to promote public health issues?

If used for public health issues, which topics are promoted?

B9. How frequently do you find yourself active on social media platforms for personal and professional use? (Please tick ONE option)

□ Several times a day □ Once a day □ Few times weekly
□ Once a week □ Few times a month □ Once a month
□ Less than once monthly

B10. Do you recommend any social media pages to patients for health advice? (Please tick ONE option)

□ Yes (Please specify then continue to B12.) □ No (Continue to B11.)

If yes, please specify which:

B11. If you haven't previously recommended any social media pages to patients for health advice, what was the reason for this? (Please tick ALL options that apply)

□ Not aware of any health social media pages □ Don't trust social media
□ Don't feel confident using social media myself □ Never thought to suggest
□ Other

If 'Other' please state:

B12. Do customers ever ask to discuss health information they have found on social media? (Please tick ONE option)

□ Yes □ No (Please go to B13.)

If you answered yes to B12., was the information they found reliable?

Which social media pages, if any, have customers referenced?

B13. Please answer the following questions using the scale provided[1]:

	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree
Social media has a potential to become an established channel for patient–pharmacist communication[1]	○	○	○	○	○
Social media can be effectively used by pharmacists to improve patient communication[1]	○	○	○	○	○
Social media needs to be used more at my workplace in communicating with patients[1]	○	○	○	○	○
Social media may enhance pharmacist/patient relationships[1]	○	○	○	○	○
Social media may improve patients' quality of life[1]	○	○	○	○	○
Social media should be integrated with pharmacy services	○	○	○	○	○
Social media changes the way patients and pharmacists interact[1]	○	○	○	○	○
Social media takes too much time to communicate with patients[1]	○	○	○	○	○
Social media may improve patients' knowledge[1]	○	○	○	○	○
Social media may cause patients to challenge pharmacists' knowledge[1]	○	○	○	○	○
Better guidelines should be provided to help guide the pharmacist on the use of social media	○	○	○	○	○

1. Shcherbakova, N and Shepherd, M.; **Community pharmacists, internet and social media: An empirical investigation,** Research in Social and Administrative Pharmacy, 10 (2014) p. e75-e85.

B14. If a social media page was created and maintained by healthcare professionals, would you recommend this to customers for health advice? (Please tick ONE option)

□ Yes □ No (Go to question B20)

B15. Which of the following health promotion topics do you think this page would be beneficial for? (Please tick ALL options that apply)

- □ Smoking cessation
- □ Alcohol awareness
- □ Sexual health
- □ Weight management
- □ Other
- □ Physical activity
- □ Cancer
- □ Diabetes
- □ Antibiotic awareness

If 'Other' please state:

B16. Would you be willing to input public health advice onto a social media page? (Please tick ONE option)

- □ Yes
- □ No (Go to section C)

B17. In which format would you prefer to input this advice onto a social media page?
(Please tick ALL options that apply)

- □ Text
- □ Blog
- □ Video
- □ Other
- □ Pictures

If 'Other' please state:

B18. Would you expect a form of remuneration for this additional service? (Please tick ONE option)

- □ Yes
- □ No

If 'Yes', please estimate how much per information entry.

B19. How often would you be happy to update your patients on health related information? (Please tick ONE option)

- □ More than twice daily
- □ 4-5 times a week
- □ Less than once a week
- □ 1-2 times per day
- □ 1-2 times per week

Unless you have been directed to answer B20. please now go to <u>Section C</u>

B20. Please specify why you would not recommend a social media page run by healthcare professionals.
(Please tick ALL options that apply)

- □ I do not understand how to use social media
- □ I am concerned about patient confidentiality
- □ I am concerned about the language barrier
- □ Other
- □ Liability and accountability
- □ I do not perceive a benefit to using social media

If 'Other' please state:

C. The use of mobile health applications (apps) by pharmacists

C1. Do you have access to a smart phone or tablet device in your pharmacy? (Please tick ONE option)

- □ Yes
- □ No

C2. Do you recommend any mobile health apps to patients for health advice? (Please tick ONE option)

- □ Yes (Please specify which then continue to C4.)
- □ No (Continue to C3.)

If yes, please specify which:

C3. If you haven't previously recommended any mobile health apps to patients, what is the reason for this?
(Please tick ALL options that apply)

- □ Not aware of any mobile health apps
- □ Don't trust mobile health apps
- □ Don't feel confident using mobile health apps myself
- □ Never thought to suggest it
- □ Other

If 'Other' please state:

C4. Do customers ever ask to discuss health information they have found on a mobile health app? (Please tick ONE option)

- □ Yes
- □ No (Continue to question C5)

If you answered yes to C4., was the information they found reliable? Which mobile health applications, if any, have customers referenced?

C5. Please answer the following questions using the scale provided:

	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree
Mobile health apps have the potential to become an established tool in pharmacy service delivery	○	○	○	○	○
Mobile health apps need to be used more at my workplace when delivering pharmacy services	○	○	○	○	○
Mobile health apps may improve patients' quality of life	○	○	○	○	○
Mobile health apps should be integrated within pharmacy services	○	○	○	○	○
Mobile health apps change the way patients and pharmacists interact	○	○	○	○	○
Mobile health apps may improve patients' knowledge	○	○	○	○	○
Mobile health apps may cause patients to challenge pharmacists' knowledge	○	○	○	○	○
Better guidelines should be provided to help guide the pharmacist on the use of mobile health apps	○	○	○	○	○

C6. If a mobile health app existed that was created and maintained by healthcare professionals would you recommend this to your customers?

□ Yes

□ No (Continue to question C8)

C7. Which of the following health promotion topics do you think this app would be beneficial for? (Please tick ALL options that apply)

□ Smoking cessation
□ Alcohol awareness
□ Sexual health
□ Weight management
□ Other
□ Physical activity
□ Cancer
□ Diabetes
□ Antibiotic awareness

If 'Other' please state:

Unless you have been directed to answer C8. please now go to <u>section D</u>

C8. Please specify why you would not recommend a mobile health app maintained by healthcare professionals. (Please tick ALL options that apply)

- □ I do not understand how to use mobile health apps
- □ I am concerned about patient confidentiality
- □ I am concerned about the language barrier
- □ Other
- □ Liability and accountability
- □ I do not perceive a benefit to using mobile health apps
- □ Too many mobile health apps available, not sure which to recommend

If 'Other' please state:

D – Demographics

D1. What is your gender? (Please tick ONE option)

□ Male □ Female □ Not stated

D2. Which age category are you in? (Please tick ONE option)

□ Under 24 years □ 24-35 years □ 36-45 years
□ 46-55 years □ 56-65 years □ 66-75 years
□ Over 75 years □ Not stated

D3. How would you describe your ethnicity? (Please tick ONE option)

□ White □ White Other □ Mixed
□ Indian □ Pakistani □ Bangladeshi
□ Other Asian □ Black Caribbean □ Black African
□ Black Other □ Chinese □ Any other ethnicity
□ Not stated

If 'other', please specify:

D4. How long have you been qualified as a pharmacist? (Please tick ONE option)

□ 1-2 years □ 3-6 years □ 7-10 years
□ 11-20 years □ 21-30 years □ >30 years

D5. Which type of community pharmacy do you work in predominantly? (Please tick ONE option)

□ Independent □ Small multiple (2-10 pharmacies)
□ Large multiple (greater than 10 pharmacies) □ Other

If 'other', please specify:

D6. Please state the first part of the post code of the pharmacy you work in:

_____

The researcher is conducting interviews following the results of these surveys; can you be contacted to take part in these?

□ Yes (Please include contact details below) □ No

Email address: _____

Telephone number: _____

APPENDIX 2 – Interview Schedule

Good morning/afternoon, my name is xxx, from … University. Thank you for agreeing to give your time for this interview as a follow up to your completion of the survey *"Pharmacist perceptions of the use of social media as a tool in health promotion."* This interview should take no longer than 20 minutes.

What do you think the role of the pharmacist in public health is?

Service delivery, advice giving, sign posting

Tell me about any public health initiatives/services you have been involved in or have offered in the last year.

Public health campaigns, local initiatives, smoking cessation, weight loss

How do you decide what public health services to offer?

PNA reports, personal interest, asked for by public

How do you make the public aware of the public health services you offer?

Word of mouth, leaflet, email, social media

What is the format of delivery of your public health services?

Face-to-face, telephone, email

What resources do you use when delivering a service? Where do you signpost patients for further advice?

Leaflets, guidelines e.g. NICE, websites

How do you evaluate the impact of the public health services you deliver?

Surveys, focus groups, record health outcomes

What other public health services do you think pharmacists can potentially make a significant contribution to? And why?

Drug misuse, sexual health, physical health

What help or support do you think could be given to pharmacists to help them in their public health role more broadly?

Training, more remuneration, better trained staff

What barriers are preventing you from delivering more public health services?

Lack of time, lack of support staff, lack of patient interest

What communication methods do you use when interacting with patients?

Face-to-face, telephone, email, text messaging, social media

Do you use social media? If yes, which platforms do you use?

Facebook, Twitter, Instagram, SnapChat, How often do you use social media?

For what purpose do you normally use social media?

Connecting with family and friends, connecting with colleagues, connecting with patients

What are your views on the use of social media as a tool in health promotion?

Positive, negatives, opportunities, barriers

Have patients ever approached you to discuss health-related information they have viewed on social media? If yes, was the information they viewed evidence-based and accurate?

Give an example of an interaction you have had with a patient

Can you describe any time you have contacted or been contacted by a patient on social media?

What was the nature of the communication? Was health advice given? Was the patient directed to other health social media pages?

What barriers would prevent you from providing health advice to patients on social media?

Liability concerns, lack of time, lack of social media awareness, lack of confidentiality

If a health promoting social media page was created and maintained by healthcare professionals would you signpost patients to this? If yes, for which health topics do you think this would be most useful? If not, why not?

Can you give any examples of when you think a page like this would be particularly useful?

What further training would you need in order to use social media as a tool in health promotion?

How to use social media, how to maintain professional boundaries on social media, how to effectively communicate with patients on social media

Would you have any further suggestions or comments regarding this topic that have not been covered in this interview? If so, what are they please?

Thank you very much for taking the time to meet with me and answer these questions.

Abbreviations

CP = Community pharmacist

CPCF = Community Pharmacy Contractual Framework

HCP = Healthcare professionals

HLP = Healthy Living Pharmacies

IBM = International Business Machines

MH apps = Mobile health applications

ONS = Office of National Statistics

PH = Public health

PIS = Participant Information Sheet

SM = Social media

TAM = Technology Acceptance Model

UK = United Kingdom