The use of social media as a tool to educate United Kingdom undergraduate pharmacy students about public health

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Abstract

Background and purpose: The role of community pharmacists (CPs) in England now includes public health service delivery, which is deemed to be an essential pharmacy service. Pharmacy students need “real-life” experience to develop the skills required. A blended learning approach incorporating offline and online elements may be effective. In particular, using social media (SM) as a teaching tool could have dual benefits - students are engaged in a medium that they enjoy using and they learn how to use SM in a professional way while interacting with the general public. This study aimed to evaluate pharmacy students’ perceptions of SM as a learning tool and to investigate if workplace skills could be imbedded into a coursework assignment.

Educational activity and setting: Final year Kingston University MPharm students (N=120) were divided into 10 groups for a coursework assignment. They had to deliver an offline (at the Penrhyn Road campus) and online (via social media) public health campaign on an assigned topic. Each group had a different public health topic. Following the campaign, students delivered an oral presentation and created a poster to showcase their campaign content and strategy. Elements assessed included the campaign stand, SM page, oral presentation, poster and peer score. Students also completed a survey. The survey consisted of 16 questions divided into four sections. Data were analysed in SPSS® software. Chi-squared was used to test statistical significance ($P<0.05$ was significant).

Findings: The response rate for the survey was 65% (78/120). Over half (51.3%) preferred the self-directed learning aspect of the assignment while 28.2% preferred the delivery of the campaign and use of SM. Students noted that they had developed team working, communication and creativity skills. Most (93.6%) agreed that SM was an effective tool when learning about public health. Many noted that they learned through post-creation (93.6%) and through viewing posts created by others (88.5%). The mean overall score for the public health campaign was 75.4% and 73.2% for the oral presentation. Students achieved higher scores for their SM pages than they did for their oral presentation. However, that difference was not statistically significant.

Summary: A blended learning approach proved to be an effective way to teach final year pharmacy

students about public health topics. Most students indicated that they had developed the skills required to be independent learners. Students also developed workplace skills that will be useful in their roles as pharmacists. SM was noted as an effective tool to learn about public health. The future pharmacy workforce needs to be sufficiently digitally literate to help the public to safely navigate the health information available on social media. A public health assignment, such as the one described here, is an effective way to support pharmacy students to learn how to use this medium appropriately to support healthy lifestyles.

Key words: Pharmacy education; social media; blended learning; work-based learning.

Conflicts of interest: None

Disclosure(s): None

Background and purpose

English community pharmacists (CPs) have had an expanding role in public health in recent years. Today's CPs deliver locally commissioned public health services, which include smoking cessation, weight loss, sexual health and physical activity.[1] In addition, one of the key essential services for CPs in England is to deliver at least six public health campaigns each year.[2] How patients choose to access public health information and services, however, is also changing. A study by Crilly et al[3] identified that the public are more likely to access health information on digital platforms, including social media (SM), than to seek advice from a CP. Therefore, those studying pharmacy at an undergraduate level need to be prepared for this expanding role and be aware of how to use the new digital mediums that the public are now engaging with.

The General Pharmaceutical Council (GPhC), the regulatory body responsible for accrediting the master of pharmacy (MPharm) courses in the United Kingdom (UK), states that pharmacy students must be able to show that they can promote healthy lifestyles, use evidence-based information to inform their practice, collaborate with other healthcare professionals and the public to improve patient outcomes, and communicate effectively.[4] In addition, the GPhC sets standards for pharmacy professionals and pharmacy students (see table 1), which were updated in 2017. Pharmacy students also need to acquire important workplace skills in order to succeed in their careers. The Future of Jobs report[5] highlighted that by 2020 the top 5 skills required by the workforce would include: complex problem solving, critical thinking, creativity, people management and co-ordinating with others. Helping students to develop these skills will support them in their transition from education to the workplace.

Different approaches and theories about the most effective ways of teaching students in higher education have been discussed.[6–11] Pedagogical research suggests that students should be treated as individuals and their preferred learning method considered.[12,13] The majority of teaching in higher education currently, however, is unidirectional with the teacher giving information to the student, the passive recipient.[14] Active teaching approaches that engage the student in activities to aid their learning have been encouraged.[14] One such approach is that of blended learning.[10,11] This approach combines face-to-face and online learning and encourages the student to direct their own learning and to become an independent learner – a skill that is useful not only during their higher education training but also once they leave university.[15,16]

Encouraging future healthcare professionals to learn to use digital tools in a professional capacity is important, as the general public are already using these to access health information.[3,6] In fact, already qualified CPs have stated that they are frequently approached by the public to discuss information accessed on SM.[1] Also of note is the fact that the majority of pharmacy students today have spent their formative years surrounded by new digital advancements and have used technology in pre-university learning.[7,17] Virtual Learning Environments (VLEs), such as Canvas and Blackboard, are now common place in higher education, therefore, the use of other digital tools seems normal to this generation of undergraduates.[17–20]

Online learning in pharmacy education has been discussed at length in the literature.[18,19,21–28] SM platforms have been noted as being effective tools when teaching pharmacy students, however, each platform is used for different purposes.[22–25] Examples have included using Facebook to help students to prepare for final year exams[22] and using YouTube to teach about drug literature reviews.[25]

The use of online tools by pharmacy students has not been without its challenges. Benetoli et al[29] noted that negative online behaviour could be detrimental to the individual as well as to the profession, therefore, issues related to e-professionalism and online behaviour needs to be addressed.[29–34] In 2010, Cain and Fink[31] discussed the challenges of addressing legal and ethical concerns when using SM in pharmacy education. In particular they mentioned the importance of having measures in place to protect the reputation of their students and to consider matters relating to e-professionalism. Estus[35] highlighted, however, that the use of SM as part of the learning process would make students more aware of the content they posted on their own SM profiles, hence, improving e-professionalism.

This study explored undergraduate pharmacy students' perceptions of the use of SM as an educational tool to learn about public health topics. It also sought to understand whether employability skills such as teamwork, creativity, leadership and entrepreneurship could be embedded within a coursework assignment.

Educational activity and setting

Students learn about public health throughout all levels of the MPharm course at Kingston University. It is introduced in the first and second year in lectures and workshops, while in the third year students are tasked with completing a group report on a novel public health service that could be

delivered in a community pharmacy. A blended learning approach is used for a final year pharmacy students' coursework assignment (worth 20% of the module mark). Students (n=120) completing the 30-unit module "Effective decision making for pharmacy practice" were divided into 10 groups with 12 students in each. The module learning outcomes and curriculum content linked to the assignment can be found in table 3.

Miller's triangle, a model used to indicate the level of competence that pharmacy students must demonstrate before graduating, was referred to when developing the coursework assignment.[36] By the time of graduation, MPharm students must fulfil the "shows how" criteria for most of the skills required in pharmacy practice, meaning that they are, "… able to demonstrate that they can perform in a simulated environment or in real life."[4] Students are able to do this in objective structured clinical examinations (OSCEs) but it was felt that a real life exercise would benefit their learning.

Students were given an introductory lecture in the first week of the first semester (one week before the assignment began) explaining the aims and objectives of the coursework assignment. This was supplemented with an assignment brief, which explained what students were expected to do for the assignment. It also contained a participant information sheet (PIS) explaining that the coursework assignment would be evaluated for research purposes through the use of a survey tool. Students were informed that participation in the survey was voluntary and that completion of the survey would be taken as informed consent.

Taking a similar approach to Laverty et al[37] students were not able to self-select their own groups and were instead allocated to groups based on surname. Each group was assigned a different health topic and was tasked with delivering an offline and online (via SM) public health campaign. Topics included weight management, nutrition, physical fitness and sexual health among others. The researchers believed that the students would learn in two ways. Individuals within each group would learn about their own health topic by researching evidence-based health information and then creating posts that would be shared with the public and other students. In addition, students would learn about different public health topics by reviewing the SM pages of the other public health groups in the assignment and by reviewing the materials at their offline campaigns. The online (SM) campaign was delivered for a period of 11-weeks, from September 2017 to December 2017. This was followed by the offline campaign (one day at the main Kingston University campus, Penrhyn Road) in

December 2017. This approach allowed students to interact with an audience inside and outside of the university.

In order to deliver their SM campaigns, as a minimum, students had to create a Facebook page and share a YouTube video on their health topic. A Facebook page is a public profile for a particular cause. This is different from a personal profile, which is for an individual person. Students were, therefore, able to keep their personal profiles separate and gain "fans" for their specific health cause. If groups felt it necessary they could also create other pages on different SM platforms, such as Twitter and Instagram. Students were encouraged to post a mixture of status updates, pictures and videos delivering key public health messages. All pages were 'open' meaning that they were visible to the public as well as to students taking part in the assignment. The assignment also involved students considering how they had met the GPhC's nine standards for pharmacy professionals (see Table 1) during their campaign.

Following the health campaigns, in December 2017, students delivered a presentation to their peers outlining their campaign strategy, content and outcomes. It was after this presentation that students were invited to complete a survey on their perceptions of the assignment and of the use of SM as an educational tool. This approach was used to ensure as high a response rate as possible as all students from the cohort should have been in attendance.

Each team, as opposed to each individual student, received an overall score for each part of the assignment. Only the peer-assessment aspect of the assignment was individualised, with the score being allocated based on a student's perceived contribution to the assignment by their fellow group members. Peer-assessment was deemed to be an important criterion for this assignment as research has shown it to be a powerful motivator to encourage individual students to contribute to group assignments.[38] A marking scheme for all elements of the coursework assignment can be found in Appendix A.

Survey tool

In advance of creating a survey tool, a literature search was carried out to find if the perceptions of pharmacy students on the use of SM as an educational tool had been studied. While some important research had been carried out,[5,6,8,17–23,26–28,31–35,39] the authors felt that there was a gap in relation to pharmacy students perspectives of its role in public health education.

A survey tool was created and consisted of 16 questions divided into 4 sections: Preferred learning mediums for public health topics; The public health campaign overall; Use and perceptions of SM as a tool in public health education; and Demographics (age, gender, ethnicity). Questions types included: multiple choice (with pre-formulated answers), check box and 5-point likert scales (ranging from 1 (strongly disagree) to 5 (strongly agree)). Free text boxes were also included to allow respondents to expand on their answers, if necessary. Two internal experts (one for public health, another for digital technology) reviewed the survey for content validity.

The survey was piloted by five Overseas Pharmacists' Assessment Programme (OSPAP) students (qualified pharmacists from outside of the European Union completing a post-graduate diploma in the UK to have their degree accredited by the GPhC). Their responses were then excluded from the data analysis. The average time to complete the survey was five minutes. The final version of the survey is available in Appendix B.

Statistical analyses

Responses were entered and analysed in SPSS for Windows, version 25 (International Business Machines (IBM), New York).[40] To identify any associations between responses, chi-squared tests were used. Sub-analyses of perceptions were performed by respondents' gender, age and ethnicity. In addition, an analysis of variance (ANOVA) was used to determine if the type of assessment (campaign, SM, poster, oral presentation) affected group marks. An *a priori* level of less than 0.05 ($p<0.05$) was set as significant.

Ethical approval

Ethical approval for the survey tool was granted in November 2016 (1213/045) by the delegated ethical approval team operating within Kingston University.

Findings

A total of 78 out of 120 students completed the questionnaire (65% response rate). Participant demographics are shown in table 3. Respondent demographics were representative of the cohort of students surveyed.

The mean overall score for the public health campaign (covering the offline campaign day, SM

page, A3 poster and peer assessment elements) was 75.4% (range 71-85%); and 73.2% (range 64-85%) for the oral presentation (see table 4). Students scored higher in the SM aspect of the assignment than in both the A3 poster and the oral presentation. An analysis of variance, however, showed that the effect of the type of assignment on group marks was not significant, $F(3, 44) = 1.457$, $p=0.239$. All students scored 100% in the peer assessment element of the assignment, indicating an equal contribution by all.

Preferred learning mediums for public health topics

In terms of the survey, just over half of respondents (51.3%, n=40/78) preferred self-directed research when learning about public health. This compared with 28.2% (n=22/78) who preferred the public health campaigns with SM; 11.5% (n=9/78) who preferred workshops; and 9% (n=7/78) who preferred lectures. There were no statistical differences based on age, gender or ethnicity.

Skills gained during public health campaigns

Team work, communication and creativity were the most highlighted skills gained through the delivery of the public health campaigns (see Figure 1). Respondents also commented that they had gained additional skills including, “the confidence to talk about a sensitive topic”, “compromise” and “relationship-building”. Other positives highlighted by respondents were that engaging with the campaigns gave them a better understanding of the health topic promoted (89.7%, n=70/78), the pharmacy profession (66.7%, n=52/78) and the practical tools used to support a healthy lifestyle (51.3%, n=40/78).

Use of SM during public health campaigns

Facebook was used by all campaign groups. In addition, groups chose to use other SM platforms including: Instagram, YouTube, Twitter and SnapChat. As well as being the most used platform, 82.1% (n=64/78) of respondents also deemed Facebook to be the most effective for promoting public health topics. Those that preferred Facebook stated that it was the easiest platform to share information on (71.9%, n=46/64); it had more users than other platforms (67.2%, n=43/64); it was the easiest platform to upload information to (46.9%, n=30/64); and it had more ways to display information than other platforms (43.8%, n=28/64). Video posts (41%, n=32/78) and picture posts (39.7%, n=31/78) were noted as being the most engaging types of media used while audio-only posts

were highlighted by just one respondent as being engaging. Facebook insights provided information about how viewers interacted with the SM campaign pages. Taking the physical activity campaign group's Facebook page as an example, this page had 1,239 likes (fans). During their campaign they posted 45 video and 20 photo posts. The total number of unique visitors to watch the videos was 12,172 and to view the photo posts was 5,552. These posts reached a wider audience than just the page fans because they were shared and liked by those who viewed them.

Prior to sharing information with the public, academics at the university reviewed it to make sure that it was evidence-based. The majority (75.7%, n=59/78) stated that such information had been easy to find (see table 5). Information sources referenced during the public health campaigns included: The National Institute for Health and Care Excellence (NICE) guidelines (83.3%, n=65/78); medical databases e.g. PubMed (82.1%, n=64/78); health websites e.g. patient.co.uk, NHS choices (52.6%, n=41/78); and charity literature e.g. British Heart Foundation, Diabetes UK (50%, n=39/78).

Perceptions about the use of SM as a tool when learning about public health

Student views on the use of SM as an educational tool are shown in table 5. Almost all respondents (93.6%, n=73/78) agreed or strongly agreed that SM was an effective educational tool for learning about public health. Female participants were more likely than male participants to strongly agree with this statement (*p=0.001*). Participants agreed that the process of learning occurred both through the creation of posts for SM (93.6%, n=73/78) and also in the viewing of posts created by others (88.5%, n=69/78). Of note, female respondents were more likely to strongly agree that creating posts for SM enhanced their knowledge of public health topics (p=0.007).

Meeting GPhC standards

Students demonstrated that they had met the GPhC standards for pharmacy professionals throughout their public health campaigns. Examples of how the standards were met by particular groups is shown in table 6.

Discussion

While digital technology has been used to teach pharmacy students in the past[17–19,22,23,26–28] the authors believe that this is the first study looking specifically at undergraduate pharmacy students'

perspectives of SM as an educational tool for public health. Overall, students were positive about its use as an educational tool with many noting that they had opportunities to learn, both when creating posts for their own SM pages as well as when they viewed the posts on the other campaign groups' SM pages. In addition, this coursework assignment helped students to gain workforce skills, particularly teamwork, creativity and communication skills.

Group scores showed that students scored highest for the campaign and SM aspect of the assignment, and less highly for the A3 poster. This may be due to students being more engaged in their learning when collaborating with colleagues using digital mediums, as has also been noted by Manasijevic et al.[39] Our results, however, in relation to the effect of the type of assessment on group marks achieved were not significant. This highlights that the SM aspect of the assignment was as discriminating to students' performance as traditional assessments, such as posters and oral presentations. Every student scored 100% in the peer-assessment indicating that awarding marks for individual contribution to a group assignment motivates students to contribute equally to the assignment.[38] The literature does, however, also suggest that peer-assessment could be affected by social bias, with students awarding each other inflated marks due to the high stakes nature of an assignment.[41]

Most students stated that they most enjoyed the self-directed learning aspect of the assignment, however, as stated by Ofstad and Brunner,[38] independent study is often not sufficient on its own for learning and needs to be followed by application of knowledge, such as within a team-based assignment. They did acknowledge, however, that in order for team-based learning to be successful, individuals within the team must do their own preparation before sharing within the team setting. Independent-learning will be essential when students graduate from the MPharm course, particularly because they will have to deliver public health campaigns during their pre-registration training year, and then deliver six campaigns each year when fully qualified, as an essential pharmacy service.

Students felt that the approach used in this assignment had helped them to develop a multitude of skills that would be useful in the workplace. This is important because research has shown that work-based learning gives students valuable opportunities to learn communication and practical skills.[42] Those students without such experience benefitted as this assignment bridged that gap, giving all students the opportunity to develop useful workplace skills.

Issues relating to e-professionalism were considered in this study. The authors of the paper acted as online moderators for the SM health pages in order to flag any issues identified. One incident arose when the cancer group depicted a bowel cancer sufferer to be a young man in an online video. This contradicted the literature, which highlights that bowel cancer sufferers are more likely to be over 60-years of age.[43] The video was removed by the academics running the assignment prior to it being posted publicly as it may have confused viewers about the demographic most affected by this condition. This was important because, as a learning tool for other students, the content needed to be evidence-based and accurate, and reflect the most common demographics affected by particular health issues.

A particularly reassuring outcome from the survey was that the majority of students accessed information to develop their health campaigns from evidence-based sources such as NICE guidelines and NHS health websites. In addition, students used primary literature to guide their campaigns indicating their confidence in interpreting published research. As future healthcare professionals it is essential that students understand the importance of sharing up-to-date, evidence-based advice with patients to support positive health outcomes.

It is interesting to note that more traditional teaching environments, such as lectures and workshops, were the least preferred learning environments for students. King and Egras[27] found that students enjoyed the "convenience" of online learning and the fact that the online environment enhanced participation in discussions that would not have been possible in a classroom. In addition, video and picture posts were found to be the most engaging, which is unsurprising given the different ways students prefer to learn.[7] Facebook was the preferred SM platform used by campaign groups but it was noted that other SM platforms were used that fed into the Facebook page. Given the changing nature of SM usage it may be the case that other SM platforms become more popular in the future.

Following this research the authors have reflected on how this assignment could be enhanced. There are opportunities to review the public health priorities within the locality of the university and to tailor the health campaign topics to address these. In addition, the inclusion of behaviour change theory, such as the trans-theoretical model of behaviour change[44] could promote positive health behaviours for those who engage with the campaigns. Finally, there may be opportunities for

pharmacy students to evaluate the impact of their health campaigns on public health and health behaviours.

A limitation of this study was that the results were from one UK-based university and in one subject discipline, namely pharmacy. The outcomes may, therefore, be different at different institutions and in different subjects.

Summary

A blended learning approach (combining offline and online activities) proved to be an effective way to teach final year pharmacy students about public health topics. Most students preferred the self-directed learning aspect of the assignment indicating that they have developed the skills required to be independent learners. This is particularly important given that they are soon to graduate. SM was regarded as an effective tool to learn about public health. The use of SM for other topics should be investigated further. Students also developed workplace skills, such as leadership, team-working and prioritisation that will be useful in their roles as pharmacists.

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FIGURE LEGEND

Figure 1: United Kingdom pharmacy student perceptions of skills gained during a public health campaign course work assignment