Research

Social determinants of health in emergency care: An analysis of student reflections on service-learning projects

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Background. The inadequacy of training with regard to the social determinants of health in medical education has led to calls for a greater public health focus in medical and health education. This call is no less applicable to the education of emergency care students and other emergency care personnel than to any other category of healthcare practitioner. Emergency care personnel work within communities and are therefore uniquely positioned to identify social causes of poor health and to play a pivotal role in addressing such issues through education, community engagement, advocacy and referral.
Objectives. To analyse emergency care students' community-based service-learning projects (SLPs); to explore the application as an educational tool; to improve their understanding of the social determinants of health and the need and potential for emergency care personnel to become critical actors in addressing the social causes of ill health.
Methods. Emergency care students (*N*=80) from three academic years were requested to submit portfolios with narrative reflections on their SLPs. The study was approached from an interpretivist paradigm, and it employed a phenomenological methodology to ascertain the meaning ascribed by emergency care students to their lived experiences through participation in SLPs. Thematic concerns were abstracted and discussed in the context of calls for health and medical curricula to place greater focus on the social determinants of health, and the implications for educating emergency care and other medical personnel.
Results. Among emergency caregivers, service learning promoted a practical understanding of the social determinants of health and a sense of social responsibility in communities. Emergency care students can make a positive difference in the lives of individuals and communities. Students were exposed to existing resources and developed an understanding of the challenges and opportunities related to working in communities. The students were enriched by involvement in communities and developed self-awareness, teamwork and other important organisational skills.
Conclusions. This study corroborates SLPs as a pedagogical tool to understand the social determinants of health, and the need and potential for emergency care personnel to become critical actors in addressing social causes of ill health. SLPs should therefore be an important tool of emergency care educators – responding to calls of the World Health Organization's Commission on Social Determinants of Health for greater prominence to be given to disease prevention and health promotion in medical and health science curricula.

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Prehospital emergency medical care systems have traditionally focused on 'stopping the bleeding' and other forms of acute medical intervention. However, in 1996, the US National Highway Traffic Safety Administration recognised the role of emergency medical service (EMS) personnel in health promotion and injury prevention: 'Emergency medical services (EMSs) of the future will be community-based health management that is fully integrated with the overall health care system. It will have the ability to identify and modify illness and injury risks, provide acute illness and injury care and follow-up, and contribute to treatment of chronic conditions and community health monitoring.'[1]

Approaches to integrating emergency care and primary healthcare have subsequently been explored internationally.[2,3] In 2015, the Professional Board for Emergency Care, Health Professions Council of South Africa (HPCSA), adopted a position statement on social determinants of health.[4] This statement committed the Professional Board to review the EMS scope of practice and protocols to be explicitly inclusive of health promotion and preventive care.[4] The position statement also called on all providers of EMS education to educate students and practitioners on the importance of social determinants on health outcomes, and their role in identifying and responding to social determinants of health. This call is consistent with the 2008 report of the World Health Organization (WHO) Commission on Social Determinants of Health, which called on ministries of health and education, in collaboration with institutions offering health education, to make social determinants of health a standard and compulsory part of the curriculum of medical and health practitioners.[5] Social determinants of health are conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of wealth, power and resources at global, national and local levels.[5]

However, little practical guidance is provided in these documents as to the most effective pedagogical methods by which to introduce social determinants of health into the emergency medical care curriculum. It is therefore imperative that EMS educators explore and share knowledge on experience of contextually relevant learning activities that serve to achieve this purpose. Service learning is one such activity that has been used in education of medical and other health science students. It combines the academic curriculum with service to a community in such a way that both

the community and students are primary beneficiaries, and the goals should equally provide service to the community and promote student learning. Service learning should be distinguished from co-operative education and internships, in which students are the primary beneficiaries, and the primary goal is to foster student learning.[6] Where service learning has been used in health sciences education, it has provided a structured means for engagement between higher-education institutions and communities, and has demonstrated potential for community benefit and enhancement of student learning if properly planned and implemented.[7,8]

Research setting

In EMS education, however, there are few documented examples of the use of service learning.[9,10] The experience of the Cape Peninsula University of Technology (CPUT), which incorporates service learning in the curriculum of emergency care students, is therefore instructive in providing needed practical guidance to higher-education institutions when responding to the policy imperative to introduce social determinants of health into emergency care curricula.

Service-learning projects (SLPs) constitute a significant component of the Primary Health Care course (comprising 40% of the overall course assessment), which all emergency care students at CPUT are required to complete in groups.[11] This course is in the second year of the programme, and due to its related pragmatic philosophy and level description lends itself well to social determinants of health applications. SLPs, however, can be implemented in any subject in any academic year in urban, rural or peri-urban areas, but are probably most sustainable when not in direct competition with other programme needs and when the resource intensity is feasible.

This component of the course is jointly facilitated by CPUT's Department of Emergency Medical Sciences and its Centre for Community Engagement and Work Integrated Learning. The latter acts as the primary liaison and facilitator in partnerships between faculty staff, community and service agencies (civil society or State) and in so doing acts as translator, diplomat and matchmaker, to ensure reciprocal benefits inherent in a sustainable and effective SLP. The lecturer designs the service-learning approach, establishes learning outcomes and plans for the evaluation of learning, including implementing reflection techniques to facilitate students' drawing of meaning from the experience. Students are guided through the experiential component of the service-learning module to foster a strong relationship with the community and service agencies, and to integrate active citizenship and social awareness through the curriculum.

Service agencies provide relevant information on service and/or community needs and take a lead in collaboratively designing service placements that address real community needs and meet the stated learning outcomes for learners. Orientation and training to prepare students for active involvement may be provided, as well as supervision and evaluation of students' verified sense of responsibility. All role-players collaborate to create an environment that supports education and development and also to establish a context with increased capacity for contributions to strengthen community resilience and social capital.

The student role is to participate in activities that prepare them for the role of learner and service provider; to actively engage in service delivery in the community; to reflect on the personal and professional meaning of the experience; and to accept responsibilities inherent in community engagement, including ethical assistance, responsible behaviour and respectful relationship building. Students are required to plan, implement and evaluate a small-scale community engagement project, putting principles of primary healthcare into practice. The lecturer provides groups with curriculum outcomes; and group members conduct a situational analysis together with the community to identify the need and hence the focus of the project. The reflective practice included group discussions and consensus finding followed by peer appraisals of project conceptions and presentations. Progress reports or requests for guidance are presented in each academic term, and at the end of a subject a group presentation is done with involvement of service agencies. A comprehensive technical and/or narrative report is also submitted. Project themes during the 3-year study period are listed in Table 1. This study analyses CPUT emergency care students' reflections on their experience of SLPs.

Objectives

The aim of the study was to evaluate students' reflections regarding the potential application of SLPs as an educational tool to equip emergency care students to improve their understanding of the social determinants of health, as well as their potential as emergency care personnel to become critical actors in addressing the social causes of ill health.

The objectives were:
- to analyse emergency care students' reflections on their participation in service learning
- to assess in what respects, if at all, emergency care students perceive their participation in service learning to have contributed to their understanding of social determinants of health
- to assess in what respects, if at all, emergency care students perceive their participation in service learning to have contributed to their understanding of their potential to become critical actors in addressing social causes of ill health
- through inductive reasoning, to confirm if service learning is a pedagogic tool to understand social determinants of health and the need for EMS personnel to become critical actors in addressing social causes of ill health.

Methods

The study was conducted within an interpretivist paradigm, which acknowledges that the researcher's own experience and values may affect research processes and outcomes.[12] This is helpful, as the researchers, as insiders, intend risk of bias to assist rather than confound the analysis.

A qualitative, phenomenological study design was selected as most appropriate to understand the lived experiences of emergency care students

Table 1. Service-learning project themes
Alcohol and drug abuse
Fires and injuries
First aid
Gender-based violence
Hopelessness
Housing
Patient rights
Smoking
Swimming safety

involved in SLPs. The study analysed the narrative reflections on SLPs submitted to CPUT's Department of Emergency Medical Sciences by 80 emergency care students over a 3-year period. These reflections are particularly appropriate for phenomenological research, as the primary healthcare subject guide only requires these to be 'individual reflections on experience and learning derived from participation in the group project',[11] thereby facilitating voice and reflexivity on the part of participants.

All SLP narrative reflections submitted by students in the previous 3 years, and obtained from the department's archives, were included to prevent unfair exclusion and to ensure that valuable insights were not missed in the sampling process. The inclusion of SLP groups from 3 academic years was intended to minimise biases or distortions arising from class groups or project topics. Group portfolios or reflective reports were submitted at the end of the project, as well as formal group presentations based on a community engagement exercise (guided by curriculum content) with regard to: planning of the intervention, implementation of the intervention, monitoring and evaluation of the intervention and summary findings. The portfolio/report quality guidelines/assessment criteria[11] included:

- project evaluation, e.g. evaluation by participants or beneficiaries of project outcomes (creative forms of evaluation were encouraged); an overall comprehensive, critical and honest reflection on the successes, shortcomings and lessons; individual reflections on experience and learning derived from participation in the group project
- the portfolio – well organised, professionally presented, and suitably referenced
- effective project planning, incorporating all relevant components of the planning cycle
- clear theory of change, linking project activities to intended outcomes, supported by sound research, and evidence of successful implementation of the project
- evidence of benefit to both the CPUT student community and at least one stakeholder in the broader community
- effective and accountable financial management of all aspects of the project in accordance with relevant procedures
- contribution of all members to group outcomes, appropriate credit of team members, and demonstration of original thought and critical reflective practice throughout
- an understanding of primary healthcare theory and an ability to apply theory into practice
- comprehensively evaluated work with a range of self-, peer and participant monitoring.

Consistent with the phenomenological study design,[12] data analysis – considering the responses to the abovementioned criteria – abstracted themes from the narrative reflections to the extent that they were relevant to the aims and objectives of the relevant SLP. The level of abstraction stopped when futility, stability or consensus themes emerged. Thematic concerns were grouped, labelled and defined, with examples provided by means of direct quotations from the reflections. Evaluation criteria specific to the trustworthiness of portfolio evaluation included member checking (by presenting conceptions and defending project appraisals), prolonged engagement (the project spanned an academic year) and triangulation (within and between projects).

With regard to ethical concerns, unfair exclusion was avoided. The inclusion of three cohorts over 3 years was intended to minimise inherent biases or distortions arising from class groups and SLP topics. Data analysis did not include student names or identifiable information. The study was limited, as it considered the application of service learning from the perspective of participating students only, and focused on the self-reported educational benefit to the participating learners. It did not take into account direct perceptions of stakeholders in communities where the projects were undertaken, or set out to evaluate direct benefit to the communities that were serviced by the SLPs. The risk of coercion is negated by the retrospective nature of the data. In summary, SLP group self-reflections were submitted, assessed and archived. These data sources were retrieved by SGDH, anonymised and then initially analysed by SGDH and JS. The analysis was confirmed by NN and LDC, who independently assessed the SLP reports. Author consensus on the themes was of interest, as JS is an external service-learning expert to the department, while NN and SGDH are public health champions and LDC is an emergency care expert.

Ethical approval
Ethical approval (ref. no. EMS/15/14) was obtained from the Department of Emergency Medical Sciences, Faculty of Health and Wellness Sciences, CPUT.

Results
Eight different themes relevant to the study objectives were identified from the students' reflections. These are presented in Table 2, together with some of the verbatim quotes from students to substantiate the themes. Themes have been clustered into levels, i.e. macro, meso and micro:

- At a macro level, themes relate to broad societal implications. Specifically, the macro level of reflections refers to an overall understanding of social determinants of health, primary healthcare, health promotion and disease prevention.
- At a meso level, themes relate to communities. Specifically, the meso level of reflections refers to an understanding of the interaction between EMS personnel and communities, impact of SLPs on communities, availability of community-based resources, and challenges and opportunities that characterise work in communities.
- At a micro level, themes relate to individuals. Specifically, the micro level of reflections refers to the impact of service learning on the individual student in relation to personal growth and development, improved self-awareness, and personal understanding of organisational and team issues.

Discussion
The study results confirmed that service learning among EMS students promoted learning at the macro (societal), meso (community) and micro (individual) levels.

At a macro level, the results confirmed that service learning enabled EMS students to deepen their understanding of the linkages between health status in communities and social determinants of health, such as housing, sanitation and nutrition. Service learning thereby practically reinforced theoretical teaching about social determinants of health, including the potential for upstream (macro level) disease prevention and health-promotion strategies to reduce the incidence of injuries and diseases that emergency care students encounter daily.

Table 2. Themes and quotations from student reflections

Level	Theme	Verbatim quotations
Macro (societal)	Service-learning promoted a practical understanding of social determinants of health	'Medical services aren't the only thing that is needed to improve a person's health, but proper housing, water, food and sanitation are also important. With this project, we and other service sectors helped to provide these basic primary healthcare needs in the community.' 'By us joining the community in building houses, with clean running water and sanitation for people living out on the street, we are preventing any harmful disease they can develop … We formed part of the upstream prevention strategies; strategies that are implemented before the disease can begin.'
Meso (community)	Emergency caregivers have a social responsibility in communities	'In retrospective reflection, we have learnt that with the privilege of learning medicine, comes the responsibility of helping those less fortunate than we are.' 'I have learnt about how much power we have as emergency carers being the first contact with the healthcare system and how important our role is in the community and how we conduct ourselves.'
	Emergency care students can make a positive difference in the lives of individuals and communities	'We feel that our project will leave a lasting footprint on the community, and building on it will help to save and improve the lives of many.' 'I believe that being destitute and homeless has the ability to destroy all hope and dignity among any individual, and I feel that our group truly brought a breath of fresh air, and restored their faith in humanity.'
	Students were exposed to existing resources available to communities	'The organisations out there that are doing amazing work on [gender-based violence], is something I had not realised and having the privilege to meet and talk to a few different types, all focusing on this world-wide issue, gave me a fresh perspective.' '[The non-governmental organisation partner] said some very nice things, but I think that they focused more on their donors and themselves, rather than the volunteers and the people's lives that they were changing.'
	Students developed an understanding of the challenges and opportunities related to working in communities	'If I had to start the project from the very beginning, I would go out to the community and find out what are the problems directly affecting the community and target the people who can sustain the project as well as everyone else.' 'The first thing I noticed was that there was a language barrier, most if not all of our participants were Xhosa-speaking individuals, with English as their second language.'
Micro (individual)	Students were enriched by involvement in communities	'We started out trying to contribute towards the wellbeing of others. While this may have been accomplished, we had walked ourselves away with a greater appreciation of our own lives.' 'It was truly a life-changing event and I grew as a person from this experience.'
	Students developed self-awareness and, in particular, learnt about their strengths and weaknesses	'It was extremely tiring and at times I felt like quitting, but being constantly surrounded by the positive attitudes of people, and being reminded why I was there (in Madiba's legacy), I made sure I wouldn't give up, despite my anger and frustrations at times.' 'We have learnt that we as individuals are empowered and have the knowledge and have all the necessary tools in our armoury to empower and educate the community in a positive way.'
	Students developed teamwork and other important organisational skills	'We have learnt to function well as a team, but vital to teamwork are communication, co-ordination, balanced member contributions, mutual support, effort and cohesion. Also, we learnt that the group leader needs to delegate.' 'During my involvement in this project, I have realised how much effort and work are put into organising an event and ensuring it runs smoothly.'

At a meso level, service learning generated a newly found awareness of social responsibility among students and their potential to make a difference in the lives and future of individuals and communities. The awakening of this social awareness among emergency care students is especially important in the SA context, where a shortage of emergency care in the public sector is compounded by competition from the private sector and emigration.[13] Students also learnt about the resources and dynamics at play within communities, and developed an appreciation for the intrinsic knowledge and systems in these communities. The reflections suggest that naive preconceptions of some students that community engagement is a form of charity, were quickly dispelled.

At a micro level (downstream), students acknowledged that they had been profoundly changed by the service-learning experience. The reflections suggest that the world view of students was challenged by experiences, and that they had to draw from internal resources in a way that they had not previously experienced. They also developed practical skills in relation to working as a team and managing projects.

From a perspective of educational theory, the evidence that students were challenged and changed by their experience positions service learning in EMS education as a form of transformational learning, which has been defined as a process of learning where there is not only an increase in knowledge, but also a radical shift in a learner's perspective and understanding of the world.[14]

The student's reflections suggest that, by putting theoretical knowledge of social determinants of health into practice, service learning among EMS

students is consistent with John Dewey's notion of situational learning. The need for situational learning is premised on Dewey's understanding that the acquisition of knowledge in a situation enhances its usability through recall and application. If knowledge is separated from experience, it is forgotten and cannot be transferred to new experiences.[15]

The service-learning experience of EMS students also conforms well with Dewey's criteria for projects to be 'truly educative', as summarisd by Eyler and Giles,[15] i.e. that they: (*i*) generate interest; (*ii*) are intrinsically worthwhile; (*iii*) present problems that awaken new curiosity and create a demand for information; and (*iv*) cover a considerable time span and are capable of fostering development over time. However, the last of these criteria suggests that the learning potential of these projects could be enhanced even more if service learning was to be expanded in the curriculum beyond the duration of a 1-year subject.

Conclusions

EMS education tends to be characterised by a focus on acute management of medical conditions, such as haemorrhage control, cardiopulmonary resuscitation, fluid replacement and drug administration. While these types of intervention are critical, an exclusive biomedical focus in EMS education denies students an appreciation of the limitations of biomedical interventions in the overall improvement of health outcomes of individuals and communities. A narrow biomedical model is also likely to fail to produce graduates who recognise that they are 'uniquely positioned to play a key role in proactively identifying and responding to social determinants of health in communities – thereby contributing to health promotion and disease prevention'.[3]

The call by the Professional Board of Emergency Care for all providers of EMS education to educate students and practitioners on the importance of social determinants on health outcomes, and their role in identifying and responding to social determinants of health, is therefore fundamentally important. This acknowledges that educational institutions offering EMS education and training must heed the WHO's call to make social determinants of health a standard and compulsory part of the curriculum of medical and health practitioners. The challenge to educators is now to translate this policy into educational practice in the most effective way possible.

This study corroborates service learning as a practical and effective pedagogical tool through which to respond to policy imperatives to introduce social determinants of health into EMS curricula. Student reflections at macro, meso and micro levels support a finding that service learning significantly contributes to EMS students' understanding of social determinants of health, and enables them to recognise and explore their potential to become critical actors in addressing social causes of ill health. Through increasing students' knowledge of social determinants of health, and effecting a radical shift in learners' perspectives and understanding of the world, service learning offers an opportunity for transformational learning in EMS education.

It is accordingly recommended that all institutions offering EMS education not only review their curricula to ensure that social determinants of health are fully integrated in the theoretical teaching of EMS, but also consider the implementation of service learning as a means to enable students to reinforce theory by practice through situational learning.

As experience of implementing service learning in EMS education develops, there is a need for further research and knowledge sharing in relation to the most effective ways of optimising the benefit to both students and communities through the service-learning modality. While the experience of service learning among other health science disciplines is instructive, it is important that knowledge is shared among EMS educators of how to ensure that service learning remains relevant to EMS practice and that students draw these linkages. It is also vital that service learning promotes an understanding among communities of the role of EMS in health-promotion and disease-prevention initiatives.

As this body of experience and knowledge grows, it will ensure optimisation of the effectiveness of service learning as a pedagogical tool in EMS education.

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