Assessment of Community-based Service Learning at the University of Lyon: an Opportunity to Rethink Public Health Education

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Abstract

Background. The French government set up a community-based service learning programme on health promotion for undergraduate health students to involve them in key public health objectives. At the University of Lyon, students first underwent formal instruction, including e-learning, lectures, and interactive seminars, and then became health educators for school pupils. The main objective of the present study was to assess the process of implementing this programme during the 2018-2019 academic year.

Methods. Satisfaction and perception of medical and midwife students with service learning experiences were assessed by a questionnaire, semi-directive interviews, and observations.

Results. Over time the students evolved from a negative perception of service learning to a positive one. Students were mostly satisfied by interactive seminars that allowed them to gain confidence and competence in health education. They felt valued by taking part in this service learning. They became more aware of their educative responsibilities on public health issues as future professionals.

Conclusions. Students had a positive perception of the implementation of a community-based service learning programme in our University, as it seems a good way to raise their awareness of prevention and health education issues.

Introduction

Promotion of preventative healthcare is insufficient in France and remains poorly organised. There is a lack of coherent coordination between French agencies involved with prevention, and a mismatch exists between needs and funding policy. Furthermore, healthcare providers devote only a small portion of their activity to this field which is strategic for population health (1). Prevention in the French healthcare system falls behind levels found in other developed countries such as the United Kingdom, Canada, and Finland (2–4). The lack of a broad national prevention policy also results in a lack of training in prevention for health students.

In 2018, the French government set up an educational programme on health prevention for undergraduate health students (5). In the first year of implementation, a total of 47,000 students were included at the national level. This educational programme has two main objectives: (i) introduce future health professionals to the challenges of primary prevention and health promotion and develop skills for integrating these concepts into their future clinical practice; (ii) ensure health education actions, targeting disadvantaged populations. This programme consists of theoretical training within universities followed by practical training in the form of a community-based service learning on themes for which primary prevention is needed.

In the health faculties of the University of Lyon, two themes were selected in 2018: (i) lifestyle habits on topics such as diet, physical activity, sleep, and oral hygiene; (ii) life-saving gestures. The target audience

were pupils from primary school to college who were located in priority areas defined by a high proportion of individuals from disadvantaged socio-professional categories.

We report herein an implementation process assessment of an educational programme on health prevention in the medical and midwife faculties of the University of Lyon during the 2018–2019 academic year. A mixed methodology was used to evaluate the students' experience of this new programme: a quantitative approach based on a questionnaire measuring students' satisfaction with the formal education; a qualitative approach combining semi-directive interviews evaluating students' perceptions about the entire programme, and observations of participants in schools to assess how they dealt with the practical training aspects of the programme.

Methodology

Theoretical framework

The assessment was based on Donald Kirkpatrick's model (6). This framework proposes to assess an education programme on four levels: the overall degree of satisfaction of the students (level 1); what they have learnt (level 2); what has changed in their working behaviours (level 3); and what is the long-term impact or the results (level 4).

Population

Third-year medical students of the two faculties of medicine and fourth-year midwifery students at the University of Lyon who participated in the community-based service learning programme during the 2018–2019 academic year were invited to participate in the quantitative and qualitative approaches.

Intervention

The educational programme on health prevention had six steps. Firstly, the aims of the programme were presented to the students. Secondly, students followed an e-learning training course on prevention and health promotion. Documentary resources on the selected themes (lifestyle habits or life-saving gestures) were available on the faculty's digital platform. Thirdly, a conventional lecture was organised to reiterate the essential points presented in the e-learning component. Fourthly, twelve hours of interactive seminars over two days allowed students to develop their educational attitude and to discover participative tools to be used during their health education sessions in schools. The pedagogical objectives of the seminars are described in Table 1. Fifthly, the students had to prepare and conduct health education action for pupils in the schools on one of the two themes. Finally, students had to present a report on their action.

Table 1

Median scores of students' self-evaluation for the interactive seminars' seven objectives (N = 580).

Objectives of the interactive seminars*	Before the seminar Median [IQR]	After the seminar Median [IQR]	p**
1. Identify the representations of prevention and the determinants of health	6 [5–7]	7 [6–8]	< 0.001
2. Realise the complexity of health behaviours	7 [5–8]	8 [7–8]	< 0.001
3. Adopt an adequate educational attitude	6 [5–8]	8 [7–8]	< 0.001
4. Discover animation techniques according to the chosen educational approach	6 [3–8]	8 [7–9]	< 0.001
5. Build and lead a class session	6 [4–8]	8 [7–9]	< 0.001
6. Understanding of group dynamics	6 [5–8]	8 [7–8]	< 0.001
7. Able to assess his/her prevention action	6 [5–8]	8 [6–8]	< 0.001
Total score	41 [32–52]	54 [49–58]	< 0.001
* 1 item per objective: 7 items ranked on continuous numerical scale from 0 to 10			
** paired Wilcoxon-Mann-Whitney test			
IQR = interquartile range			

Quantitative method

The main objective was to assess the contribution of the seminars on the development of competencies of the students targeted by this part of the programme (level 2 of Kirkpatrick's model). The secondary objectives were to assess levels 1 and 3 of Kirkpatrick's model for the seminars.

Data collection

A self-administered questionnaire was developed for the study. It was composed of 24 items exploring the first three levels of Kirkpatrick's model: (i) the overall degree of satisfaction of the students (8 items); (ii) what the students have learnt (15 items); and (iii) students' perception of the seminars' impact on their future professional practice (1 item). Items were rated on a Likert scale with four levels or on a numeric

scale ranging from 0 to 10. The questionnaire was available on the faculty's digital platform and was administered to the students at the end of the seminars.

Data analysis

Replies to the items of the questionnaire were described by medians and interquartile range [IQR], or by proportion (%). The main endpoint was the students' perception of their competency or knowledge about the seven objectives of the seminars. Each objective was measured by one item of the questionnaire. For each student, a score (out of 70) was calculated by summing the responses of the seven items (Table 1). A paired Wilcoxon-Mann-Whitney test was used to compare scores before and after the seminars with an alpha risk of 5%.

Qualitative method

The qualitative approach aimed to evaluate the students' perception at different steps of the programme (levels 1 and 2 of Kirkpatrick's model), their appropriation of the educational tools, and a possible perception change on prevention and health promotion (level 3).

Data collection

A panel of twenty students received semi-directed interviews at two points during the programme: before their action in schools and at the end of the academic year. Students volunteered to participate. They were recruited first by a call on social media, and then by word of mouth.

The interviews discussed: (i) students' perception of public health, prevention, and health promotion; (ii) their opinion of the teaching in terms of form and content (*i.e.*, presentation session, e-learning, lecture, interactive seminars, and practical session on the theme of life-saving gestures), and a possible change in their opinion between the first and second interviews; (iii) their opinion on implementation of the programme; (iv) their implication in the programme; (v) students' perception of the action they had carried out in schools; (vi) the students' vision of the value of the community-based service learning for them and for civil society; and (vii) prospects for improving the programme.

Six actions in schools, made by six students that were not interviewed, were observed; the following was noted: (i) a description of the action content; (ii) their physical posture; (iii) educational attitudes of the students; (iv) difficulties encountered by the students; and (v) feedback or evidence of understanding from the class.

Data analysis

All the interviews were recorded and transcribed for thematic analysis. Transcripts from the first interviews were used to inform the questions used for the second interviews. The identification of redundancies was used to identify data saturation. Notes taken during observations were transcribed for thematic analysis.

Results

Quantitative study

Among the 640 participating students, 580 answered the questionnaire about the interactive seminars (participation rate: 90.6%).

Main endpoint

According to the students, their competency/knowledge level improved for the seven objectives of the seminar; the median total score had a significant increase of 13 points (Table 1).

Satisfaction with the seminars

The majority of students (82.7%) were quite or very satisfied with the seminars. More than 80% of the students were very or quite satisfied with the facilitation of the seminar, exchanges between participants, the documentation provided, the atmosphere in the group, and with the trainers. Three-quarters of students (75%) considered that the seminars met their expectations totally or partially (Table 2). The median [IQR] attributed to the quality of the seminars was 8 [7–8] out of 10 (Fig. 1, left panel).

Table 2

Satisfaction of students with the seminars, and impact on their professional practice (N = 580).

Level 1 of Kirkpatrick's model					
	Very N (%)	Quite N (%)	Not very N (%)	Not at all N (%)	No answer N (%)
General satisfaction	145 (25.0)	335 (57.7)	81 (14.0)	19 (3.3)	0 (0)
Satisfaction for:					
1. Seminar facilitation	271 (46.7)	246 (42.4)	36 (6.2)	7 (1.2)	20 (3.5)
2. Exchanges between participants	340 (58.6)	208 (35.9)	11 (1.9)	2 (0.3)	19 (3.3)
3. Documentation provided	182 (31.4)	303 (52.2)	70 (12.1)	7 (1.2)	18 (3.1)
4. Group atmosphere	406 (70.0)	150 (25.9)	7 (1.2)	0 (0.0)	17 (2.9)
5. Atmosphere in the pair of trainers	392 (67.6)	159 (27.4)	23 (4.0)	4 (0.7)	2 (0.3)
	Totally N (%)	In part N (%)	Weakly N (%)	Not at all N (%)	No answer N (%)
Ability of interactive seminars to meet student expectations	104 (17.9)	331 (57.1)	96 (16.6)	31 (5.3)	18 (3.1)
Level 3 of Kirkpatrick's model					
	Great N (%)	Some N (%)	Weak N (%)	Not at all N (%)	No answer N (%)
Impact on future practice	55 (9.5)	196 (33.8)	213 (36.7)	77 (13.3)	39 (6.7)

Table 3

Student perceptions deduced from the interviews on community-based service learning in public health

Students perception	Narrative illustrations
1. Benefits of the programme perceived by the students	
Evolution towards a better perception of the programme	S15-1 'I think all the students at first were a bit reticent about that; and now I see everyone is pretty supportive and involved in the stuff.'
A better understanding of public health issues	S17-2 'I think that is not a bad thing, as in the second and third year, we don't know much in public health except health economics... which is not really representative of the globality of the subject. So it helps to show that aspect of public health.'
A way to discover other medical competencies	S2-1 'And for us, that is good too, it teaches us to communicate and to do a bit of prevention: that seems essential to me.'
The communication about the objectives of the programme was not clear for students	S15-1 'They just told us that we had to do that, but we did not really know why, what it would bring us in the process [...] I think that if they had explained to us the whole process of our training, before telling us to do the e-learning, I will surely have done it more assiduously.'
2. E-learning as a new way to learn	
Great benefits from students' point of view	S2-1 'I think it is not bad, because it allows you to do it at your own pace ... at home, quietly. [...] so you are sure you can do it.'
Limitations of the e-learning teaching in the program	S18-1 'And on top of that, the fact of not knowing that we answered was more or less right or wrong ... It was a bit ... not frustrating but [...] I said to myself "in fact I don't know", and after validating (exercises), I still don't know if what I did was right or not'
3. Interactive seminars	
Allow a better understanding of the program	S2-1 'I found it was really much more concrete. Already this is where they really explained what we were going to do ...'
A way to improve student confidence for their actions in schools	S14-1 'And I think that reassured me a lot, well for me it reassured me that we already have the ability to do this kind of thing, even if we didn't necessarily realize it before.'
A lack of scientific knowledge about the thematic	S20-1 'There was perhaps a lack of training for the notions that we have to touch on. We have training on form, but not at all on the basic notions'

Students perception	Narrative illustrations
Participative tools seem useless for students involved in the life-saving gestures thematic	S11-1 'Because the first part, on how to run a workshop, I think everyone actually should do it. But using the post-its animations, or the moving debate animation, etc. : they seem useless for those in life saving gestures ...'
4. Action in schools	
Students' fears	S1-1 'And after the apprehension that will remain until the action, it will rather be the question of not losing our means in front of a class.'
Developing human skills	S18-2 'It is a way of being a bit of a teacher, yes, but also of remaining in our role as a doctor; in fact, not only to provide concrete knowledge, but also to relate to the lives of patients.'
Students' empowerment	S12-1 'And the fact of carrying out these small public health actions, I think that makes sense in our curriculum. It is even empowering in fact.'
5. Future for the programme	
Common prevention culture with other health sectors of the University	S12-1 'It would be a great opportunity to meet comrades from other health sectors. So whether it could be a pharmacist, or a nurse or a dentist, we wouldn't have the same sensitivities or perspectives on the subjects we deal with, so it would have been an added value for us to be able to exchange in this context.'

Students' competence

The students attributed a median [IQR] score to their feeling of comfort to carry out their health education action in a school environment of 7 [6–8] out of 10 (Fig. 1, right panel).

Future professional practice

Most students (80.0%) indicated that the seminars would have an effect on their future professional practice; 43.3% reported that it would have a great or some effect (Table 2).

Qualitative study.

Half of the 20 interviewed students were women and were between 19 and 25 years of age. Half of them intervened on the theme of "lifestyle habits" and the other half on "life-saving gestures". The first series of interviews took place in February 2019 and the second series between May and June 2019. Interviews lasted from 0.5 to 1.5 hours in length. Three students were lost to follow-up after the first interview. In total, six actions in schools conducted by twelve students were observed.

The students initially reacted negatively towards the new compulsory teaching programme. However, their attitudes gradually changed during the programme. By the end, the majority agreed that going into schools themselves to teach school pupils about public health issues was useful. Most of the students interviewed realised the value of being trained in preventative healthcare and for gaining a better understanding of key public health issues. They also thought the programme was an opportunity to gain experience in project management, apply principles of health education and prevention, and develop skills in teaching, oral communication, and group work. However, they felt the objectives of the community-based service experience were not defined clearly enough, especially regarding the different elements of the programme. Students offered to help clarify these objectives for the following year.

Teaching by e-learning was seen as innovative. This mode of learning allowed students to work from home without a rigid schedule, and thus they were able to organise their work at their own pace. It offered them more time to grasp the theoretical basis of their training before discussing it during lectures and interactive seminars. On the other hand, some students were uncomfortable about the reduced level of supervision. The value of written exercises in e-learning was not always understood, with some students preferring more supervision and follow-up by teachers.

Most students indicated that they enjoyed the two days of interactive seminars on educational attitudes which encouraged them to be more participative and gain a better understanding of the purpose of their work in schools. During the seminars they felt empowered to speak to school pupils and gained confidence in doing so. By the end of the two days, the motivation of even the most sceptical students had increased. The opinions of the students appeared divided between those who wished to improve their communication and teaching skills at this stage of their training, and others who felt they needed more medical or scientific knowledge about public health themes. Students were interested in the health education tools presented during interactive seminars, except for those on life-saving gesture theme which they felt could be improved.

How the students were received by schools varied from disinterest to enthusiasm, with school nurses playing an important facilitating role. Most of the students described being nervous about having to teach in schools, were lacking in self-confidence, and anxious about interacting with pupils from disadvantaged social backgrounds. They found they had to adapt their language on health issues to suit this unfamiliar audience, some of whom were neither attentive nor interested. The students gained a better understanding of social inequalities in health, health determinants, and health literacy, and their empathy for people affected by these issues grew. They found the teaching experience fulfilling, a feeling reinforced by the positive reaction of school officials. The assessment of the students concluded they had gained an understanding of the principles of participative education and how to use the educational tools appropriately.

The students made various suggestions about how to improve the quality of the programme for future years. Some proposed including complex subjects such as sex education and addiction, for which they felt more training was needed, whilst others would have preferred the option to choose their thematic.

Some students advocated for a better distribution of the time spent on different courses in the academic year to avoid long stretches without teaching followed by periods of intense activity. The students also saw the benefit of working with students from other university health sectors and developing a shared culture on health.

Discussion

In this report we have evaluated the implementation of a public health community-based service learning programme at the University of Lyon. In this programme medical students were taught the basic concepts of health education and promotion, and then put this knowledge into practice with school pupils. The perception of students was assessed before and after the service learning experience through quantitative and qualitative approaches, as well as observations of participants in schools. Results indicated that the students were satisfied with teaching by interactive seminars, which were considered as more concrete than other forms of instruction. Thus, they gained confidence in their teaching capacities. Their perception of the public health programme evolved during the year, from a negative one – due to the new and compulsory nature of the concept – to a positive one after their action in schools. Following their involvement in community-based service learning, the students began to broaden their understanding of their role as future physicians in promoting and educating people about public health issues, and gained insight into social inequalities in health, health determinants, and health literacy. Students therefore developed professional skills including knowledge, project management, communication, health education, and empathy. Observation of students during their action showed that they had an adequate understanding of public health issues.

This study had certain limitations. For the quantitative approach based on a questionnaire, the most evident limitation is the possible information bias resulting from evaluation of student skills before and after the seminars that were made at the same time. This bias might have overestimated the impact of the seminars, but we believe that the students are capable of evaluating their own progress. In addition, student satisfaction could have been influenced by parameters with no relation to the quality of teaching, such as the friendly nature of the teacher or the students' interest in the subject, but this point is still debated by medical education researchers (7). Concerning the qualitative approach, the limited number of students that were interviewed allowed data saturation, but may not be representative of the entire year group. There are also strengths that are of note, for instance, there was a high response rate for the quantitative approach (90.6%) which ensured representative answers (8). Furthermore, the interviews confirmed the high level of satisfaction of the students with the seminars, and the observations demonstrated that students acquired adequate health education skills. Methodological triangulation was also a strength of our study, whereby qualitative results were confirmed by quantitative data.

The delivery of undergraduate medical education in public health is a worldwide challenge, and diverse designs for the organisation of curriculum to ensure effective public health education have been reported (9–11). Integration of national public health problems into the training of medical students at the University of Lyon occurs very gradually: students receive theoretical training on health education only in

the third year of medicine and fourth year of midwifery. However, the training programme for medical students in public health issues is much greater in many other countries. For instance, at the Ege University medical school in Turkey, the first three years of training includes 100 hours of lectures, 18 sessions of integrated case discussions, and 83 hours per student of group activities related to public health; the latter are composed of problem-solving sessions that include critical appraisal of health data, social determinants of health, and health promotion (12). In addition, students in their second year work in primary health centres under the supervision of trained general practitioners for three half-day periods, and third-year students visit the same centres for seven days (12).

In the US, medical schools have experimented with service learning as an additional component to medical education for students (13). For example, in Arkansas a service learning experience was attempted with a vulnerable population (the homeless) for student nurses, the aim of which was to acquire favourable advocacy for this group, to change the nurses' initial attitudes and perception, and ultimately improve the health of disadvantaged populations (14). These experiences allowed students to use their academic knowledge and skills in a specific social context (15) and led to an improvement of students' academic results, a decrease in the students' fear of populations they did not know, an increase in empathy, and also had a positive effect on leadership skills (13, 14, 16). These outcomes are in agreement with that results presented herein.

The UK takes this a step further since as of 2018 newly qualified physicians are trained to apply the principles of sustainable healthcare to medical practice (17). This focuses on the improvement of health and better delivery of healthcare, rather than late intervention in diseases, resulting in benefits to patients and to the environment in which human health depends. This approach emphasises that future physicians should not only integrate prevention and health promotion into their public health roles, but also the dimension of sustainable development (18). This goes beyond the French programme described here but could be of interest in the future.

Conclusions

Evaluation of the implementation of this new programme did highlight certain areas that require improvement. The most important is the integration of students from all healthcare sectors (physicians, pharmacists, midwives, nurses, physiotherapists, etc.) but this remains a challenge to overcome as each of these professions have their own academic organisation. The development of inter-professional competence is, however, a clearly defined objective and service learning is an adequate way to achieve it. In addition, the length of service learning at the present time is limited to only a few days during a single academic year but should be extended to the entire duration of training so that French students can acquire a deep and lasting awareness of public health issues for better assimilation into their professional practices.

Declarations

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Authors' contributions

PL conducted the study as his medical thesis and part of his master of science. PO was the primary supervisor of PL. PO and CC conceptualised the work. PL collected all the data and analyzed the data with extensive input from PO. PL and JE conducted the literature review and developed manuscript drafting. All authors (PL, PO, JE, GR, CC) provided editorial comment on the draft versions of the paper. All authors have read and approved the final manuscript.

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Availability of data and materials

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Student consent to participate

Permission to participate to the study was obtained from the students. We adhered to standard ethical procedures, which included a detailed study information sheet, voluntary participation, informed consent, anonymity of responses, and confidentiality.

Consent for publication

The authors give consent for publication of the manuscript. We declare that the article is original, has not already been published in a journal, and is not currently under consideration by another journal. We further agree to the terms of the BioMed Central Copyright and License Agreement, where applicable, including Open Data policy.

Competing interests

The authors declare that they have no competing interests.

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Figures

Figure 1

Distribution of students' ratings on seminars' quality and their ability to intervene in schools.