

Employability and Career Experiences of International Graduates of a MSc Public Health: A

Mixed-Methods Study

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Employability and Career Experiences of International Graduates of a MSc Public Health: A Mixed-Methods Study

Abstract

Objectives: This paper aims to describe the public health career experiences of international graduates of a Master of Science in Public Health programme and to contribute to developing the evidence base on international public health workforce capacity development.

Study design: A sequential mixed-methods study was conducted between January and April 2017.

Method: Ninety-seven international graduates of one UK university Master of Science in Public Health programme were invited to take part in an online survey followed by semi-structured interviews, for respondents who consented to be interviewed. We computed the descriptive statistics of the quantitative data obtained and qualitative data were thematically analysed.

Results: The response rate was 48.5%. Most respondents (63%) were employed by various agencies within one year following graduation. Others (15%) were at different stages of doctor of philosophy studies. Respondents reported enhanced roles after graduation in areas such as public health policy analysis (74%); planning, implementation and evaluation of public health interventions (74%); leadership roles (72%) and research (70%). The common perceived skills that were relevant to the respondents' present jobs were critical analysis (87%), multidisciplinary thinking (86%), demonstrating public health leadership skills (84%), and research (77%). Almost all respondents (90%) were confident in conducting research. Respondents recommended the provision of longer public health placement opportunities, elective courses on project management and advanced statistics, and "internationalisation" of

the programme's curriculum.

Conclusions: The study has revealed the relevance of higher education in public health in developing the career prospects and skills of graduates. International graduates of this Master of Science in Public Health programme were satisfied with the relevance and impact of the skills they acquired during their studies. The outcomes of this study can be used for curriculum reformation. Employers' perspectives of the capabilities of these graduates, however, need further consideration.

Keywords: international; graduate; alumni; public health

Background

In recent years, there have been calls for educational institutions to address shortages in human resources for public health across the world especially in low and middle income countries (LMICs).^{1,2} Globally, several institutions have played key roles in contributing to the development of the public health workforce through postgraduate public health programmes including Master of Science in Public Health (MSc PH) thus, drawing interest from students with diverse backgrounds.¹

The United Kingdom (UK) is one of the major destinations for further studies among international students, the majority of whom are from LMICs,³ and thus contributes to the global workforce development. For instance, in the 2015/2016 academic year, approximately 140,000 international students enrolled onto UK taught postgraduate programmes, representing 46% of all full-time postgraduate students.³ Seven and a half percent (7.5%) of UK students pursuing public health and other subjects ‘allied to medicine’ in 2015-2016 were international students³. Concrete evidence suggested that positive learning experiences among international students in the UK were associated with many factors. These include broad understanding and improved skills in critical analysis, opportunity to interact and develop relationships with students from diverse backgrounds, and improved language skills.⁴ These experiences probably continue to drive the interest among international students to seek higher education in the UK. Most international students in the UK return to their home countries following graduation,³ and it is useful to understand their perceived relevance of the educational training they acquired abroad.

Additionally, there are growing concerns in the literature regarding whether postgraduate public health programmes equip graduates with skills relevant to their jobs or countries.⁵

Public health programmes aim to empower students with critical skills that facilitate research and evidence-based practice.¹ It is therefore critical to question the relevance of the acquired public health skills to the graduates' careers to inform curriculum reformations.

Public health workforce development has been extensively researched in the US and Europe but relatively less explored in LMICs.⁶ Indeed, studies on the public health experiences of MSc PH graduates from LMICs who undertook full-time masters' programme in developed countries, including the UK, are limited. Tracking the public health experiences of graduates is important for higher education development as it examines the impact and outcomes of the study programmes on the job market.⁷ Furthermore, the World Health Organisation (WHO) in its recent education guidelines reported that evaluation of health professionals' education is a challenge that should be improved upon.⁸ It is, therefore, imperative to address these challenges through research.

Previous research examined the career experiences of public health graduates from different backgrounds. The study respondents normally included both indigenes and non-indigenes who pursued public health programmes delivered via either online,⁹ a network of institutions¹⁰ or by individual universities.¹¹ Such investigations may be limited and biased due to the over-representation of indigenes, in most cases, among the graduates. For instance, the UK has a clear public health career structure and many UK-domiciled graduates have proceeded to senior public health roles, but this may not be as easy for international graduates in other countries. This study therefore explored the post-masters career experiences of the international MSc PH graduates of one UK university and their perceived relevance of the programme to their career development.

Methods

The setting for the research was the University of the West of England, Bristol (UWE Bristol), one of the largest higher education institutions in the UK. Over the last decade, the MSc PH programme has attracted many international students, particularly from Africa. The programme comprises nine taught modules and a research project (dissertation), with an optional competitive placement opportunity of five days (not necessarily consecutive) with public health services in South West England.

A sequential mixed-methods study¹² was conducted between January and April 2017. Data were first obtained from an anonymous online survey and then followed up with ten in-depth telephone or face-to-face semi-structured interviews. The survey was piloted with three international public health graduates residing in England and revised based on comments received (*additional file 1*). It comprised 32 closed and open-ended questions asking about demographics, educational background, current and previous work situation, the perceived strengths and challenges of the programme and recommendations for further development of the programme. The survey also included an option to consent for a follow-up interview.

Ninety-seven international MSc PH alumni who graduated between 2006 and 2016 were invited to participate in the online survey. They were emailed detailed information of the study, a consent form, and a link to the survey. Two weekly email reminders were sent to graduates for one month to boost participation in the survey.

A set of Likert scale items were used to explore respondents' perceived career experiences, relevance of public skills to their careers and respondents' confidence in applying the skills. The Cronbach's alpha of the Likert scales were computed to measure internal consistency of the scale. Cronbach's alpha; $\alpha > 0.7$, was considered satisfactory.¹³ Mean scores, Standard

Errors (SE) and 95% confidence intervals of the Likert scale ratings were computed in Excel 2016 (Microsoft, USA). Data from closed-ended questions were analysed to produce simple descriptive statistics. Unstructured data from open-ended questions were tabulated in Excel and thematically analysed.¹⁴

A semi-structured interview protocol, developed by (CB, AM and DE) and validated by the project team, was used to elicit in-depth information during the interview about respondents' career and professional developments (see *additional file 2*). The questions sought to explore the attributes of the MSc programme that contributed to the respondent's career development. Career development after graduation was interpreted as being employed, involvement in research and public health activities, enrolment in short-courses and continuing professional development. Each interview, lasting approximately 15 minutes, was audio-recorded and independently transcribed by CB and AM. The notes were imported into NVivo 10 (QRS International), a qualitative data analysis software programme. Data were also analysed thematically. Thematic analysis is a common qualitative data analysis method used to identify, analyse and report patterns within data.¹⁴ AM started the coding and theme development with consideration of three pre-defined areas: career achievements, gaps of the programme and recommendations for further development. The pre-defined codes were for information categorization only and did not influence the coding processes. Through iterative discussions among the project team, the qualitative findings were then used to build on and further explore the quantitative findings in more detail.

Results

Demographic characteristics of respondents

Forty-seven respondents (48.5% response rate) answered at least one online survey question.

Overall, 39 respondents (40% of original sample) completed the entire online survey. The majority were females (n = 24; 62%) and most of the respondents aged 30-39 years (59%). Respondents originated from 17 different countries in five continents. As shown in Table 1, many (64%) respondents were Africans. With regards to educational background, 20 (43%) had undergraduate degrees in health sciences (includes nursing, pharmacy, public health, environmental health, nutrition or physiotherapy); 13 (28%) in biomedical sciences (biology, biochemistry, or microbiology); five (11%) in medicine; and nine (19%) in other areas such as dentistry, agricultural science, social sciences, philosophy, business administration and marine science. The majority of respondents (85%) graduated between 2012 and 2016.

As this was an anonymous survey we have little information on non-respondents, but respondents were similar to the whole population of international alumni in terms of originating region (64% of respondents were African versus 70% alumni), year of graduation (85% of respondents versus 80% alumni graduated between 2012 and 2016) and gender (62% of respondents versus 68% alumni were female).

Employment status of respondents

Almost two-thirds (63%) of respondents were employed, seven (15%) were undertaking full-time PhD studies, five (11%) were volunteers and four (9%) were self-employed. Only one respondent was unemployed. International students undertake the programme on a full-time basis and most respondents (63%) indicated that they gained employment within one year following graduation. However, 61% of the respondents were employed before they undertook the full-time programme. At least half of the respondents (51%) were working in their home countries. Nearly half (42%) of the respondents were employed in the public sector and 24% were working in non-governmental organisations (NGOs). The common responsibilities of

respondents in their jobs were in project management (42%) and public health research (35%).

Table 1 summarizes some of the respondents' characteristics.

Table 1ⁱ [insert here]

Employment agencies of respondents

The employment agencies of respondents after graduation included international organisations, national and local government agencies, academic institutions, NGOs, and private businesses (see Figure 1). The respondents had mostly worked with local health service providers (38%), local or regional government agencies or NGOs (19% each) prior to the MSc PH. But following graduation a higher proportion reportedly worked in national and international health agencies or private businesses than before the MSc PH (see Figure 1).

Figure 1ⁱⁱ [insert here]

Public health career development of graduates

The majority of respondents reported enhanced public health work roles in a number of areas following graduation compared to their work roles before undertaking the MSc. These areas included public health policy analysis (74%); planning, implementation and evaluation of public health interventions (74%); leadership roles (72%) and research (70%). Relatively fewer respondents (24%) reported involvement in clinical work after the MSc, although 41% of the respondents came from a clinical background before the programme. In a four-point Likert-scale, respondents rated their public health career experiences following graduation (see Table

ⁱ *Demographic characteristics of respondents of the online survey*

ⁱⁱ *Employment agencies of respondents*

2). The overall Cronbach's alpha coefficient of internal consistency was satisfactory ($\alpha = 0.72$).

Table 2ⁱⁱⁱ [insert here]

Perceived relevance and confidence in applying public health skills

In terms of the relevance of public health skills acquired, the common perceived relevant skills were critical analysis (87%), multidisciplinary thinking (86%), demonstration of public health leadership skills (84%), and research (77%). Respondents expressed confidence in applying the above skills in their current roles. Almost all respondents (90%) were confident in conducting research. Students' learning outcomes in one module, Health Promotion, are assessed through the development and presentation of a social media website. The novel assignment was created to reflect recognition of web-based media as an important medium for health promotion communication. An early evaluation of the assignment revealed that the web-based platform was acceptable and feasible for use among students, and developed students' skills in social media and health promotion.¹⁵ In this study, findings lend support to the inclusion of a social media-focussed assignment, with almost half of respondents reporting that online communication skills development is 'relevant' or 'very relevant' for public health (49%) and just under 50% of respondents reporting that they were 'confident' or 'very confident' in applying their newly acquired website development skills. Table 3 summarises the perceived confidence of respondents in applying various public health skills in their jobs. The overall Cronbach's alpha coefficient of internal consistency of the five-point Likert-scale scores was very satisfactory ($\alpha = 0.91$).

ⁱⁱⁱ *Summary of the public health career experiences of respondents*

Table 3^{iv} [insert here]

Continuing professional development (CPD) of respondents

Out of 47 respondents, 32 (68%) were involved in some CPD activities following their graduation. The commonly reported form of CPD was self-directed e-learning (45%). Others included seminar and conference attendance (40%) and work-based in-service training (38%). Institutional formal training such as short certificate courses (30%) was the least common CPD activity among the respondents.

Nineteen of 40 respondents reported involvement in public health research. Nine respondents (23%) reportedly published their dissertations and other research works following graduation. The majority of publications (39%) were in the form of research articles and others were technical reports, conference papers and policy briefs.

Results of the qualitative data

Ten respondents participated in the follow-up interview. Of these, seven (70%) were females and three (30%) were males. In the thematic analysis of the qualitative data, three themes emerged: achievements, gaps of the programme and recommendations for further development of the programme. Twenty-one unstructured responses were also collated from the online survey.

Career achievements

A key achievement for most respondents was securing public health related jobs and/or getting promotions leading them to have more responsibilities. A respondent who works in an

^{iv} *Perceived confidence of respondents in applying public health skills*

international organisation recounted that:

“I have had job opportunities with WHO, UNICEF in my country; [I] have managed many projects from Global Fund to GAVI” (Online survey respondent 37).

The respondents expressed a high sense of satisfaction with the impact of the knowledge and skills they acquired during the MSc programme, assertions supported by the findings of the online survey. Specific transferable skills mentioned included critical analysis, academic writing and developing interactive public health website or blog. Some respondents also felt certain aspects of the programme were particularly very beneficial. These included the University Peer Assisted Learning (PALs) programme, study skills sessions, public health placements, and leadership roles. PALs is an academic support scheme where students are trained in coaching and facilitation skills to support other students in adapting to higher education learning.

Gaps of the Programme

There were other issues that some respondents thought were challenges that needed to be addressed. Difficulty in finding public health related jobs following graduation was a key challenge for some respondents. While some took up volunteering roles in public health organisations, others pursued other courses to enable them acquire job related skills. A respondent recounted:

“Although I got a job after my masters, I found it hard changing jobs or progressing. When I left my employment two years later, I could not find a public health related job for up to a whole year. This pushed me to seek another training or degree which I completed in nursing” (Online survey respondent 11).

Some respondents also felt they were less conversant with using data analysis tools and applying advanced statistics in their present jobs while others felt the research modules were less data intensive.

Recommendations for MSc PH programme

Respondents shared their views on ways the MSc programme could be improved upon to meet the needs of students undertaking the programme. The most significant recommendations included provision of longer public health placements opportunities, elective courses on project management and advanced statistics, and “internationalisation” of the curriculum. Longer public health placements (at least for a month) with designated public health institutions were perceived as opportunities for students to gain relevant employable skills.

Discussion

This study is the first UK study to examine the career experiences of only international public health graduates and their perceived relevance of postgraduate public health programmes. The results showed graduates came from diverse professional backgrounds. These findings support previous studies^{1,11} which showed the diversity of professionals beyond medicine who undertake masters’ degree in public health.

The study reveals that, after graduation, most international graduates gained employment within a year. The majority were in the public sector, worked less in clinical areas or moved to higher level work places such as international organisations and national health agencies after the programme. These findings corroborate other recent studies^{1,16} which revealed graduates moving on to higher level work places and fewer public health graduates in clinical works after graduation. The respondents’ high confidence in applying the skills acquired during the MSc

PH may have increased their chances of being employed or of having changed position from the lower to the higher level work places. Project management and public health research were the common responsibilities of the graduates. This probably accounts for the fewer number of graduates working in clinical areas.

Most respondents were from Africa and the diversity of professionals pursuing masters in public health could be a turning point for multidisciplinary public health leadership which has largely been the preserve of people with medical degrees in most LMICs, especially in Africa.¹⁷ Many LMICs still face shortage of skilled health professionals.¹⁸ Respondents in this study expressed confidence in most skills they acquired. These perceived competencies may be relevant to the human resource and health needs of the countries. This is because most leading health research is conducted in high income countries with a focus on health problems that may be less applicable to LMICs' populations.¹⁹

Our findings also corroborate previous alumni studies in which critical appraisal skills were frequently identified as the perceived skills graduates obtained from the MSc PH.^{9,11,16} The popularity of these skills probably informs the professional activities of some of the graduates. Nearly half of respondents had published or were in the process of publishing their research and some were at various stages of their PhD studies. This supports other public health alumni studies which saw a number of graduates proceeding on to PhD level.¹⁶ Consequently, empowering public health graduates with research and critical thinking skills may be an indirect contribution to addressing the health resource challenges that persist between developed and developing countries.²⁰ Previous studies have found that research infrastructure in some countries, especially LMICs, is inadequately developed.²¹ In some cases, research data is unavailable or poorly utilised.²² As such, skills acquired by graduates from some of these countries might be relevant. However, the evidence-base of the reported research competencies

in this study is limited and must be interpreted with caution.

Some respondents felt they needed further training in some areas of research. While some graduates felt they were less conversant with using data analysis tools, others expressed limited knowledge in advanced statistics. They attributed their experiences to limited practical data analysis experiences during the programme, an assertion that supports the findings of other public health alumni studies.^{23,24}

Provision of opportunities for international students to acquire relevant job experience through, for example, longer public health placements or internships with relevant institutions was a key recommendation. This is in line with the suggestions of alumni in other studies.²⁵ The minimum work experience required for employment to various public health jobs differ, although prospective employers may consider factors such as meritorious academic achievement or technical knowledge with less or no work experience.²⁶ From the employers' perspective, working experience or a good technical knowledge are requirements for some public health roles. The minimum work experience, on average, was two years for public health roles and at least 10 years for senior positions.²⁶ These findings suggest internship opportunities alone may not meet the work experience sought by some employers. Dahal and colleagues found that a lot of organisations consider short-term and certificate courses in relevant subject areas; short term projects such as internships and volunteering were valuable to candidates' profiles.²⁶ Considering the limited opportunities available for placements in South West England, heads of public health programmes should consider signposting both home and international public health students to relevant short-term courses (in particular free massive open online courses (MOOCs), a number of which are public health specific) that improve the students' profiles in the job market. Free online courses or webinars on relevant areas like advance statistics or project management could also be developed by the university and offered

to graduates thereby providing access to relevant updates and maintaining the student-university bond.

This project was based on self-reported data, which are prone to social desirability bias²⁷ although other studies consider self-reported competency and academic achievement by students and graduates as a valid measure for higher education learning.²⁸ A follow-up study to ascertain the employers' perspectives of the competencies of the graduates and the relevance of the various public health skills might be beneficial. A relatively small number of international graduates completed the survey and might have been influenced by the online survey tool. The relatively low response rate is likely to be due to the challenge for the Alumni Office in keeping in contact with international alumni, particularly the longer the time period since graduation. Poor internet connectivity might have led to some respondents' inability to respond to all the survey questions. Thus, these findings should be interpreted with caution. A larger project involving MSc PH/MPH international graduates from other UK universities might put our data in a wider and more nuanced context. Given our relatively low response rate, it will be important to carry out more in-depth pilot work to understand the barriers to achieving a high response rate to surveys with international alumni. Innovative methods to seek to maintain university contact with international alumni including wider user of social media might assist in motivating alumni to participate and ensuring contact details are up-to-date. Given the expense of programmes for international students, future research should also consider participants' perceptions of value for money from their MSc experiences.

Conclusion

Recruitment of international students to undertake a UK-based MSc PH appears to have an

impact on the personal career development of the graduates. Respondents were satisfied with the relevance of the MSc PH training to their careers and the majority have progressed their careers after achieving the MSc PH. Further study of international employers' perspectives on the value and limitations of MSc PH programmes in preparing candidates for senior public health posts could make an important contribution to the literature and curriculum reforms of public health programmes.

Abbreviations

UWE: University of the West of England, Bristol; **MSc PH:** Master of Science in Public Health; **LMIC:** Low and middle income countries; **UK:** United Kingdom of England, Scotland, Wales and Northern Ireland; **USA:** United States of America; **CPD:** Continuing professional development; **WHO:** World Health Organisation; **NGO:** Non-governmental organisation; **PAL:** Peer Assisted Learning; **SE:** Standard error; **PhD:** Doctor of philosophy; **UNICEF:** United Nations Children's Fund; **GAVI:** Global Alliance for Vaccine and Immunization.

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Declarations

Ethics approval and consent to participate

Ethical approval for this study was granted by the UWE Faculty of Health and Applied Sciences Research Ethics Committee in January 2017 (UWE REC reference number HAS.17.01.082). All respondents were given full information on the research (including their right to decline to participate or to withdraw at any time) and asked to give informed consent. Additionally, apart from the first question mandating an agreement to take part in the survey, all other questions in the online survey were not “forced response” questions.

Consent for publication

Not applicable

Availability of data and material

The datasets used and/or analysed during this study are available from the corresponding author on judicious request.

Competing interests

All the authors declare that they have no competing interests.

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Authors' contributions

DE, JO, IB, EB, MJ, JI, and PP developed the study proposal and contributed to the data analysis. CB and AM developed the online tool, data collection and conducted the interviews, data cleaning and analysis, and drafting of the study manuscript. All authors read and approved the final manuscript.

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