



## Peer Education: An Effective Teaching Approach to Supporting Pharmacy Undergraduate and High School Pupil Learning

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### ABSTRACT

Peer education between undergraduate pharmacy students and high school pupils has the potential to be an effective teaching method for the delivery of health promotion interventions due to social and cognitive congruence that learners share with educators. The aim of this study was to: explore perceived impact on third year pharmacy students of being a peer educator; and to identify benefits of health promotion and change in knowledge of high school pupil learners. Interactive workshops covering public health topics relevant to 14-16 year olds were developed and co-designed with teachers, with workshop learning outcomes mapped to the appropriate curriculum. Pharmacy students were allocated to groups of four and provided with training prior to workshop delivery. Surveys of pupils and teachers evaluating the workshops were analysed using descriptive statistics; pharmacy students' perceptions were captured in an assessed continuing professional development record and analysed thematically. Pupils and teachers rated the workshops very highly; pharmacy students benefitted by feeling more prepared for future health promotion roles.

**Keywords:** Peer education, Pharmacy undergraduate students, High school pupils and Public health promotion

### INTRODUCTION

National Health Service (NHS) England's Five Year Forward View [1] calls for a radical upgrade in prevention and public health promotion to ensure the future health of millions of children and the sustainability of the NHS. One of the ways this can be achieved is by improving knowledge, understanding and application of health and well-being skills in the development of the future and current healthcare workforce. In England, the recently developed framework for promoting ownership of All our Health [2] has identified the critical need to ensure that healthcare professionals are more active in prevention and population health and in measuring the impact of their work; and in being a force for change, contributing to building a culture of health in our society and to work with people, families and communities to

equip them to make informed choices and manage their own health. Increasingly the self-care agenda will be significant as a key strategy in promoting health and wellness. Our future healthcare workforce needs to be fully aware of and able to engage in promoting person-centered care, self-care management and exposure opportunities will be key in nurturing a self-care culture.

The imperative for health professionals to develop health promotion and prevention skills are now captured in the expected competencies to be achieved during pre- registration healthcare training programmes [3,4]. Alongside this, there is a clear requirement to promote pupil health and wellbeing, with the need to design and integrate specific health and wellbeing focused education opportunities as part of curriculum delivery for children aged 11-16 attending secondary and high schools.

Public health promotion interventions in high schools may incorporate behavior change techniques, health education and /or empowerment of children to take control of their life. Peer education, where student teachers who are of the similar age as the learners in high schools is a very popular, positive and successful approach to teaching and learning [5,6]. It is a particularly valuable approach for dealing with life style related issues that affect health and wellbeing. Peer education has been used for teaching a range of health behaviors including sexual health [7], smoking [8] and microbes, hygiene and antibiotics [9] and can provide benefits to both peer educators and peer learners [10].

The 2016 report '*Improving the health of the public by 2024*' published by the Academy of Medical Science [11], recognizes the wide range of health challenges and opportunities that the United Kingdom will face over the coming decades and details a number of strategies to help serve and improve the health of the public. In the context of this shift in policy for health services towards self-care and health promotion, the contribution of pharmacy, and in particular of community pharmacy, has been identified. The concept of community pharmacies as centers for delivering health prevention and promotion advice within a tiered commissioning framework that is aimed at delivering high quality public health services to meet local need, improve the health and wellbeing of the local population and help reduce health inequalities was introduced in 2009 [12]. Despite this, a barrier to implementing health promotion activities exists, with community pharmacists reporting a lack of skills and knowledge in providing services that aim to improve the health of the population and have suggested a need for undergraduate pharmacy education to better prepare pharmacists for this role [13].

Given growing evidence that public engagement has more impact than traditional methods of health guidance and promotion (e.g. providing patients with leaflets, or by displaying posters to deliver key healthcare messages) [14] it is important for educators to recognise the need for undergraduate programmes to support undergraduate students in engaging with communities on a range of healthcare matters that will help to prepare students for future professional practice. Such interactions would not only be of benefit to the health and wellbeing of future populations but also provide important opportunities for learning for students.

Thus, the overall aims of this project were to plan, initiate, conduct and evaluate a series of student-led workshops to be delivered in high schools in the North West of England. These workshops addressed important health & well-being topics associated with improving the life opportunities of school children within Greater Manchester. Specific objectives were to:

- To develop, implement and facilitate a wide range of health promotion workshops targeting learners aged 14-16 year old to be delivered by undergraduate students as a core undergraduate curriculum activity.
- To measure the impact of these interventions on the well-being of the local communities and target groups
- To identify undergraduate students' views of this activity and its contribution to their professional development.

#### LITERATURE REVIEW

Interactive workshops designed to last approximately 55 minutes covering public health topics relevant to 14-16 year olds (Alcohol, Antibiotic Resistance, Diabetes, Mental Health & Sexual Health Awareness) were developed and co-designed with teachers, with workshop learning outcomes mapped to the appropriate key stage (4) of the UK National Curriculum [15]. Regardless of topic, all workshops were designed in a similar manner to improve on general knowledge and raise awareness about the specific healthcare topic relevant to the target audience age, rather than be directive. In general, workshop content focused on providing background information and statistics about the healthcare issue, described factors that both lead to the development of and prevention of the issue, concluding with signposting, often by take away leaflets or cards, for further guidance and support. Three to four interactive activities were included to reinforce key concepts. An example of workshop detail has been described for antibiotic resistance [16]. It is hoped that long term these awareness raising workshops will lead to a reduction in these particular healthcare issues that often start in the teenage year, but become serious issues in later years.

All third (penultimate) year students on an undergraduate Masters in Pharmacy (M-Pharm) programme were randomly allocated to groups (of four) and provided with training on one workshop. This comprised providing some teaching tips, how to be interactive with a class, safeguarding as well as the healthcare specific topic. The hands-on activities included in the workshops were demonstrated and students were provided with a script of

key points to cover in the teaching session (workshop) they were to be delivering. All presentations were produced using the web-based presentation software Prezi (<https://prezi.com/>). Prior to delivery students were invited to deliver a practice run of their workshop. The impact of the workshops on pupils was evaluated using pre and post intervention questionnaires based around 5 questions using a 5 point Likert scale. There were also two open ended questions asking about the best and worst features of the intervention. The questionnaires were aimed to assess knowledge and attitude change, and additional questions were included on the post-test questionnaire to evaluate satisfaction with the workshop. Perceptions of teachers were established using a short survey. Survey data were analyzed using descriptive statistics. Students' perceptions were captured in an assessed continuing professional development (CPD) record and analyzed thematically.

### RESULTS AND DISCUSSION

There is a growing recognition of the importance of healthcare professionals being able to teach, whether this be in terms of educating patients, fellow professionals or healthcare students [17]. Consequently, this means exposing students to opportunities to develop these skills and competencies. The UK standards for pharmacy professionals published in May 2017 explicitly mention being able to 'communicate effectively' and the pharmacists' ability to contribute to education [18]. It is therefore imperative that these skills are taught within Higher Education Institutes. Although peer education is a potential method of achieving this, there is a lack of application of peer education programmes within pharmacy schools, despite their effective

use in other healthcare professions such as medicine [18]. Those that have been reported tend to involve pharmacy undergraduate students teaching other pharmacy or healthcare students [19]: to our knowledge there seems to be no published examples of pharmacy schools in the UK using peer education to engage with the local community.

One of the main advantages of peer education compared to traditional teacher-pupil style teaching is that it is shaped from communication that occurs instinctively between peers [20]. There are reported benefits to both the peer educators and the target group of peer learners [10,21]. For peer learners the outcomes tend to be individual to each project. For example, the uptake of health promotion service [22] or increased knowledge surrounding a topic [9]. More general outcomes of peer education programmes include stress reduction and overall grade improvement [5]. The impact on peer educators can help with personal development, improving leadership skills, knowledge relevant to topic and individual health behaviours [10].

To date, two cohorts of third year M-Pharm undergraduate students have delivered 72 workshops across 12 schools in the Greater Manchester region to over 2000 pupils. All of the workshops adopted a similar approach, that of awareness-raising about healthcare issues that affect and can have a long-term impact on this age group. As shown in Table 1 all of the workshops were highly rated by the high school pupils. It is acknowledged that self-reporting of workshop enjoyment may be a limitation as some pupils would enjoy the workshop simply because they could avoid a regular lesson. However, many (over 80%) of the high school pupils made specific, content focused comments on the questionnaire returns that suggested increased knowledge about the healthcare topic being delivered.

**Table 1:** Likert scale response on pupil assessment of healthcare workshops.

S. No	Variables	Sexual Health (n=224)	Mental Health (n=359)	Antibiotic Resistance (n=433)	Diabetes (n=596)	Alcohol (n=391)	Average Likert 1-5 (n=2003)
1.	Workshop was interesting	4.1	4.5	4.1	4.0	4.2	4.18
2.	Workshop was difficult	1.5	1.4	1.6	1.3	1.6	1.48
3.	Workshop was confusing	1.6	1.2	1.4	1.5	1.6	1.46
4.	Workshop was informative	4.3	4.5	4.3	4.2	4.4	4.34
5.	Enjoyed listening to the university students	4.2	4.5	4.2	4.1	4.1	4.22

There were no significant differences between the five healthcare topics; all were perceived to be of a similar standard. Having sought the views of teachers on workshop design and content prior to launch will have contributed to this consistency. Workshop content appeared to be at the right academic level to provide sufficient interest without being either too difficult or too easy. This is important when dealing with either mixed ability classes or with school year groups that have been streamlined according to ability. The vast majority of pupils (87%) felt that the workshops were informative and most (84%) really enjoyed being taught by

the undergraduate pharmacy students. These quantitative findings were supported by free text comments. Apart from focusing on aspects specific to a healthcare topic, two positive themes spanning all topics were (i) being taught by university students and (ii) the blended (varied) learning approach adopted by the workshops. The most common negative feature was that the workshops were too short. Pupils showed improvements in their knowledge scores from pre to post intervention, 88% indicating that they felt that they had gained knowledge about the topic that was covered during the workshops (Table 2).

**Table 2:** Pupil knowledge improvement on healthcare topic post workshop.

Variables	Sexual Health	Mental Health	AMR	Diabetes	Alcohol	Average
Improved knowledge	89%	78%	79%	91.6%	97%	87.0%
No improved knowledge	11%	22%	21%	8.4%	3%	13.0%

At the end of each workshop pupils were encouraged to share their new found knowledge and awareness with family and friends. Most workshops had takeaway information leaflets or cards to aid this. It is hoped that long term this approach will have a positive benefit on the health of the population. Indeed, preliminary data derived from (unpublished) follow-up studies on the antibiotic resistance awareness workshops indicates that Manchester now has the largest number of antibiotic guardians in the country (<https://antibioticguardian.com/>), and that antibiotic prescription rates have fallen for this age group since the introduction of these workshops. Similar long term impact studies are being conducted for the mental health intervention (stigma measures) and diabetes workshop (healthy living questionnaire).

Class teachers also rated the workshops highly, with more than 4/5th of survey respondents viewing workshops as having a positive impact on pupils' learning. In addition, 92% (n = 96) agreed that pupils enjoyed the workshops; 97% perceived content appropriate; 88% wanted workshops again. The teachers were satisfied with the curriculum and with the pharmacy students who visited their classes. Many schools that had opted for a couple of workshops in the first year of delivery then requested significantly more in subsequent years

(data not shown).

Undergraduate feedback questionnaires included rating scales to assess overall impact and enjoyment of the event as a whole. Feedback was overwhelmingly positive (n=45), giving the event an average Likert scale rating of 4.35 out of a possible 5. The M-Pharm students reflected on the value of being a peer educator in terms of improving their leadership, team working, presentation, communication and public engagement skills through working together in groups to prepare an effective and professional delivery of the workshop. In addition, many students commented on acquiring an increased knowledge of the healthcare topic that they were assigned and perhaps most significantly in terms of professional development, the application of health and well-being learning, and recognition of their role and contribution to sharing knowledge and skills with a younger generation. Many students noted that this was a great opportunity for them to adapt their language and approach to a younger audience, opportunities that did not previously exist for them on the M-Pharm course but will be relevant to them in practice once qualified. From an undergraduate perspective, this alone epitomizes the value of this peer education approach to health promotion and professional development. The only aspect of the workshops that was viewed as an area

for development was consistency of approach and professionalism amongst all four group members. Approximately 9% (n=45) of students that commented noted that some group members did not make as much effort as others and at times seemed unprepared. This is a valid comment and one that will be addressed in the next academic year. Working in allocated groups with fellow students that they did not know provides an ideal opportunity to enhance team working and leadership skills and is relevant to situations commonly found in workplace settings.

#### CONCLUSION

In conclusion, peer-education between university

undergraduate students and high school pupils is a novel approach to healthcare promotion that is of benefit to both the pupils and the students. High school pupils benefit by improved knowledge and attitudes towards particular healthcare issues needed to promote their health whilst for undergraduate pharmacy students peer education provides an ideal opportunity for students to practice and contribute their future role into public health promotion.

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