Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

May 2014

Survey of the Research Activity, Skills and Training Needs of Health and Social Care Professionals (HSCPs) in Ireland 2013

Prepared by

Patrick McHugh & Dr. Michael Byrne

On behalf of the Research Subgroup of the HSCP Education and Development Advisory Group, Health Service Executive

Contact the Research Team:
Dr. Michael Byrne
- Chair, Research Subgroup, HSCP Education and Development Advisory Group
- Principal Psychologist Manager
  Health Service Executive Dublin Mid-Leinster

Tel: 086 383 0773
Email: michaelj.byrne@hse.ie

Access this document:
Access this document on www.hseland.ie from the Health and Social Care Professionals Hub.

Table of contents

List of tables

List of figures

Foreword

I was pleased to be asked to write this foreword to this the second Survey of the Research Activity, Skills and Training Needs of Health and Social Care Professionals in Ireland. The survey was conducted under the guidance of the Research Subgroup of the Health and Social Care Professions (HSCP) Education and Development Advisory Group.

Much has been achieved since the publication of the first survey in 2011. There is now an active HSCP Research Subgroup comprising representation from a range of professions both from the HSE, voluntary sector and Higher Education Institutes. A research guidebook for HSCP, *How to Conduct Research for Service Improvement*, was published and there have been two very vibrant HSCP Research Conferences. There has also been significant work on networking and linking with relevant elements of the health service, agencies etc. which, among other outcomes, has resulted in HSCP representation on a number of research project steering groups and other related research groups.

The first survey was valuable in profiling the research activity of HSCPs and their needs for research capacity development and the recommendations provided a roadmap for actions. Having gathered a baseline in the first survey this second survey attempted, in particular, to gain a larger and more representative sample of HSCPs. Due to the considerable effort of those involved, a much bigger and more diverse sample was achieved this time. Within the survey sample it is encouraging to note the substantial research competence and therefore research potential of HSCPs. It is interesting also to note the level of research activity which, though there is certainly room for this to grow substantially, is encouraging given the lack of any formal structures or support for research in these professions in the workplace. The survey indicates the level of engagement in research is driven primarily by the personal interest and motivation of those involved together with the motivation of enhancing service quality. This level of motivation was clearly demonstrated at both HSCP research conferences in the high level of submissions and quality of presentations and posters, all focussed on driving service improvement and quality.

It is important that this research capacity is supported, encouraged and further expanded as these skills will be ever more essential to continuing to build the evidence base for interventions and to ensure that scarce and valuable resources are used to maximum effect. Research skills are central to ensuring that new developments and studies can be critically evaluated and implemented as appropriate and that new approaches or developments have sound evidence-based underpinnings. Research is a key tool in ensuring that, as health services and knowledge bases change, services and interventions are designed and delivered in optimum ways to achieve best outcomes for service users and maximise what can be achieved with available resources. In this context, research will grow in importance as planned developments such as commissioning, money follows the patient and new structures are implemented.

This document provides at its conclusion a series of recommendations which aim to further increase the research capacity of HSCPs. These recommendations will inform the work plans of the HSCP Research Subgroup for the coming years. I am confident, based on what has been

achieved to date, that the group, together with the relevant stakeholders, will continue to make tangible progress towards realisation of these recommendations.

Finally, I would like to acknowledge and thank all of those involved in the survey, from those who designed and implemented it to those who completed the survey. Many people supported and contributed to this work and I would like to acknowledge the significant contribution of the Research Subgroup. In particular specific thanks are due to Patrick McHugh and Dr Michael Byrne for their considerable input and hard work in conducting the survey and writing this report.

Jackie Reed
General Manager, Health and Social Care Professions Education and Development, National HR Directorate, HSE

Acknowledgements

This study was funded by the Health and Social Care Professions (HSCPs) Education and Development Unit, Human Resources Directorate, Health Service Executive (HSE), Merlin Park, Galway, and was managed on its behalf by the Psychology Department, Roscommon, HSE.

Thank you to all those who shaped the survey questionnaire design, data collection and write-up of this study, particularly the members of our Research Subgroup of the HSCP Education and Development Advisory Group:

• Dr Molly Byrne	HRB Research Leader and Research Senior Lecturer, School of Psychology, National University of Ireland Galway
• Frances Conneely	Senior Executive Officer, HSCPs Education and Development Unit, HSE
• Dr. Sarah Donnelly	Lecturer in Social Work, School of Applied Social Science, University College Dublin
• Dr Suzanne Guerin	Lecturer, School of Psychology, University College Dublin
• Mandy Lee	Assistant Professor and Lecturer / Course Co-ordinator, Health Policy and Management, Trinity College, University of Dublin
• Dr Helen Lynch	Department of Occupational Science and Occupational Therapy, University College Cork
• Margaret Moore	Head of Radiotherapy Physics, Department of Medical Physics and Bioengineering, University Hospital Galway, HSE
• Dr Maria O'Sullivan	Associate Professor in Human Nutrition, Clinical Medicine, Trinity Centre for Health Science, St James's Hospital, Dublin
• Lydia O'Sullivan	Clinical Research Radiation Therapist, Saint Luke's Centre for Radiation Oncology, Beaumont Hospital, Dublin
• Irene Regan	Chief Medical Scientist, Our Lady's Children's Hospital Crumlin, Dublin and Academy of Medical Laboratory Science
• Dr Martine Smith	Associate Professor, Speech Language Pathology Head of Department, Trinity College Dublin

Thank you also to Jackie Reed (General Manager, HSCP Education & Development); the members of our HSCP Education & Development Advisory Group (see Appendix A); the heads of our HSCP bodies, and to their associated Continuing Professional Development (CPD) and Research Officers for their ongoing input and support. Thank you also to those who inputted to our research working groups at the 2013 and 2014 HSCP Consultation Group Workshops in Tullamore and Dublin respectively.

Finally, thank you to all the participants for contributing to this study's data set. We hope that this document will assist in further profiling the substantial potential of HSCPs to further influence the research agenda in the Irish health services.

Executive summary

A survey was conducted to profile the research activity of Health and Social Care Professionals (HSCPs), their research skills, and their preferences for developing their research capacity. The current research sought to advance upon our 2011 survey by gaining a larger and more representative sample of HSCPs and by obtaining more in-depth data on the experiences and opinions of HSCPs.

The survey developed examined HSCPs' level of research activity and skills, and the perceived enablers and barriers to research. This survey was hosted online using the website LimeSurvey. An email requesting participation with a link to the online survey was sent to Health Service Executive (HSE) Internal Communications who forwarded this email onto all HSE staff. The email was also sent onto the chairs of HSCP professional bodies and Managers Group for distribution, as well as a range of HSE-funded organisations.

A total of 1,325 HSCPs completed the survey, representing 8.4% of the 15,844 HSCPs in Ireland. Within the last two years, 40.7% of the sample indicated that they were research active. A higher proportion of research active participants was observed at the more specialist grades of the health service. Research active participants were involved with a median of 2 projects at the time of the survey and most spent less than 10% of their work time engaged in research. Approximately a third of projects sampled were part of a service evaluation (34.2%) and a similar proportion were part of an academic degree (34.1%). A minority of projects were funded (18.8%) and over half involved collaboration with another researcher (58%).

Many participants had substantial research competence, with a significant proportion of research active (64.4%) and research inactive (41.6%) participants having a Master's or Doctoral degree. Both research active and research inactive participants cited 'Applying for funding', 'Publishing research' and data analysis as their weakest research skills. The interactive and practical research training modalities of 'One-to-one mentorship', 'Practice-based workshops' and 'Research clusters' showed the highest preference among participants.

Of the ways in which participants' research activity could be supported, greater protected time for research was most frequently indicated. The value of support from management was also cited, as well as peer support through research networks and clusters. With regard to motivation for research, research active participants referred to their their own personal motivation and interest, and their drive to enhance the quality of services. The majority of research active (89.4%) and research inactive (78%) participants indicated a desire to spend more time engaged in research.

Based on the results of the survey, a number of recommendations were made to increase the research capacity of HSCPs in Ireland. In seeking to increase protected time for research, there is capacity to create opportunities where research activity directly enhances the functioning of services. With regard to competency development, there is a need to target HSCPs' weakest research skills, as well as utilise online learning to supplement more practical training modalities. With regard to coordinating HSCP research, there is a need to develop a national HSCP strategy that identifies research priorities across the professions and opportunities for research collaboration with Higher Education Institutes (HEIs) and industry.

Chapter 1: Introduction

The Action Plan for Health Research 2009 – 2013 sought to develop a health research strategy that was coordinated, supportive of researchers, and which improved standards of care and service provision (Department of Health & Children [DoHC], 2009). Action Area 2 of this plan focused on how the research capacity of healthcare staff could be developed. This included increasing the research competencies of health professionals through training and skills development, developing an infrastructure that supports research activity, and providing incentives and career structures to encourage health professionals to become research active.

The 15,844 Health and Social Care Professionals (HSCPs) working in our health service (HSE, 2013) represent a substantial resource in seeking to enhance the research capacity of the healthcare system. HSCPs comprise a broad spectrum of health professions including audiologists, dietitians, medical scientists, occupational therapists, physiotherapists, psychologists, radiation therapists, social workers, and speech and language therapists (see Appendix B for full list). They work across a range of settings (e.g., primary care, acute services, disability), often in multidisciplinary teams and provide a range of diagnostic and therapeutic services. Given the diversity of competencies and knowledge among HSCPs, it is important that their contribution is adequately represented within health research and that this group can utilise research to influence policy.

Health research has advanced in complexity in recent decades with substantial diversity in content and perspective. From example, research can range from a focus on service user outcomes to economic outcomes, from an analysis of the relationship between two variables to the analysis of service functioning. Due to this diversity, HSCPs can use research to benefit our services in multiple ways. This may range from developing more effective interventions, evaluating services and developing programmes that enhance service user care and add value-for-money. Table 1 presents a brief description of a sample of research categories.

1.1 Benefits of health research

Before discussing the research capacity of HSCPs and how this may be developed, the value of increasing research activity within our health service will be first considered.

1.1.1 Evaluating and improving services

Services need to be routinely evaluated in order to ensure that they are meeting performance standards and achieving the desired outcomes for service users (McHugh, Sarma, & Byrne, 2012). If a service is not regularly evaluated, operational inefficiencies and treatment failures may be perpetuated (The Health Foundation, 2010). At an organisational level, the lower the level of research capacity within our health service, the more dependent we will be on research from other jurisdictions. As different healthcare systems will vary on a number of important structural factors (e.g., population profiles, demand for services, level of technology), a service or therapy that is effective in one jurisdiction may not necessarily be effective or appropriate for another. Thus, in order to ensure evidence-based practice, it is critical we demonstrate the effectiveness of interventions within the context of our own health system.

Table 1. Brief description of a sample of research categories

Efficacy Research	**Effectiveness Research**
Examines the effect of an intervention under controlled conditions designed to maximise internal validity (Flay et al., 2005). Efficacy research requires a rigorous research design (e.g., randomisation, homogenous samples).	Aims to maximise external validity by examining the effect of an intervention when delivered within the context of a routinely functioning service (Flay et al., 2005).
Population Health Research	**Health Services Research**
Population Health Research seeks to analyse the ways in which social, environmental, occupational and economic factors can influence health outcomes (Hiney et al., 2011). There is typically a focus on how policy interventions can enhance health outcomes for communities.	Health Services Research is a broad field of research that identifies the most effective ways to organise and deliver high quality care (Hiney et al., 2011). An interdisciplinary process, such research examines how factors such as organisational structures and service processes affect the quality of service provision.
Service Evaluation [a]	**Economic Evaluation [a]**
Evaluates the performance of a service in terms of key objectives, service user outcomes and service processes (McHugh et al., 2011). The data gained from the evaluation is used as a basis for enhancing the quality of service provision.	Monetary costs of a programme/intervention (e.g., salary of staff) are compared with monetary benefits (e.g., reduced medication usage) to calculate the net economic gains or losses (Twomey et al., 2013). The cost of a programme/intervention per health gain may also be calculated with cost-utility research.
Translational Research [a]	**Implementation Research [a]**
Examines the process of translating new knowledge and innovations from basic science into new interventions and treatments that enhance service user outcomes (Fontanarosa et al., 2002).	Examines the process of implementing policies, programmes or interventions in practice (Peters et al., 2013). Such research can examine implementation processes and outcomes, and aims to provide solutions to problems of delivery.

Note. [a] These research types are part of Health Services Research

1.1.2 Advancing research

Effectiveness research evaluating the routine functioning of services can have a significant role in the development of new knowledge and should be considered as complementary to more controlled efficacy research (Barkham & Mellor-Clark, 2000; Milne et al., 2008). First, effectiveness research can help refine theoretical knowledge, often exposing inadequacies in the practical utility of theories. Second, scientist-practitioners have a key role in the efficient translation of research from laboratories and universities to clinics and hospitals (Rosenberg, 1999). Third, the ability of a practitioner to recognise a clinical problem and conduct research to investigate this problem helps to ensure that research priorities reflect clinical priorities and needs. This reciprocal relationship between efficacy and effectiveness research in developing interventions is presented in the stages of the research cycle in Figure 1 (Tugwell, Bennett, Sackett, & Haynes, 1985).

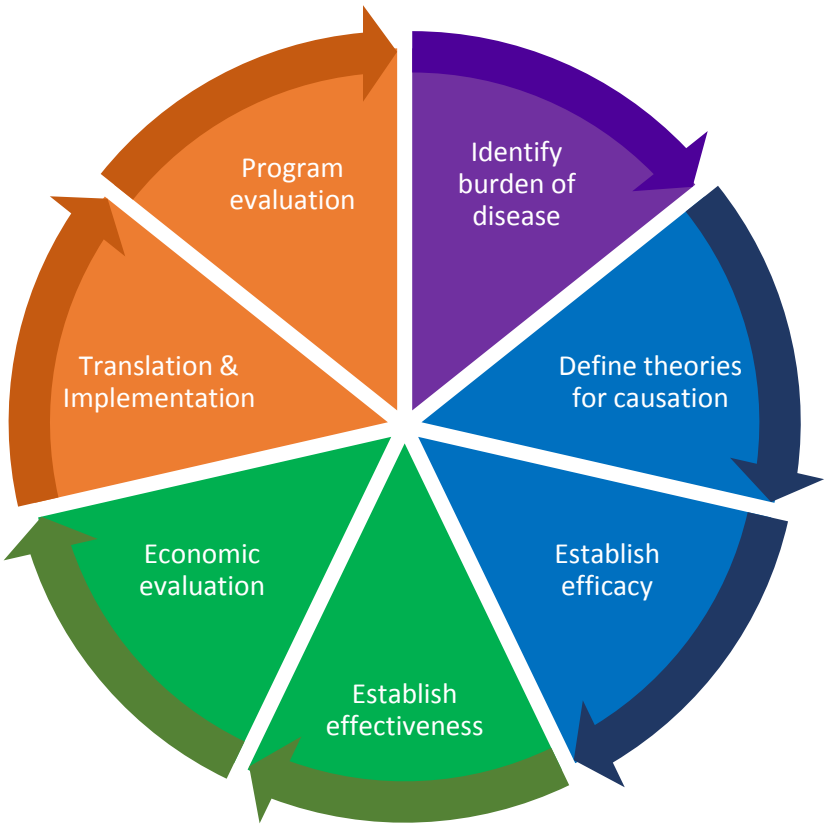

Figure 1. Stages of the research cycle in developing health interventions (Tugwell et al.,1985)

1.1.3 Economic benefits

Research can often have significant economic returns for health services. For example, service evaluations or audits can identify service inefficiencies and opportunities for improved cost-effectiveness. The resources utilised in conducting such research can often be significantly less than the resources directed at managing operational inefficiencies. Research can also produce economic benefits by attracting funding and generating employment opportunities. For example, the establishment of an advanced health research culture may attract high quality labour companies, such as pharmaceutical and medical device industries (Forfás & Advisory Council for Science, Technology & Innovation, 2006).

1.1.4 Empowering professions

All professions need to have the capacity to support and promote their methods through research. A profession with a low level of research activity runs the risk of its evidence-base becoming overly-influenced by other professions, some of which may have conflicting perspectives. This problem has been highlighted with regard to professions such as clinical psychology (Davey, 2002; Thomas, Turpin, & Meyer, 2002) and occupational therapy (Wood, 1998). Thus, a strong research base is needed for a profession to become visible within the health service and ultimately influence policy. Furthermore, empowering HSCPs to conduct research will allow them to have an influence in the running of their own services rather than being determined purely from a managerial perspective.

1.2 Research activity

The research activity of HSCPs has received little attention in the research literature. One profession where there is some significant research is that of clinical psychology. Given that a scientist-practitioner model underlies this profession (Page & Stritzke, 2006) and that qualification requires doctoral level training (see Appendix C), a high level of research activity would be expected. However, one small scale study of clinical psychologists in Ireland (n=35) found that the average time spent on research may be as little as 2% (Dowd, Sarma, & Byrne, 2011), while a corresponding figure of 5% was observed for psychologists in Scotland (National Health Service [NHS] Education for Scotland, 2008). Furthermore, a survey of psychologists in the U.K. found that 40% did not have any empirical research publication (Eke, Holttum, & Hayward, 2012). These findings have broader implications for the research capacity of HSCPs; it suggests that developing research competencies alone will not ensure high levels of research activity and that staff need to be given adequate opportunities within their health service to utilise their research potential.

Our previous survey of HSCPs in Ireland was the first to examine the research activity of this group (McHugh & Byrne, 2011). Of the sample (n = 373), 48% were research active, but this could not be taken as an estimate of the research activity of all HSCPs, given the low response rate (2.5%) and the likely strong response bias towards those who were research active. Research active participants were involved with an average of 3.1 projects and spent an average of 13% of their work time engaged in research. Given the latter result, it is unsurprising that a lack of time for research was cited as a major barrier while more protected time for research was cited as the greatest facilitator. These results are consistent with previous research in other jurisdictions, with a lack of time indicated as a barrier to research for professions including clinical psychologists (Morton, Patel, & Parker, 2008), dietitians (Harrison, Brady, & Kulinskaya, 2001) and nurses (Niederhauser & Kohr, 2005; Segrott, McIvor, & Green, 2006). With limited time within work to conduct research, many staff may have to complete research in their own personal time. Indeed, our survey found that an average of 37% of research time occurred outside of work. Apart from over-working staff, this may also make research inaccessible to those whose personal circumstances do not permit out-of-work research activity (e.g., those with family commitments).

While increasing protected time for research would clearly enhance research activity, any redirection of staff's capacity towards research will be difficult to justify in the current context of service pressures. However, much of the resistance towards increasing research capacity may be based on a perception that research is an activity isolated from service provision. In order to challenge this perception, there is a need for a greater merger of research priorities with service priorities, such as increasing research activity which identifies service inefficiencies and which provides the foundation for improvements in service quality. Indeed our survey found that approximately a third of projects were service evaluations, illustrating the close relationship between research activity and service functioning. There is also a need for a re-alignment of research priorities with organisational-level priorities, such as the goals of HSE National Service Plan.

1.3 Research skills

For some HSCPs, skills deficits may act as a barrier to research, with research self-efficacy and educational level being important predictors of research activity (Byham-Gray, Gilbride, Dixon, & Stage, 2006; Holttum & Goble, 2006). An accurate profile of HSCPs' research skills is needed to target those areas in need of development within both academic and professional

training. For example, our previous survey showed that applying for funding, publishing research and data analysis were HSCPs' weakest skills (McHugh & Byrne, 2011). Within academic training, there is often a stronger focus on developing research skills specific to the academia rather than clinical practice (Yanos & Ziedonis, 2006). It is important therefore that professional training gives greater focus to the reciprocal relationship between research and practice, and how research skills can be best utilised within health services (Gelso, 2006).

The range of HSCPs that research training needs to be targeted at is unclear. While some models of capacity development suggest that training resources should be directed towards those with the greatest interest and motivation for research (Short, Holdgate, Ahern, & Morris, 2009), it would also be highly advantageous to have a wide range of health professionals that can, at a minimum, engage in small scale research projects or audits. A high research participation rate by health professionals would also help achieve a critical mass of researchers that would lead to a strong research culture within our health system (Hicks & Hennessy, 1997; Pickstone et al., 2009).

The modality of research training is an important consideration given its influence on the quality of the learning process and the range of healthcare staff that can be reached. While lecture-based training can be provided to large audiences, the lack of interaction between instructors and students makes it a lower quality form of learning compared to more practical forms of training such as workshops and seminars (Steinert & Snell, 1999). Online learning has the potential to efficiently access large audiences, although it is limited by the lack of standardisation and the loss of face-to-face communication between instructors and peers (Childs, Blenkinsopp, Hall, & Walton, 2005). Online learning has advanced in recent years in Ireland, with HSELanD providing an online resource for professional development (McHugh, Byrne, & Liston, 2012). Such online resources could play an important role in the future research capacity development of HSCPs.

Our previous survey indicated a low preference for lecture-based learning and online learning, with more practical and interactive modalities such as mentorship and workshops being more highly rated (McHugh & Byrne, 2011). Research training through mentorship has been shown to promote higher levels of research activity among health researchers (Cooper & Turpin, 2007; Roberts, 1997) and is a key aspect of the successful 'Designated Team Approach' to research capacity building (Cooke, Nancarrow, Dyas, & Williams, 2008). In the NHS, the Mentorship for Health Research Training Fellows scheme was recently launched to provide high quality mentorship support to nurses and allied health professions seeking to develop a clinician-researcher career (http://www.healthresearchmentor.org.uk/website/). Peer-based support/ mentorship has also been shown to be effective in enhancing research activity (Santucci et al., 2008).

1.4 Funding

In Ireland, health research as a proportion of public funding had been shown to be approximately half that of the OECD (Organisation for Economic Co-operation and Development) average (Health Research Board [HRB], 2009). In 2009, funding for health research amounted to €205 million, accounting for just over a third of the total expenditure on research and development (Health Research Group, 2011). The main sources of funding were Science Foundation Ireland (€74 million), the Health Research Board (€40 million), the Higher Education Authority (€37 million) and the Industrial Development Authority (€23 million). Table 2 provides a sample of research funding sources in Ireland (Waldron & Byrne, 2011).

Despite this expenditure, our previous survey showed that only a minority of the research projects of HSCPs were funded (McHugh & Byrne, 2011). A lack of funding will not only act as a disincentive for research, but will create a number of problems for those who engage in unfunded research. For example, along with having to use their personal finances to cover research expenses, unfunded researchers will tend to receive less protected time for their research activities (Silberman & Snyderman, 1997).

Table 2. Sample of research funding opportunities in Ireland (Waldron & Byrne, 2011)

Title	Who is eligible	Awarding body	Amount
Research Training Fellowship for Health Care Professionals	Professionals wishing to undertake a PhD (or research Masters in exceptional circumstances)	HRB	Salary & various costs
The IRC Government of Ireland Post-Graduate Scholarship	Post-graduates wishing to undertake a Research Masters or a PhD	IRC	€16,000 plus costs, for up to 3 years
The IRC Postgraduate Scholarship Schemes	Post-graduates wishing to undertake a research PhD	IRC	Varies – there are 3 types of Scholarships that can be applied for
The IRC EMPOWER Postgraduate Fellowship Schemes	Applicants who hold a doctoral degree and who have not held a postdoctoral research position for more than 36 months at the closing date of the call	IRC	€39,640
Research Scholarship Programme	Post-graduate students wishing to undertake research directly related to the National Child	The Office for the Minister for Children and Youth Affairs	€16,000 plus fees
Research Scholarship	Post-graduates with less than 5 years' experience who wish to commence at PhD relevant to the Irish Cancer Society	The Irish Cancer Society	€40,000

Note. HRB=Health Research Board; IRC=Irish Research Council

1.5 Coordination and collaboration

There may be little value in developing the individual research capacity of healthcare staff without creating an organisational infrastructure to support and coordinate it (Watson, Clarke, Swallow, & Forster, 2005). Some models of research capacity development have proposed the concentration of resources to efficiently target strategic goals (Ilott, 2004; Ilott & Bury, 2002). Within the Irish health system, greater coordination is needed to ensure that neglected areas such as patient-outcomes research and preventative medicine are adequately addressed (HRB, 2009). Some developments have been made in recent times in Ireland, such as the joint initiative by Science Foundation Ireland and the HRB to target areas where there is the greatest potential for health service impact and economic development (Health Research Group, 2011). Our previous survey also indicated high levels of collaboration among the projects sampled (75% of projects), including interdisciplinary collaboration (McHugh & Byrne, 2011). It should be noted that while the strategic coordination of resources can enhance health research,

a balance needs to be struck to ensure that the creativity and initiative of individual researchers is not stifled (Paxton, 2006).

In seeking to increase coordination, there is a need to develop collaborative links between researchers within health, academic, and industry domains (DoHC, 2009; HRB, 2009). Collaboration, including interdisciplinary collaboration, can have many benefits such as the cross-pollination of ideas and an increased capacity to solve complex problems (Choi & Pak, 2006). Collaboration can also facilitate the collection of large data sets thereby increasing statistical power (Barkham & Mellor-Clark, 2003). One recent example of a collaborative project developed in Ireland is the HRB funded SPHeRE programme (Structured Population and Health services Research and Education). This project is a cross-institutional programme involving a number of universities across Ireland and seeks to enhance the quality of population health and health services research. Another collaborative project is the National Health Innovation Hub which links the health service with industry and educational sectors in seeking to develop innovative solutions to problems in the healthcare system.

In addition to structured efforts to enhance collaboration, there is also potential in facilitating the organic formation of research networks. For example, Walker (2008) proposed the creation of a web-based resource that would facilitate researchers from a variety of organisations, locations, and disciplines to identify one another for collaborative work. Research conferences can also help bring similar-minded health researchers together. The annual HSCP research conference in Ireland, the first of which was held in 2013, has much potential in this respect. Given that researchers can often feel unsupported and isolated (McHugh & Byrne, 2011), such initiatives have an important role in facilitating peer support.

1.6 Support and incentivisation for research

A lack of support for research activity was indicated by HSCPs in our previous survey (McHugh & Byrne, 2011). This included the need for management to greater facilitate research, as well as the need for a more supportive research culture. Previous research has demonstrated the importance of supportive management, administrative support and support from colleagues (Slawson, Clemens, & Bol, 2000). An important component of this is the regular reinforcement of research (Gelso, 2006), especially when short-term incentives such as funding are absent. As well as social support and encouragement, there is also a need for technical support. For example, access to statistical programs or research databases may be the determining factor in whether a research project can be conducted. While some simple changes can be made to support researchers, the development of a research culture is ultimately needed to sustain research activity over the longer term. Such a culture requires research to become more closely integrated with routine service provision (e.g., regular audits), as well the development of a critical mass of research active staff.

1.7 Current research

The current research replicated our previous survey of the research activity, skills, and training needs of HSCPs (McHugh & Byrne, 2011) with a number of important advancements. First, the current research aimed to survey a larger and more representative sample of HSCPs. This was achieved by increasing the accessibility of the survey through hosting it online. Second, a wider range of content was examined, such as HSCPs' motivation for engaging in research. Third, the survey included more open-ended questions with the intention of more effectively sampling the opinions and experiences of HSCPs.

Chapter 2: Method

2.1 Questionnaire

Using our 2011 survey of HSCPs as an initial template (McHugh & Byrne, 2011), a questionnaire was constructed to examine the research activity, research skills and enablers of research for HSCPs. The questionnaire was modified to sample a greater range of content and used a larger number of open-ended questions to examine the experiences and opinions of HSCPs (see Appendix D for questionnaire items). A range of HSCP representatives and academics of the HSCP Education and Development Advisory Research Sub-group provided input on the content of the questionnaire.

The final questionnaire consisted of 30 questions which included multiple choice, Likert scale and open-ended items. The survey was divided into three sections; (1) Research Skills; (2) Enablers and Barriers to Research; (3) Research Activity. The *Research Skills* section required participants to rate their individual research skills and overall research competence, as well as their preferences for research training. The *Enablers and Barriers to Research* section examined the factors that supported participants' research activity, and those factors that impeded it. The *Research Activity* section profiled participants' level of research activity over the previous two years, and the characteristics of the projects they were involved with.

2.2 Participants

The target population were HSCPs employed either directly by the HSE or indirectly by a HSE-funded organisation. Trainee HSCPs of salaried status were also included (e.g., trainee clinical psychologists). The total population at the time of the survey was approximately 15,844 health service staff (HSE, 2013; see Appendix B).

2.3 Data collection

The questionnaire was transformed into an online survey using the website LimeSurvey. A cover email with an online link to the survey was developed, which provided details on the content of the survey and completion instructions (see Appendix E). This email was sent to HSE Internal Communications who forwarded the survey onto all HSE staff. The email was also sent onto the chairs of professional bodies and HSCP Managers Group for distribution to staff, as well as a range of HSE funded organisations.

The survey was initially distributed in June 2013 and participants were given a completion period of four weeks. The survey was re-administered in September 2013 to facilitate those HSCPs who had been on annual leave during the initial data collection period.

2.4 Data analysis

A secure online file collating the survey responses was downloaded from the Limesurvey website and the associated data was analysed using SPSS software (IBM Corp., 2012). In comparing research active participants with research inactive participants, independent samples t-tests were used to compare the groups on continuous data, and chi-square tests were used to compare groups on categorical data. The responses for the open-ended questions were analysed using inductive content analysis (Elo & Kyngas, 2008). Manual open coding was initially conducted to produce categories that were relevant to the associated question. These categories were grouped into higher-order categories until each category was an independent answer to the question. The data was re-analysed to quantify the occurrence of each answer among participants. Quotes exemplifying each answer category were obtained.

Chapter 3: Results

3.1 Participant characteristics

From the total of 15,844 HSCPs in Ireland, 1,325 completed the online survey representing a response rate of 8.4%. A number of background characteristics of these HSCP participants are presented in Tables 3 & 4. As indicated, the majority of participants were female (82.8%) and were directly employed by the HSE (72.6%).

Table 3. Gender and employing agency of participants

	n	%
Male	226	17.1%
Female	1,099	82.8%
Employed by HSE	962	72.6%
Employed by HSE-funded organisation	363	27.4%

Table 4. Participants mean age and years' professionally qualified

	Years	SD
Mean age	39.2	9.66
Mean number of years professionally qualified	13.9	9.42

Figure 2 indicates the proportion of participants working in each Health Service Area, with Dublin Mid-Leinster (31%, n = 413) accounting for the highest proportion.

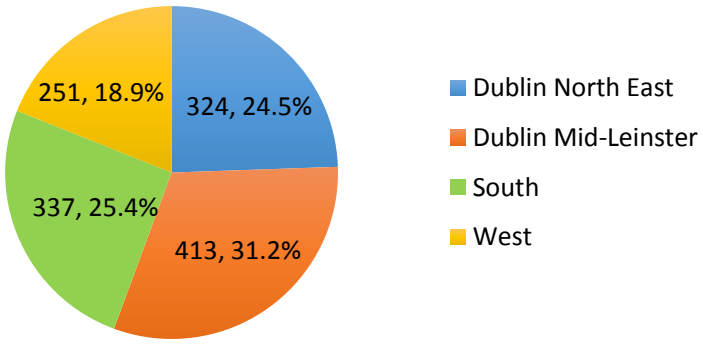

Figure 2. Health service area of participants

The distribution of participants across each profession is presented in Table 5, as well as the proportion of each profession that participated. The highest proportion of participants were from the professions of 'Psychologist' (15%), 'Speech and Language Therapist' (14%), 'Occupational Therapist' (12.4%), 'Social Worker' (11%) and 'Physiotherapist' (10.7%). A proportion of participants indicated that they were a HSCP but did not specify their profession (4.3%).

Table 5. Proportion of participants in each profession and proportion of profession that participated

Profession	n	% of Sample	% of Prof.	Profession	n	% of Sample	% of Prof.
Psychologist	199	15%	23.1%[a]	Pharmacist	16	1.2%	2.4%
Speech and Language Therapist	185	14%	22.1%	Radiation Therapist	16	1.2%	13%
Occupational Therapist	164	12.4%	13%	Orthopist	15	1.1%	62.2%
Social Worker	146	11%	6.3%	Radiographer	12	.9%	1.2%
Physiotherapist	142	10.7%	9.5%	Audiologist	7	.5%	11.2%
Dietitian	99	7.5%	25.8%	Podiatrist	7	.5%	13.6%
Clinical Measurement Scientist	63	4.8%	21.1%	Clinical Engineer Technician	4	.3%	2.8%
HSCP (Unspecified)	57	4.3%	NA	Biochemist	3	.2%	3.9%
Social Care Worker	57	4.3%	1.9%	Environmental Health Officer	3	.2%	.6%
Medical Scientist	51	3.8%	2.8%	Play Therapist	2	.2%	4.8%
Physicist	45	3.4%	33.2%	Phlebotomist	1	.1%	.7%
Counsellor	31	2.3%	23.1%[a]				

Note. Prof. = Profession

[a] Based on a combined census figure for psychologists and counsellors

As indicated in Figure 3, 40.7% of participants were research active within the last two years, 36.2% had been research active sometime outside the last two years, and 23.1% had never been research active. In the following sections, participants who were research active in the last two years will be labelled as 'research active' (40.7%, n=539), and the remaining participants will be labelled as 'research inactive' (59.3%, n=786)

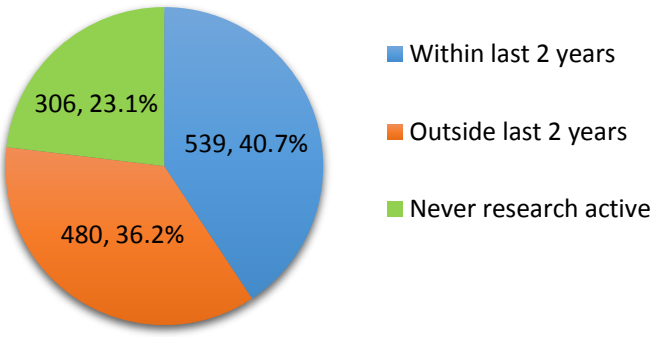

Figure 3. Time period in which participants were last research active

3.2 Characteristics of research active participants

The characteristics of research active participants were examined across a number of domains. As indicated in Table 6, no significant differences were found between research active and research inactive participants for age or number of years' experience as a health professional.

Table 6. Age and years' professional experience of research active and research inactive participants

	Research Active		Research Inactive		Test Statistic		
	Years	SD	Years	SD	t	df	Sig.
Mean Age	38	9.4	40	9.8	3.8	1320*	p > .05
Mean time as health professional	12.7	9.4	14.7	9.3	3.8	1323	p > .05

Note. * 3 participants did not indicate their age

The proportion of research active participants at each grade of the health service is presented in Table 7. The highest proportion was observed at the grades of 'Other' (66.7%), 'Principal Specialist' (65.8%) and 'Clinical Specialist' (62.5%). The category of 'Other' included the grades of 'Trainee' and 'Assistant'. As indicated in Table 8, there was a higher proportion of research active participants at tertiary care level (53.6%) relative to primary care (30.2%) or secondary care (37.1%).

Table 7. Proportion of research active HSCPs at each grade of the health service

		Research Active	
Professional Grade	**N**	**n**	**%**
Chief	45	17	37.8%
Manager	144	48	33.3%
Principal Specialist	38	25	65.8%
Clinical Specialist	56	35	62.5%
Senior	565	220	38.9%
Staff Grade	399	142	35.6%
Other	78	52	66.7%

Table 8. Proportion of research active HSCPs at each level of the health service [a]

		Research Active	
Health service level	**N**	**n**	**%**
Tertiary care	349	187	53.6%
Multiple levels	139	67	48.2%
Secondary care	431	160	37.1%
Primary care	391	118	30.2%

Note. [a] 15 participants did not specify a health level

3.3 Research skills and training needs

The highest academic degree of research active and research inactive participants is presented in Figure 4. A significantly higher proportion of research active participants had a Master's or Doctoral degree (64.4%, n=347) compared with research inactive participants (41.6%, n=327), X^2 (1, N=1325) = 68.1, p < .001.

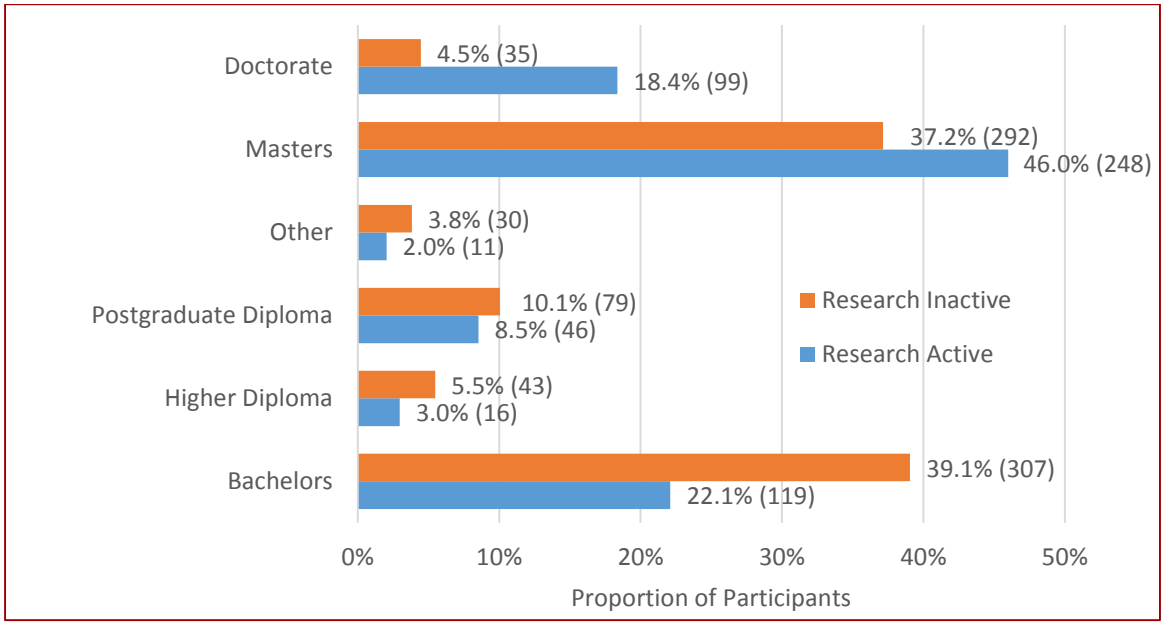

Figure 4. Highest academic degree of participants

Participants were asked to rate their research skills on a Likert scale according to the categories of 'Very Weak' (1), 'Weak' (2), 'Average' (3), 'Strong' (4), and 'Very Strong' (5). As indicated in Figure 5, research active participants scored consistently higher across all research skills, although the pattern of strength and weaknesses across skills was similar for both groups. The strongest research skills reported by both research active and research inactive participants were 'Orally presenting research', 'Conducting a literature review', and 'Generating a research idea'. The weakest research skills for both groups were 'Applying for funding', 'Publishing research', and quantitative and qualitative data analysis.

Participants were asked to indicate whether they had the overall research competence to engage in research according to the following five statements:

1. No, my research competence would be very weak
2. No, my research competence would not be quite adequate
3. Unsure of whether I have the necessary research competence
4. Yes, my research competence would be adequate
5. Yes, my research competence would be very strong

The proportion of research active and research inactive participants indicating each response is shown in Figure 6. A significantly higher proportion of research active participants indicated that their research competence was either "very strong" or "adequate" (77.4%, n=417) compared to research inactive participants (35.4%, n=278), X^2 (1, N=1325) = 226.1, p < .001.

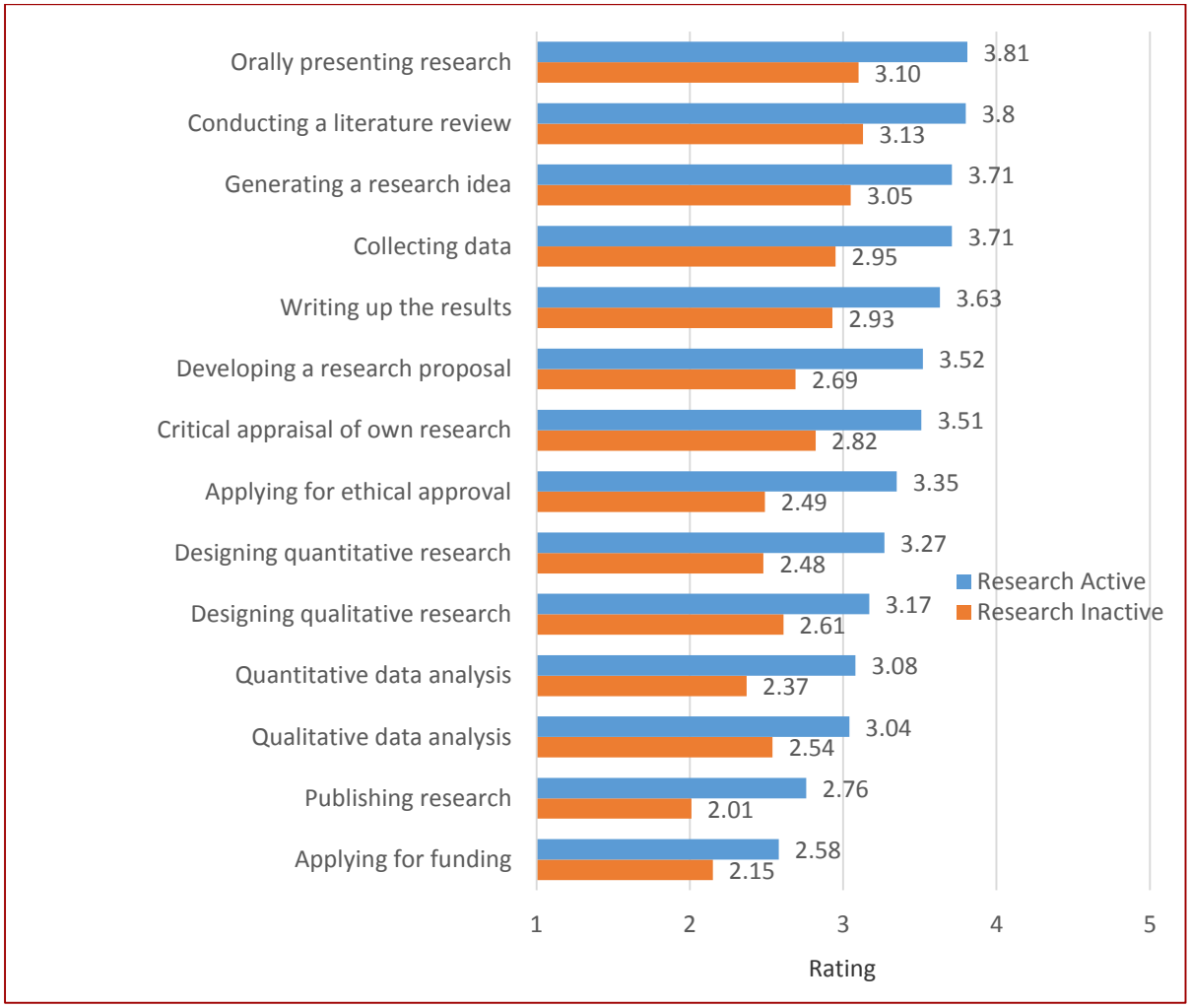

Figure 5. Mean self-reported ratings on research competencies

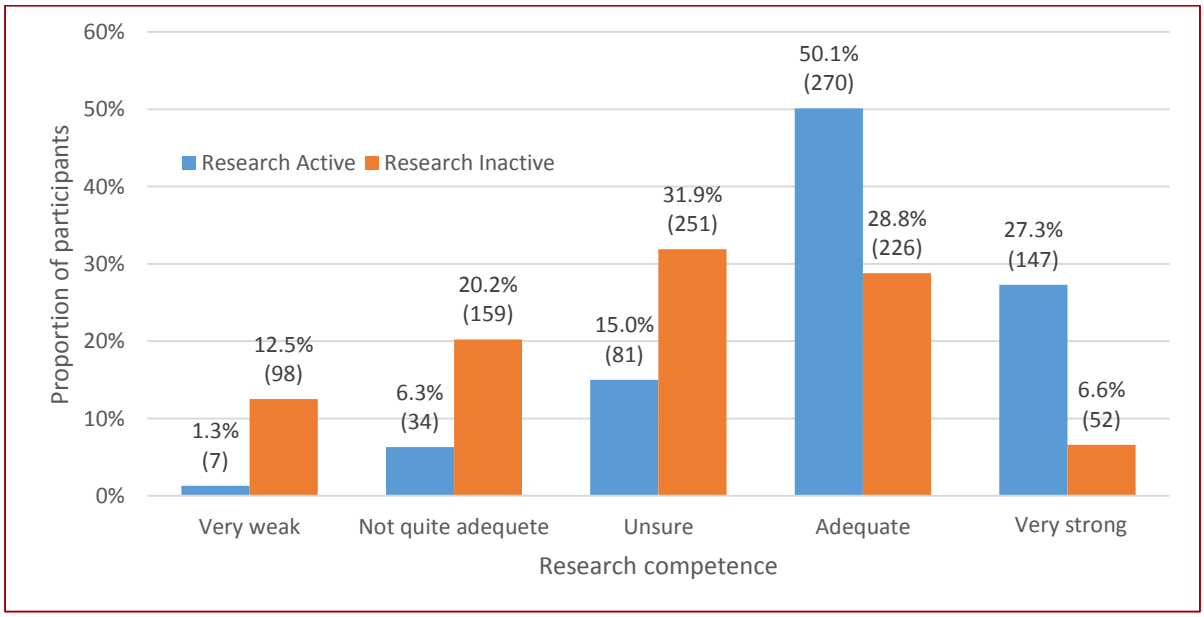

Figure 6. Participants' ratings of their overall research strength

Participants were asked if they had engaged in research training since qualifying as a health professional. The results are presented in Figure 7, with a significantly higher proportion of research active participants engaging in research training (77.6%, n=418) compared to research inactive participants (48.1%, n=378), X^2 (1, N=1325) = 115.7, p < .001.

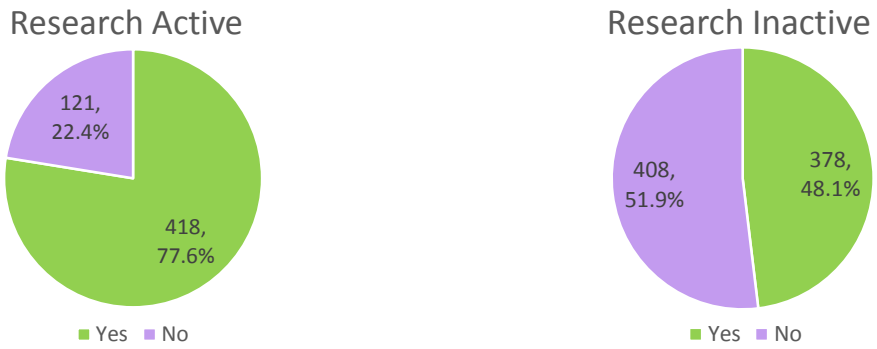

Figure 7. Proportion of participants that had engaged in research training since qualifying as a health professional

Participants were asked to indicate their preferences for how research training could be delivered. The pattern of preferences was similar for both research active and research inactive participants (see Figure 8). 'One-to-one mentorship' was the most frequently chosen preference by both groups, followed by 'Practice-based workshops' and 'Research Clusters'. Participants showed relatively low preferences for 'Lectures' or 'Online Training'.

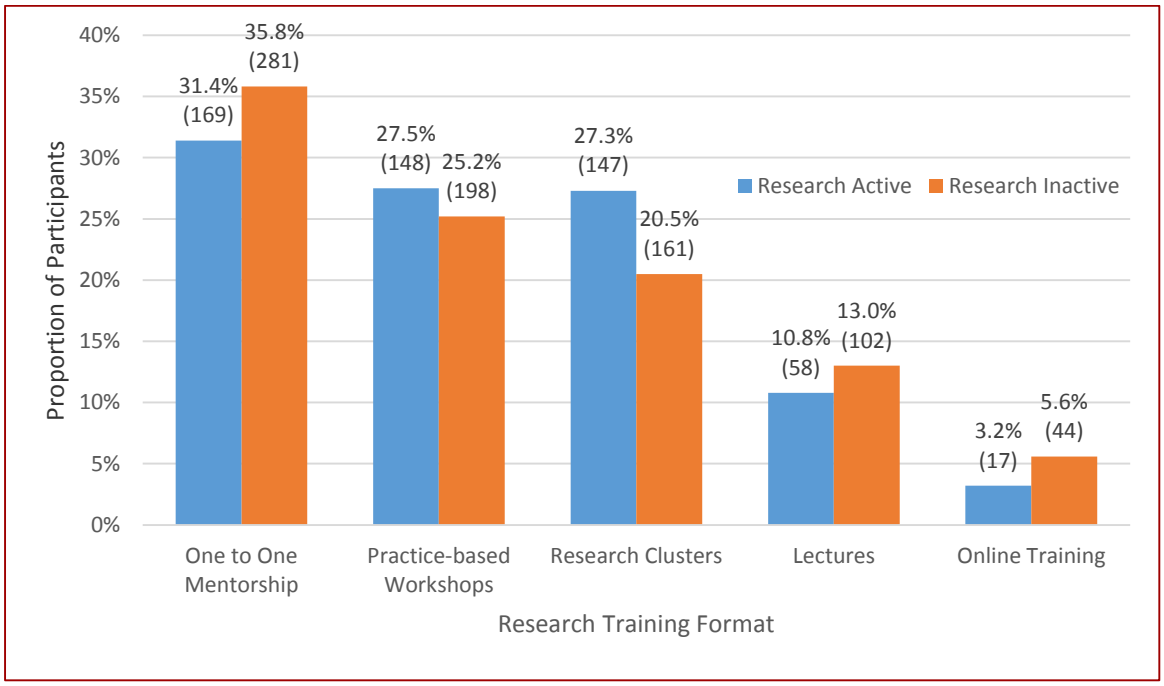

Figure 8. Research training preferences of participants

3.4 Enablers of research

Participants were asked, in an open-ended question, to indicate what changes would support their research activity. This data was coded and the ten most frequently indicated categories for research active and research inactive participants are presented in Figure 9.

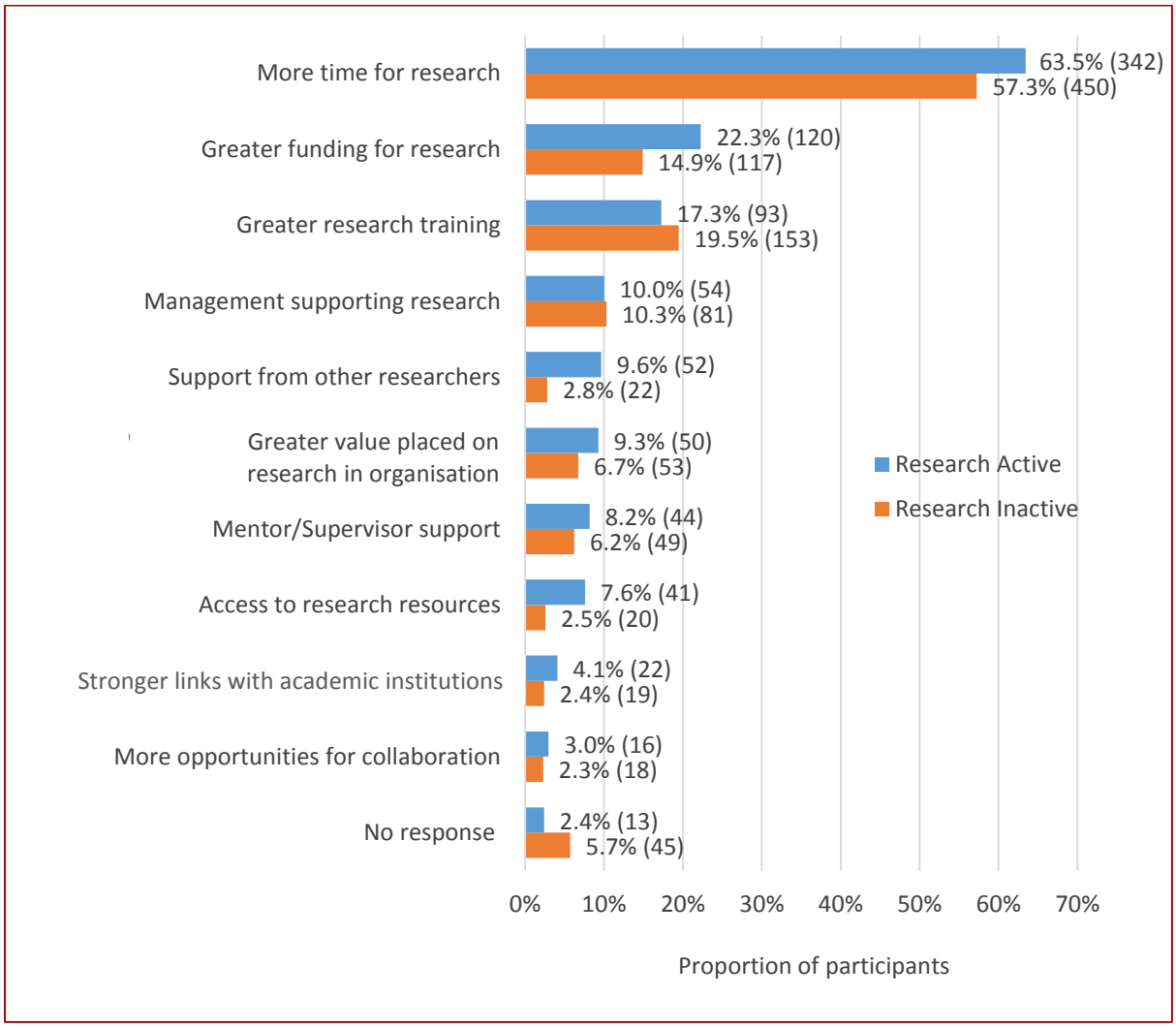

Figure 9. Proportion of participants indicating factor would support their research activity

The following presents a description of the themes which emerged within each response category.

1. More time for research

Participants indicated a need for protected time for research. This included the formal allocation of time for research within work as well as the provision of study days.

> "specific hours allocated and approved for research"

> "annual allocated mandatory study days"

Participants indicated a need to reduce their clinical workload to free up time for research, with some suggesting the recruitment of more staff to compensate for their reduced clinical capacity.

> "Permission to reduce clinical work to dedicate time to research demands"

> "Less demanding and chaotic casework, more staff"

2. Greater funding for research

The need for "access to funding" and 'research grants' was commonly cited by participants. One type of funding indicated by participants was that for further education and training:

> "Ensure that CPD is funded"

> "Funding for further studies"

Some research active participants also indicated a need for funding for attending research conferences.

> "Better funding for attending conferences"

3. Greater research training

Participants indicated a need for greater designated opportunities for research training, particularly with regard to practically-based training.

> "training, time ring-fenced for it"

> "more practice-based workshops over time to support project development"

With regard to the content of training specified by participants, there was a difference between research active and research inactive participants. Some research active participants indicated a preference for statistical training.

> "Further training/practical application of statistical knowledge"

In comparison, research inactive participants did not show a preference for any one particular area, but rather more general training in updating their overall research skills.

> "Would need to refresh my research skills as it has been awhile since I carried out research"

> "Workshops on where to start"

4. Support from management

Encouragement and support from management was cited as an enabler of research, including management allocating time for research.

> "More encouragement and support from senior and middle management"

> "More time – very clear amount of hours dedicated to research and fully supported by management"

Participants also specified a need for management to show greater appreciation of the value of research.

> "Having a manager who values the research effort"

> "Greater interest from management to encourage research"

5. Support from other researchers

Peer support was cited as an important enabler of research. Some participants indicated a need for structured peer support groups.

> "Structured involvement in a group of peers that meet to discuss research work and relevant articles re methodology"

Participants also identified the potential of peer support through research clusters.

> "A research cluster where research ideas and projects are shared"

6. Greater value placed on research

Participants indicated a need for research to be given greater prioritisation within their organisation.

> "organisational prioritisation of research as valued activity"

Participants also indicated the need for research to be assigned greater value in terms of its contribution to routine practice.

> "practical recognition of the importance of research in daily practice"

7. Support from mentors/supervisors

Participants cited the support provided by supervision and mentorship as an enabler of research. In particular, participants referred to the value of utilising the knowledge of an experienced researcher.

> "access to an experienced mentor"

> "support from a research expert"

Participants also indicated the value of supervision/mentorship with regard to project planning.

> "Support of academic/mentor to guide me through the process"

8. Access to resources

Participants identified a need for greater access to resources, particularly with regard to online research databases.

> "Easier access to adequate electronic libraries of journals"

> "Improved access to academic journals through the HSE library"

Participants also indicated a need for improved IT resources, including access to statistical software.

> "Access to computers that are reliable and have research tools, speedy internet access"

> "Access to statistics analysis package at work"

9. Stronger links with academic institutions

Participants referred to the potential of academic institutions to support research within the health service. This included such institutions directly collaborating on projects.

> "Stronger links/opportunities to meet with university researchers for collaboration potential with basic research and applications development"

> "Encourage collaboration with the universities to facilitate regular research"

The role of academic institutions in supporting researchers was also referenced.

> "More collaboration with universities for support"

10. Project collaboration

With regard to increased collaboration, research active participants indicated a need for more multi-organisational and multi-centre research.

> "Well designed large/long term research projects that different people/services can contribute to through many manageable but linked smaller research modules"

In comparison, research inactive participants indicated a need for more "team-based" research.

3.5 Barriers to research

From a list of predefined categories, participants were asked to indicate whether any of these prevented or discouraged them from engaging in research. The results are presented in Figure 10. The related factors of 'Not enough time to engage in research' and 'Clinical workload pressures' were the two most commonly cited barriers of research active and research inactive participants. Other frequently cited barriers included 'Lack of funding', 'Lack of support/encouragement' and a 'Lack of available resources for research'.

Research active and research inactive participants were compared on the proportion indicating each barrier to research using Chi-Squared tests. As indicated in Figure 10, there were some significant differences between research active and research inactive participants (see Appendix F for details of statistical analyses). A significantly higher proportion of research active than research inactive participants cited 'Research not valued in organisation' (34.5% v 28.9%) and 'Difficulties gaining ethical approval' (14.7% v 8.4%). A significantly higher proportion of research inactive participants cited 'Lack of support/encouragement' (52.8% v 45.5%), 'Lack of supervision/mentorship' (47.6% v 41%), 'Personal circumstances' (37.4% v 25.6%), 'Weaknesses in research skill' (45.9% v 24.1%) and 'Lack of research opportunities' (27.6% v 18.6%).

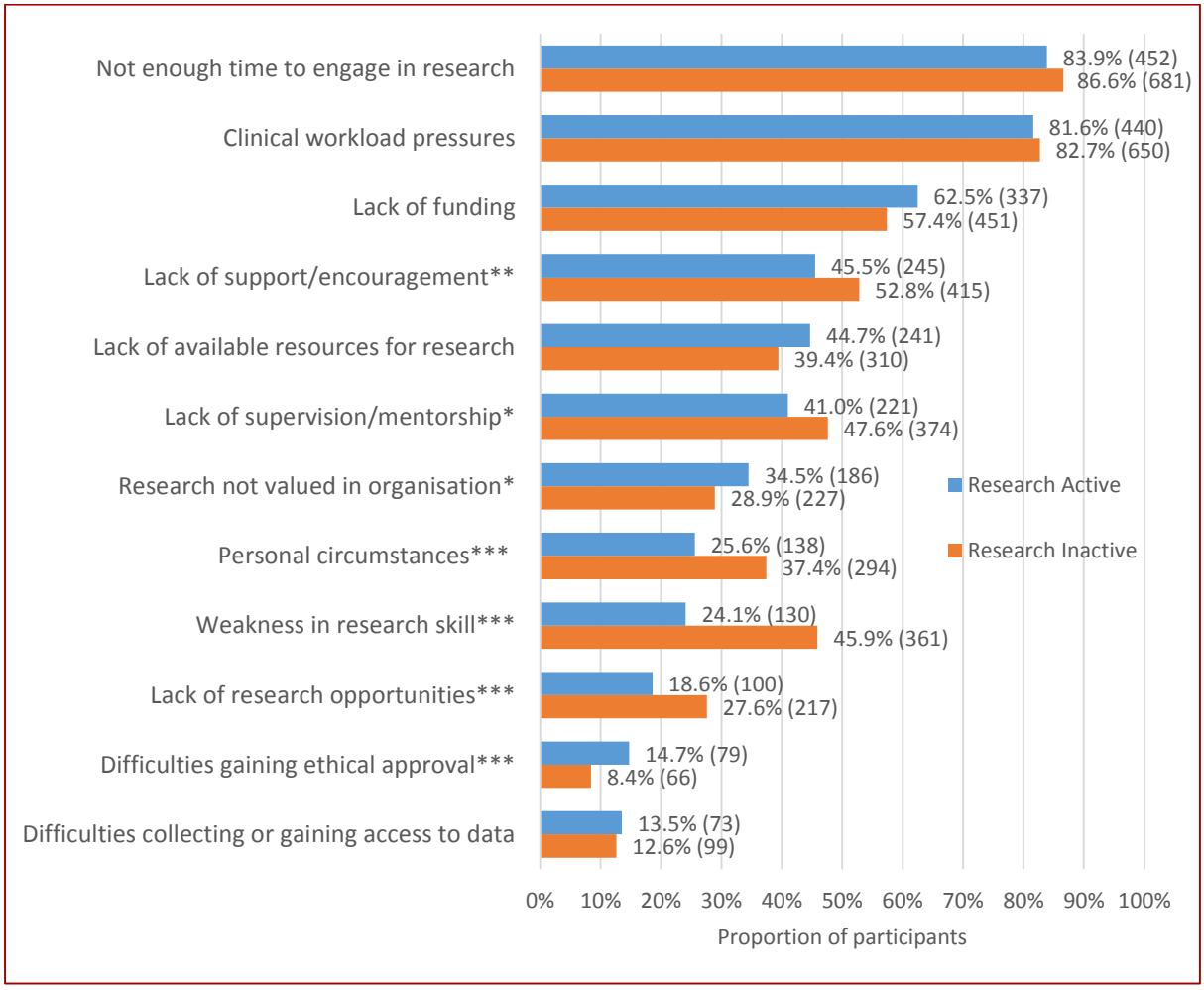

Figure 10. Number of participants indicating factor as a barrier to research

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; Based on Chi-Squared Test

Participants had an opportunity to specify if there were any other factors that acted as a barrier to research. The five most frequently cited barriers for research active and research inactive participants in this 'other' category are presented in Tables 9. A 'Lack of support from management' was cited by both research active and research inactive participants.

Table 9. Proportion of participants citing barrier in 'other' category

Research Active			Research Inactive		
Research Barrier	**n**	**%**	**Research Barrier**	**n**	**%**
Lack of support from management	10	1.9%	Lack of personal motivation	18	2.3%
Lack of access to research literature	5	.9%	Lack of support from management	8	1%
Lack of personal motivation	4	.7%	Lack of career benefits	4	.5%
Difficulty publishing	4	.7%	Not part of job description	4	.5%
Not part of professional role	3	.6%	Unable to afford engaging in research	3	.4%

3.6 Research activity of participants

Of those participants who had not been research active in the last two years, 21.1% had collected data for a research project during this time (see Figure 11).

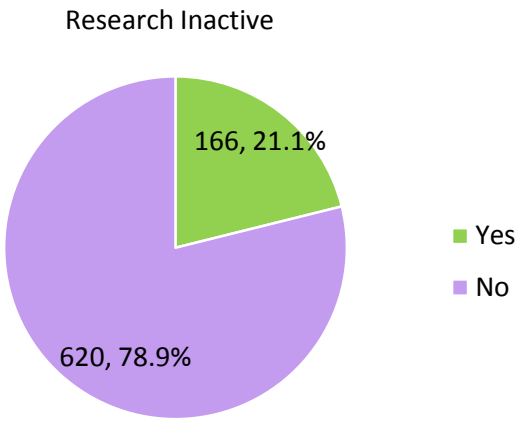

Figure 11. Proportion of research inactive participants that had collected data for a research project in the last two years

A significantly higher proportion of research active participants (89.4% n=482) than research inactive participants (78%, n=613) indicated they would like to spend more time engaged in research, X^2 (1, N=1,325) = 29.1, p < .001 (see Figure 12).

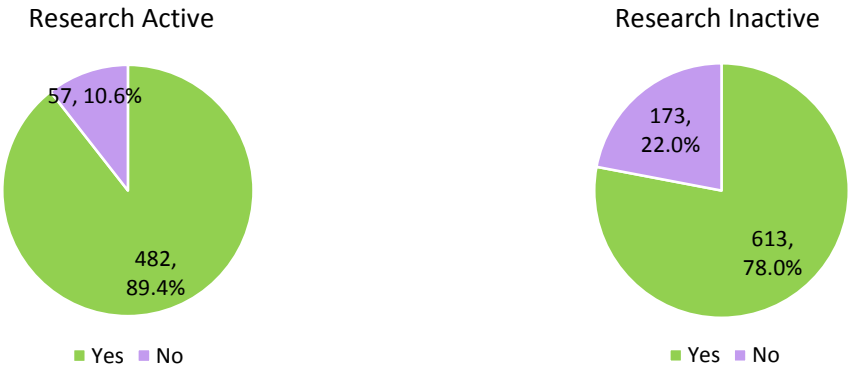

Figure 12. Proportion of participants that would like to spend more time engaged in research

3.7 Activity of research active participants

3.7.1 Level of research activity

The research activity of the 539 research active participants was examined. These participants were involved with a total of 1,953 research projects in the last two years. The total number of independent projects is unclear as different participants may have been engaged with the same research project.

With regard to the number of projects participants were involved with in the last two years, the median number was 2. The proportion of participants with each level of project activity is presented in Figure 13, with 66.8% (n = 360) of participants engaged with 3 projects or less.

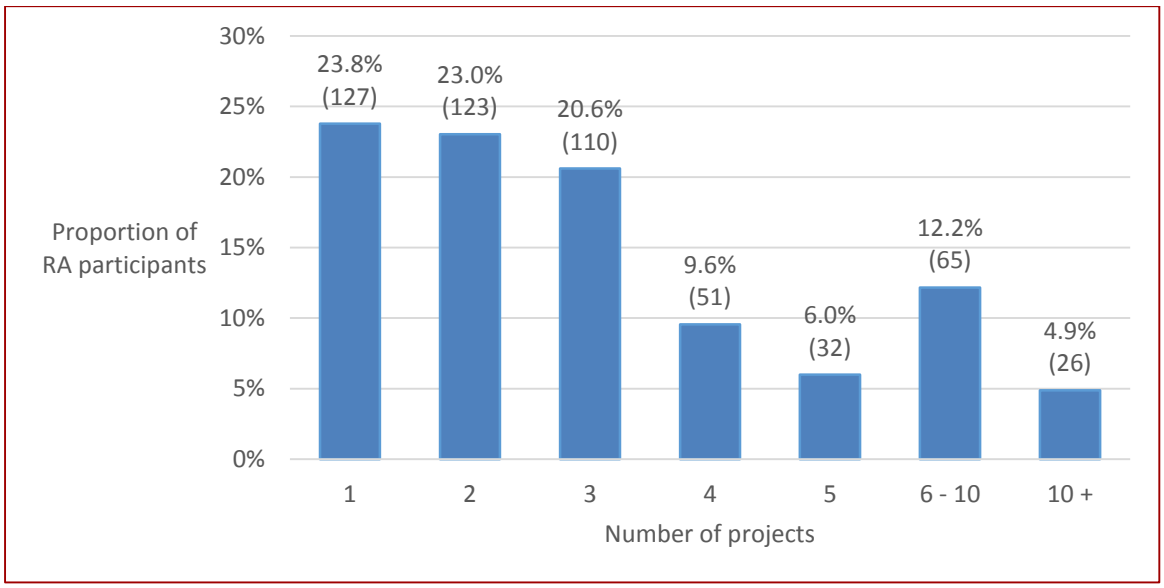

Figure 13. Proportion of research active participants with each level of project activity

The characteristics of participants' projects are presented in Table 10. Just over half the projects were primary research (53.6%) which involved the collection of new data and 30.5% were secondary research involving the analysis of existing research (e.g., literature reviews, meta-analyses). Participants had a supervisory role for 23.9% of the projects. Approximately a third of the projects were part of a service evaluation (34.2%) and a similar proportion were part of an academic degree (34.1%).

Table 10. Characteristics of participants' research projects (n=1,953) within the last two years

Type of Research	**n**	**%**	**Service Evaluation**	**n**	**%**
• Primary Research	1047	53.6%	• Yes	668	34.2%
• Secondary Research	596	30.5%	• No	1285	65.8%
• Primary & Secondary Research	310	15.9%			
Participant Role	**n**	**%**	**Part of Academic Degree**	**n**	**%**
• Researcher	1402	76.1%	• Yes	666	34.1%
• Supervisor	441	23.9%	• No	1287	65.9%

Participants were asked to indicate the number of projects that they published or presented in the last two years (see Figure 14). A peer review publication has been achieved by 24.7% of participants, and 43.4% of participants had presented their research at a conference.

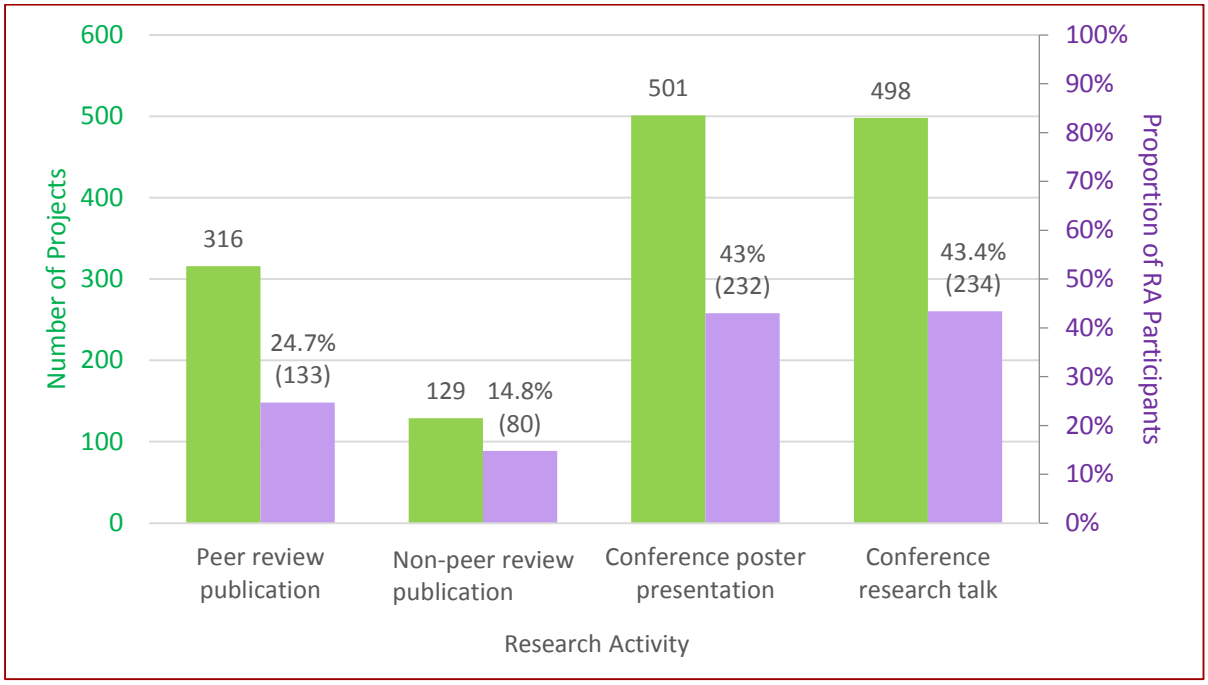

Figure 14. Proportion of research active participants achieving each type of publication or presentation and associated number of projects

Participants were asked to estimate the proportion of their work time in which they engaged in research according to the response categories presented in Figure 15. As indicated, 64.7% (n=349) of research active participants spent 10% or less of their work time engage in research.

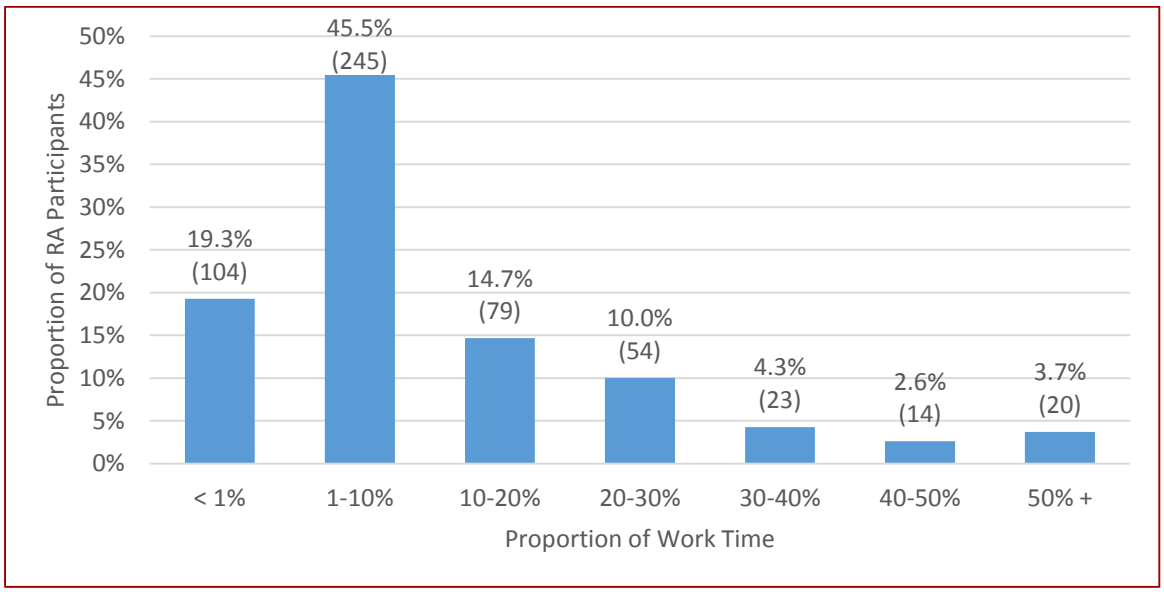

Figure 15. Proportion of research active participants' work time spent engaged in research

Participants were asked to estimate the proportion of their research time that occurred outside of work hours, according to the categories presented in Figure 16. Approximately half of participants (49.5%) conducted the majority of their research time outside of work hours.

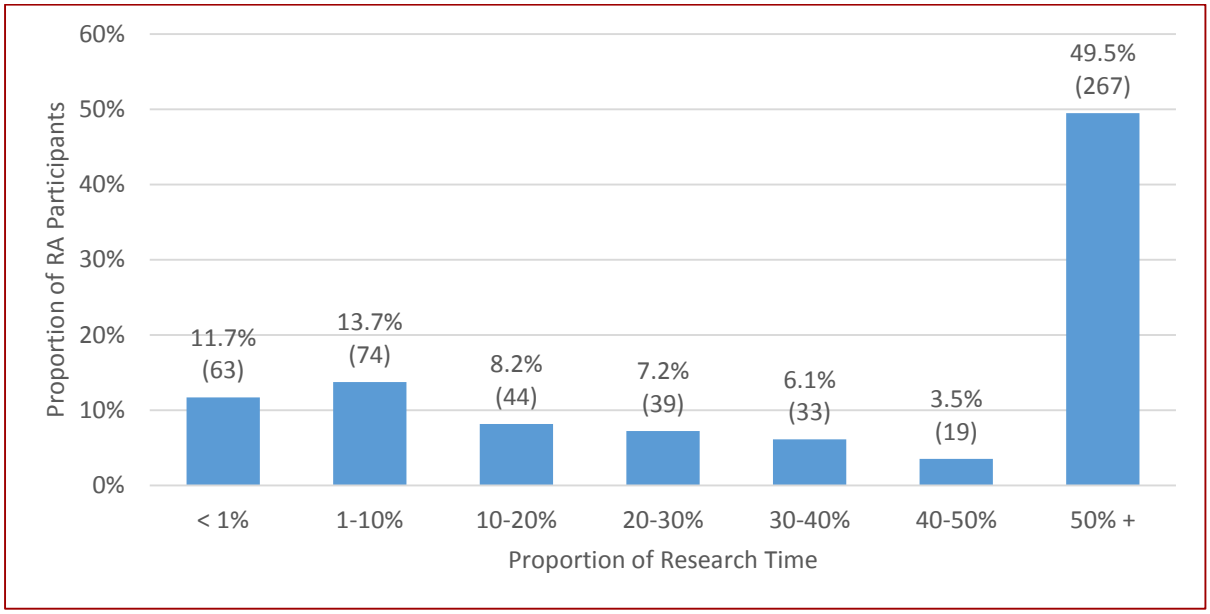

Figure 16. Proportion of research active participants' research time undertaken outside working hours

Participants were asked to indicate whether they had reduced their contracted working hours in order to engage in research. The results are presented in Figure 17, with a small minority (7%) indicating they had done so.

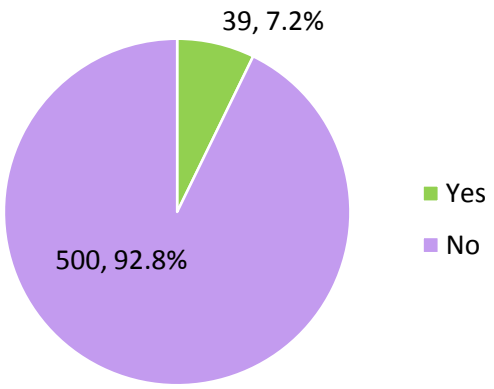

Figure 17. Proportion of research active participants that reduced their contracted working hours to engage in research

3.7.2 Motivation for research

Research active participants were asked to indicate, in an open-ended question, what factors had motivated them to be research active in the previous two years. This data was coded, and the ten most frequently cited factors are indicated in Figure 18. The most frequently cited motivating factors were 'Personal motivation', 'Service improvement' and 'Completing an academic degree'.

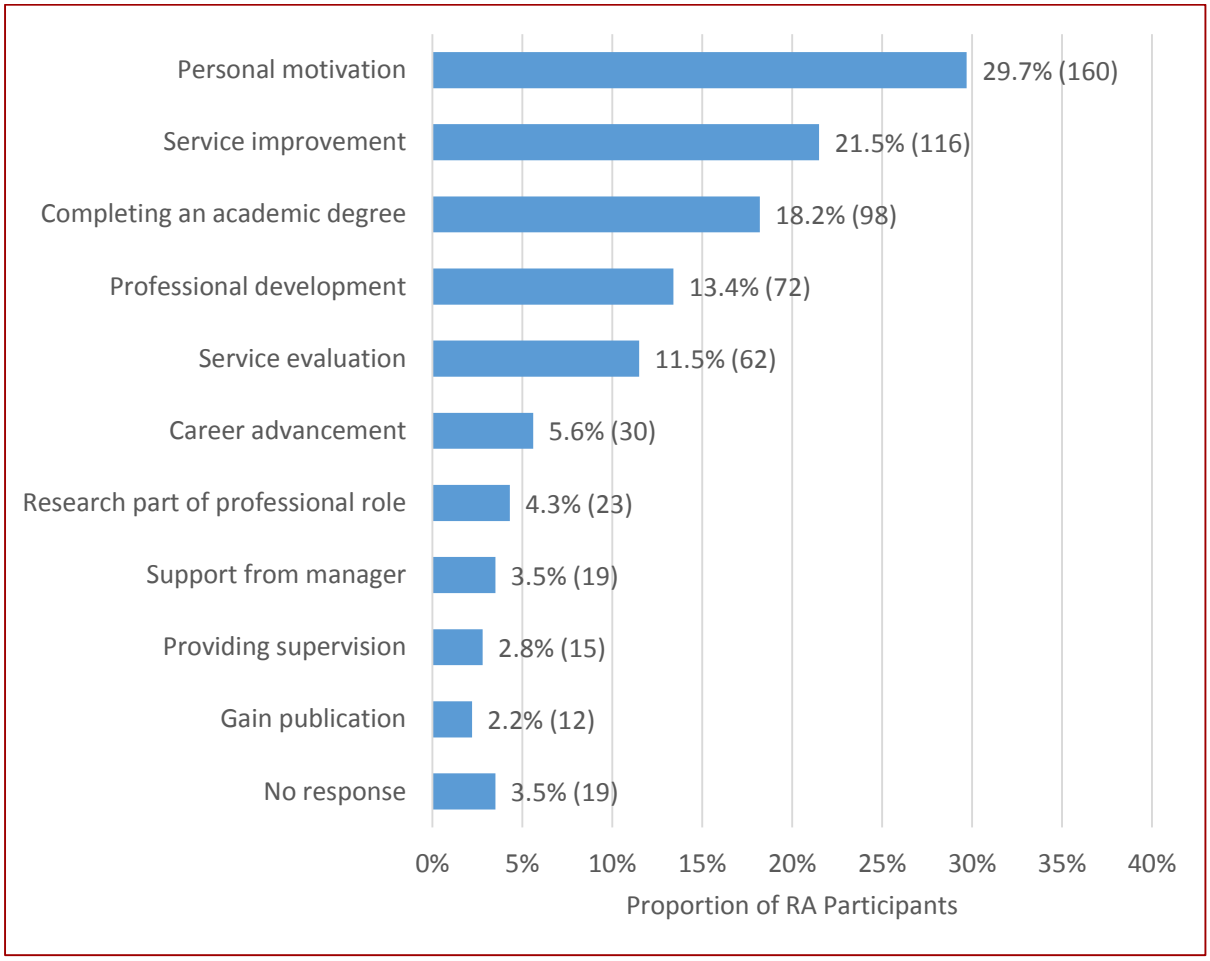

Figure 18. Sources of motivation for research active participants

The following presents a description of the themes which emerged within each response category.

1. Personal motivation

Participants here cited intrinsic factors as a source of motivation. This included having an interest in the research topic, as well the sense of achievement associated with research.

> "Have an interest in research and enjoying it"

> "Striving for a feeling of achievement, and self-fulfilment, which cannot be obtained from patient contact alone"

2. Service improvement

Participants indicated that they had engaged in research in order to improve their service. In particular, participants indicated a desire to improve service provision in terms of the benefits to patient care.

> "In order to improve the care I give to my patient"

Some participants also indicated using research to reduce service costs and improve service efficiency.

> "Keen interest to looking at ways to provide a safe and efficient service which is cost effective and quality led"

3. Completing an academic degree

Participants here specified that they engaged in research in order to complete an academic degree, with many participants referring to research as a "requirement" or "mandatory" component of this degree.

> "requirement for academic qualification"

4. Professional development

With regard to professional development, participants cited two components. First, participants indicated a desire to improve their knowledge in order to aid clinical practice.

> "an interest in improving clinical knowledge for the benefit of the patient"

Second, participants indicated a desire to improve their clinical skills.

> "In order to keep developing clinical skills and developing my evidence based practice"

5. Service evaluation

Participates reported engaging in research in order to evaluate the quality of the service they were providing. With this, participants referred to the need to demonstrate evidenced-based practice.

> "To see if the interventions we use are effective. In sum, to ensure that we provide evidence-based practice which accurately and effectively meets the needs of clients"

Furthermore, participants reported engaging in research to answer specific questions about their service.

> "The need to answer questions related directly to our service and requests from clinical staff"

6. Career advancement

Participants reported engaging in research to in order progress their careers. This included promotion from their current role, as well as transition to a more research-orientated role.

> "Research is also a natural career progression that gives you as a clinician an extra step-up if looked at promotion / new job"

> "I'd also like to pursue a career as a lecturer ultimately, so research experience is critical"

7. Part of professional role

Participants indicated engaging in research as it was part of their professional role. This included research being a designated part of their work.

> "recognised role as part of my job linked with HEI's"

In addition, participants indicated that research was part of their profession's culture, such as a scientist-practitioner model underlying their discipline.

> "I see my role as a clinical psychologist as being one of scientist-practitioner"

8. Management

Management was indicated as a motivating factor for engaging in research through "support" and "encouragement". Participants also indicated that management could have a direct role in organising research, including management requesting service-related research.

> "Manager in my workplace requiring that all staff members be actively involved in a research project"

> "Management requests for service review/audit"

9. Part of supervision

Participants here indicated engaging in research in order to provide supervision to other researchers. This included providing supervision to trainee professionals.

> "Support colleagues involved in research as supervisor"

> "Supervision of trainees who undertake research"

10. Gaining publication

Achieving a research publication was cited as a motivating factor for research, including its benefit in terms of career progression.

> "A desire to gain publications in order to strengthen CV"

3.7.3 Support for research activity

Research active participants were asked, in an open-ended question, to indicate the factors that had supported them to be research active in the previous two years. This data was coded, and the ten most frequently cited factors are indicated in Figure 19. The most frequently cited sources of support were 'Personal motivation', 'Support from colleagues' and 'Support from manager'.

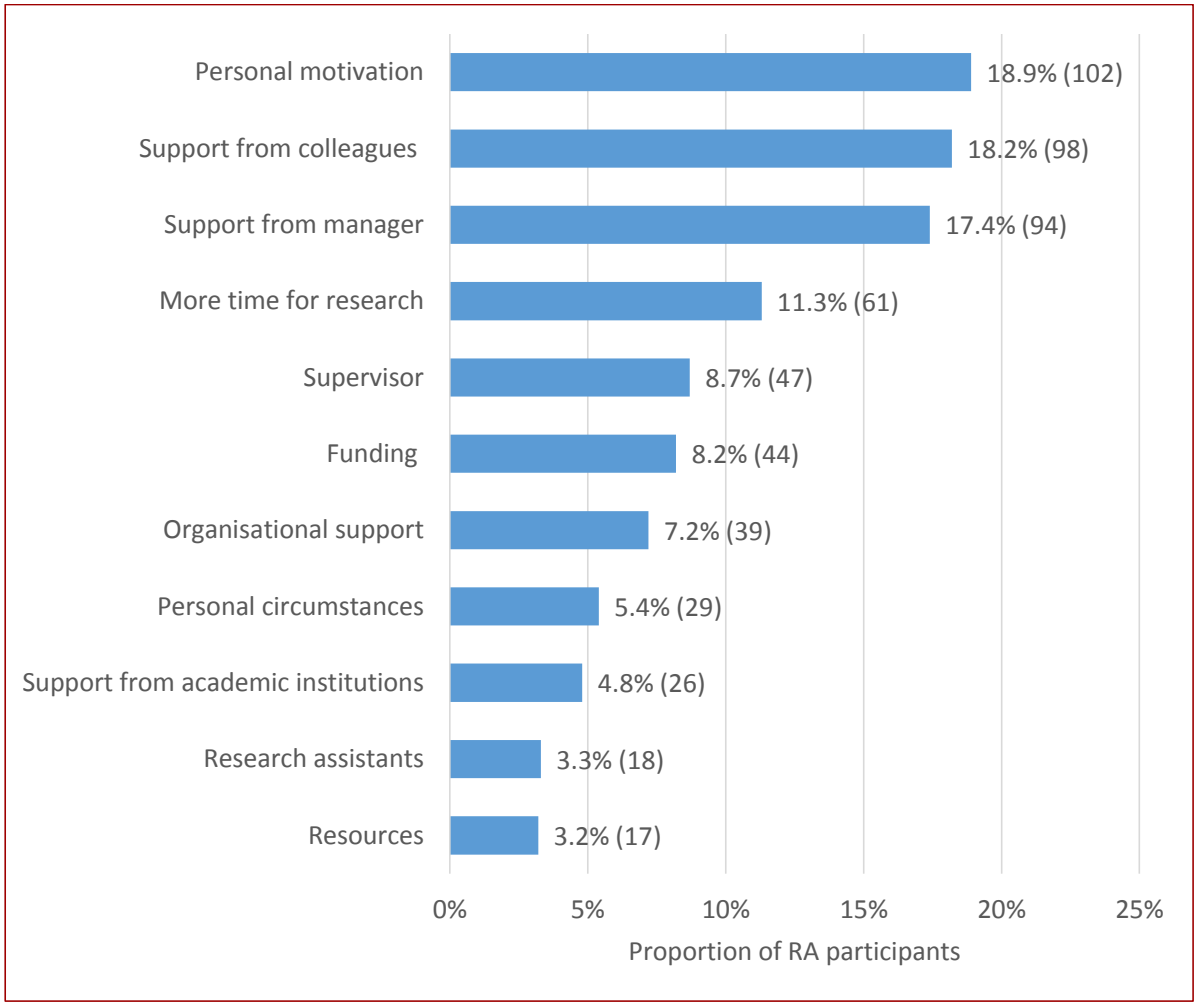

Figure 19. Proportion of research active participants indicating factor as supporting their research

The following presents a description of the themes which emerged within each response category.

1. Personal motivation

Participants here indicated that it was their own personal motivation that supported them to be research active. For some participants, this related to their own "personal interest" in research. Furthermore, some participants made reference to their own personal "dedication" and "determination".

"my own determination, interest in my chosen research area"

2. Support from colleagues

Participants cited encouragement from colleagues and co-workers as a source of support, including the benefits they provided in helping them to manage their workload.

> "Support and encouragement from colleagues"
>
> "Enthusiasm from the team in which I worked"
>
> "Working on a supportive team made it more convenient and split the workload which saved time"

Another type of support specified was that provided by research assistants and students on various aspects of the research process.

> "Access to competent & hard-working Research Assistants in our department"
>
> "Gaining assistance from medical students who collected the majority of data"

3. Support from management

Participants cited support from management in both facilitating research and encouraging it.

> "Facilitated by line management"
>
> "Manager very supportive and encouraging of research"

4. More time

Participants cited the allocation of time as a facilitator of research activity. This included the provision of research time during work, as well as designated study days.

> "Time; we have a full working day allocated to research"
>
> "Being given some study leave from manager"

5. Supervisor

Participants here cited the support provided by experienced and encouraging supervisors.

> "Supervisor being skilled & encouraging"
>
> "Encouragement and support of clinical supervisors/ mentors"

6. Funding

Participants cited the value of funding from a variety of sources. This included the purchasing of support for research.

> "grant funding enabling me to buy clinical support for my time and to bring in research students to collect the data"

7. Organisational support

Participants referenced an organisational or departmental 'commitment' to support research, often in relation to service development.

> "Organisational drive to make service improvements"

8. Personal circumstances

With regard to supportive personal circumstances, participants referenced the need to have a personal life which facilitates research outside of working hours. For example, participants referenced the support of family.

> "A supportive family who tolerates my being unavailable at times during out of working hours"

Furthermore, participants made reference to a lack of personal commitments as providing the time for research.

> "Young and fewer family commitments enabled me to work at night time and during weekends"

9. Support from academic institutions

Participants referenced the support from academic institutions, particularly with regard the provision of supervision/mentorship and training.

> "Supervision and support from academic institution"

> "My college, my supervisor in college, and the classes in college on advanced research methods"

10. Resources

Participants indicated that access to library services had an important role in supporting their research activity, including "access to journals". Participants also indicated the value of advanced computer facilities and technical equipment needed for research.

3.7.4 Details of participants' most recently completed research project

In the last two years, 357 (66.2%) research active participants indicated completing a project. These participants were asked to provide details on their most recently completed project (n=357), the characteristics of which are presented in Table 11. As indicated, a minority of these projects were funded (18.8%) or were part of a larger research stream (17.9%). Participants collaborated with other researchers for 58% of these projects, with collaboration with a researcher from another discipline (i.e. multi-disciplinary collaboration) and collaboration with an academic researcher being present for 32.5% and 25.9% of projects respectively.

Table 11. Characteristics of participants' most recently completed research project (n=357)

Project characteristic	n	%	Project characteristic	n	%
Funded	67	18.8%	Collaboration with other researcher	207	58%
Part of larger research stream	64	17.9%	Multidisciplinary collaboration	116	32.5%
Involvement of a private organisation	43	12%	Collaboration with an academic researcher	92	25.9%

For the 67 projects that were funded, participants were asked to specify the source of funding. Table 12 presents the sources of funding indicated by at least two participants, with 11.9% (n=11) of these projects having two or more sources of funding.

Table 12. Sources of project funding

Funding source	n	%	Funding source	n	%
Health Research Board	15	22%	Non-governmental organisation	6	9.0%
Charity	12	17.9%	Hospital	3	4.5%
Private company	10	14.9%	Medical Research Council (UK)	2	3.0%
Academic institution	8	11.9%	Professional body	2	3.0%
HSE (unspecified)	7	10.4%			

Of participants completed projects, 49.6% (n=177) were part of an academic degree. Participants' academic and non-academic projects were compared for the presence of each project characteristic using Chi-Squared tests (see Figure 20). As indicated, a significantly lower proportion of academic projects involved collaboration or multidisciplinary collaboration, and a lower proportion were part of a service evaluation (see Appendix G for details of statistical tests).

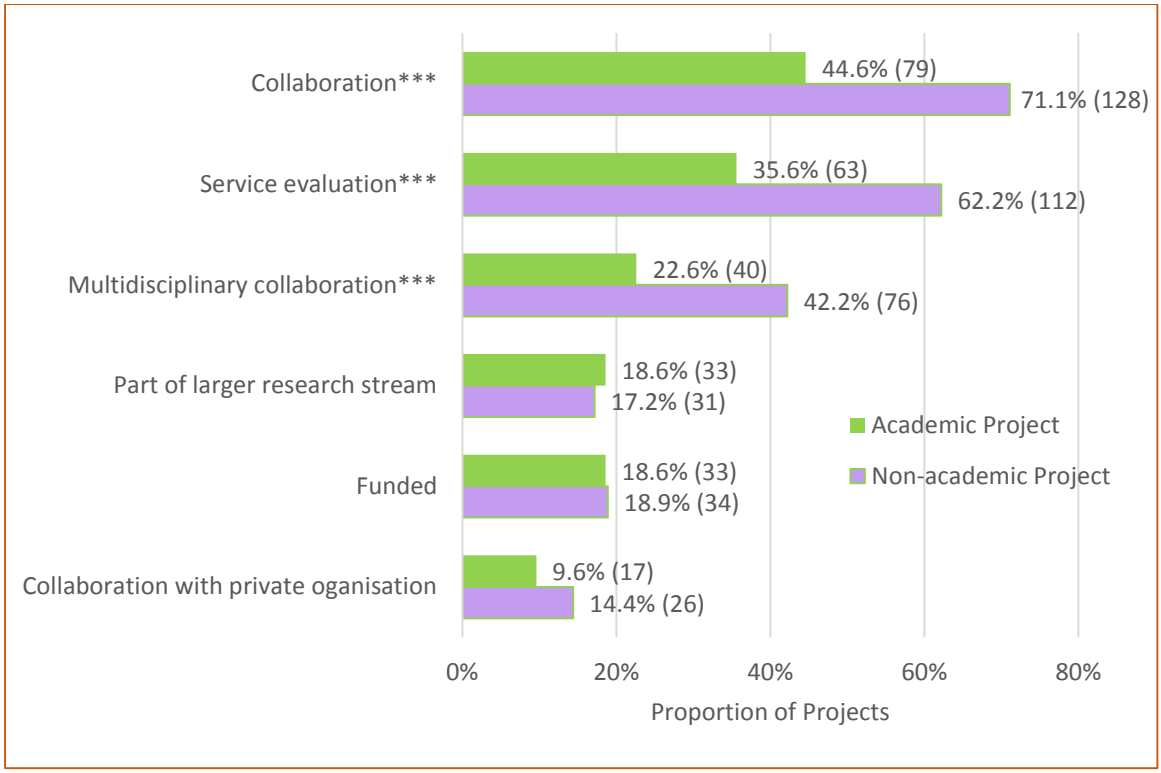

Figure 20. Proportion of academic and non-academic projects with each project characteristic
Note. * p < .05, ** p < .01, *** p < .001; Based on Chi-Squared Test

As indicated in Figure 21, 47.3% of participants received supervision for their most recently completed project, while 33.3% provided supervision to another researcher.

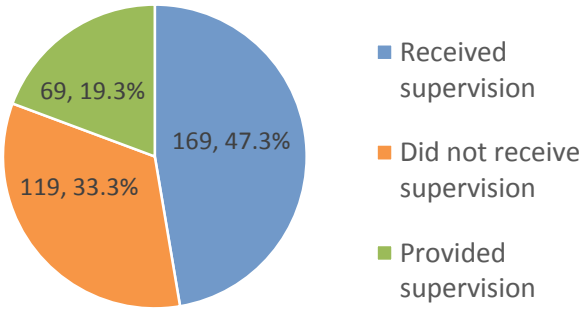

Figure 21. Proportion of projects where participants received or provided supervision

The 169 participants that had been provided with supervision were asked to indicate the quality of their supervision (see Figure 22). Supervision of 'Excellent' or 'Good' quality was indicated by 76.3% (n=129) of research active participants.

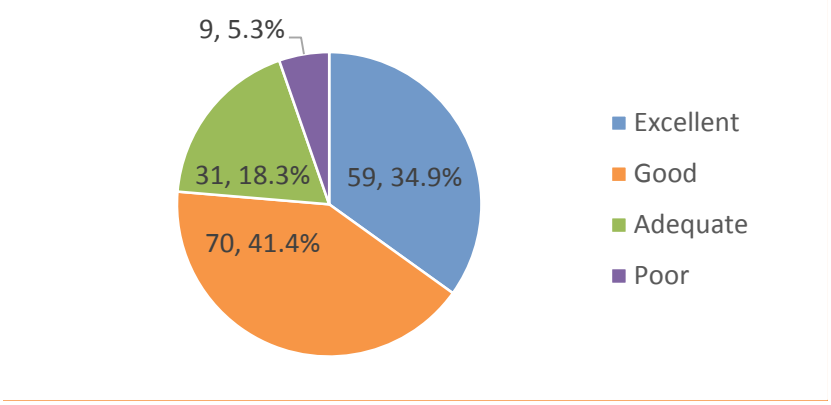

Figure 22. Participant ratings of supervision

These participants were further asked to indicate, in an open-ended question, what aspects of supervision were most helpful. The most frequently cited supportive aspects of supervision were 'data analysis', 'project design' and 'writing-up project' (see Table 13).

Table 13. Proportion of supervised participants (n=169) indicating factor as most helpful part of supervision

Supervision support	n	%	Supervision support	n	%
Data analysis	20	11.8%	Recruiting participants	6	3.6%
Project design	18	10.7%	Generating ideas	6	3.6%
Writing-up project	12	7.1%	Literature searching	4	2.4%
Publishing	8	4.7%	Responding to queries	3	1.8%
Encouragement	7	4.1%	Interpreting findings	3	1.6%

Chapter 4: Discussion

The current survey attempted to advance upon our previous 2011 survey by gaining a larger and more representative sample of HSCPs; by examining a wider range of content; and by gaining a more detailed perspective of the opinions and experiences of HSCPs. While the response rate of 8.4% was a significant improvement on the 2.5% of the previous survey, it was still quite low with a likely response bias towards those that were research active or had positive attitudes towards research.

Despite the low response rate, the overall sample number (n=1,325) was large enough to gain reliable statistics and high statistical power, as well as sample a wide diversity of opinions. Indeed the sample was relatively representative of HSCPs in terms of health service area, health service level and professional grade. It should be noted however that five professions accounted for the majority of the sample (i.e. Psychologist; Speech and Language Therapist; Occupational Therapist; Social Worker; Physiotherapist) and therefore the results will be significantly weighted towards these professions.

A summary of the key results of the survey are presented in Figure 23. The implications of the results will be discussed, along with a comparison with the results of our previous 2011 survey.

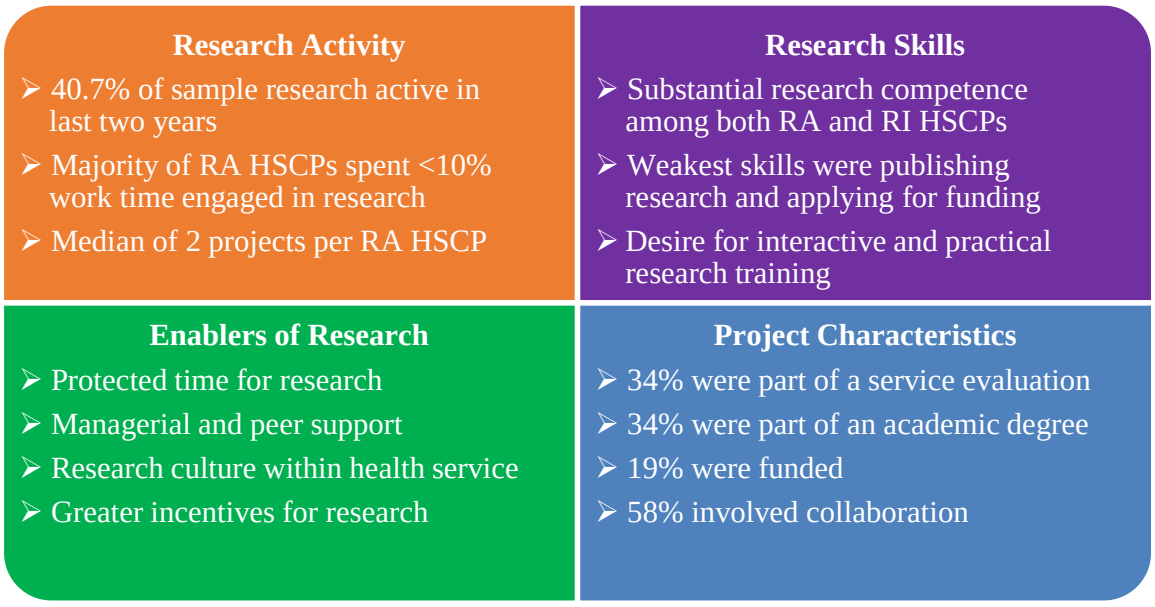

Figure 23. Summary of key results of survey
Note. RA = Research Active, RI = Research Inactive

4.1 Research activity

Within the current sample, 40.7% of participants were research active. This figure cannot be taken as an estimate of the level of research engagement of HSCPs in Ireland, given the likely response bias towards research active HSCPs. Higher levels of research activity were found at more specialist levels of the health services. It is possible that the job description of some professions at specialist levels may have a stronger research component, or there may be more autonomy at these levels to engage in research. Research active participants tended to be

involved with multiple projects, with most engaged with three or less projects. Such high levels of project engagement may suggest that there is much capacity for more HSCPs to become involved with research, either as direct researchers or in a supportive capacity (e.g., data collection).

4.2 Time for research

The majority of research active participants spent less than 10% of their work time engaged in research. Given this minimal level of time, it is unsurprising that much of participants' research activity occurred outside of their regular working hours and that personal commitments influenced their capacity to engage in research. Furthermore, the greatest facilitator of research for both research active and research inactive participants was the formal provision of time for research, with a lack of time cited as the greatest barrier. The importance of having allocated time for research is consistent with previous research of healthcare staff (Harrison et al. 2001; Morton et al. 2008; Sergott et al., 2006). Overall, participants cited a need for more protected work time for research, reduced clinical workload and the provision of study days.

While allocating more time for research would clearly enhance research activity, the key challenge is achieving this without reducing the quality of service provision. A number of options need to be considered. For example, greater protected time could be allocated to those that have demonstrated a certain quantum of research. While this strategy may incentivise research productivity, it may also be too selective, resulting in little time being allocated for small-scale research projects or audits. A second option would be to allocate more time to research activity that directly contributes to service provision (e.g., identifying inefficiencies), such as service evaluations or audits. Indeed, much HSCP is already aimed at improving services, with one third of projects being part of a service evaluation. With this strategy, increased research activity would not be a re-direction of service resources, but rather a means to improve the overall effectiveness and efficiency of services.

4.3 Research skills and training

Significant research competence was observed for both research active and research inactive participants, with a substantial proportion having a Doctorate or Master's level degree. This is an important foundation for research capacity development given the positive association of research self-efficacy and educational level with research activity (Byham-Gray et al., 2006; Holttum & Goble, 2006). Research inactive participants unsurprisingly indicated less confidence in their research skills, with a significant proportion indicating that they were 'unsure' of their research competence. It is possible that training which focuses on refreshing basic research skills may provide this group with the necessary confidence to engage in research. Indeed, research inactive participants indicated a preference for more introductory, generic research skills training, rather than training aimed at developing any one particular skill. For research active participants or those with high research competence, training aimed at advancing particular skills may be more productive.

Research active participants showed higher research competence across the range of research skills (see Figure 24 for list of skills), although the pattern of strengths and weaknesses was similar for both groups. The major areas of weakness were applying for funding; publishing

research; and quantitative and qualitative data analysis. Difficulties applying for funding can be a significant obstacle in the early stages of project development, and may be a major determinant of whether a project gets initiated. It is uncertain whether the difficulties indicated are due to the technical aspects of developing a funding proposal, or the process of identifying appropriate funding. It is therefore important that any attempts to increase HSCPs' competence in developing funding proposals is combined with advice on identifying funding sources. Regarding publishing research, this skill plays an important role in ensuring that clinical research has an impact beyond the service or setting in which it is conducted. The finding that only a quarter of research active participants had recently published a peer-review paper may reflect difficulties with this process. With regard to competency development, there are a number of important skills needed for publishing research. These include selecting the appropriate journal, presenting papers using author submission guidelines and responding to feedback from peer-reviewers.

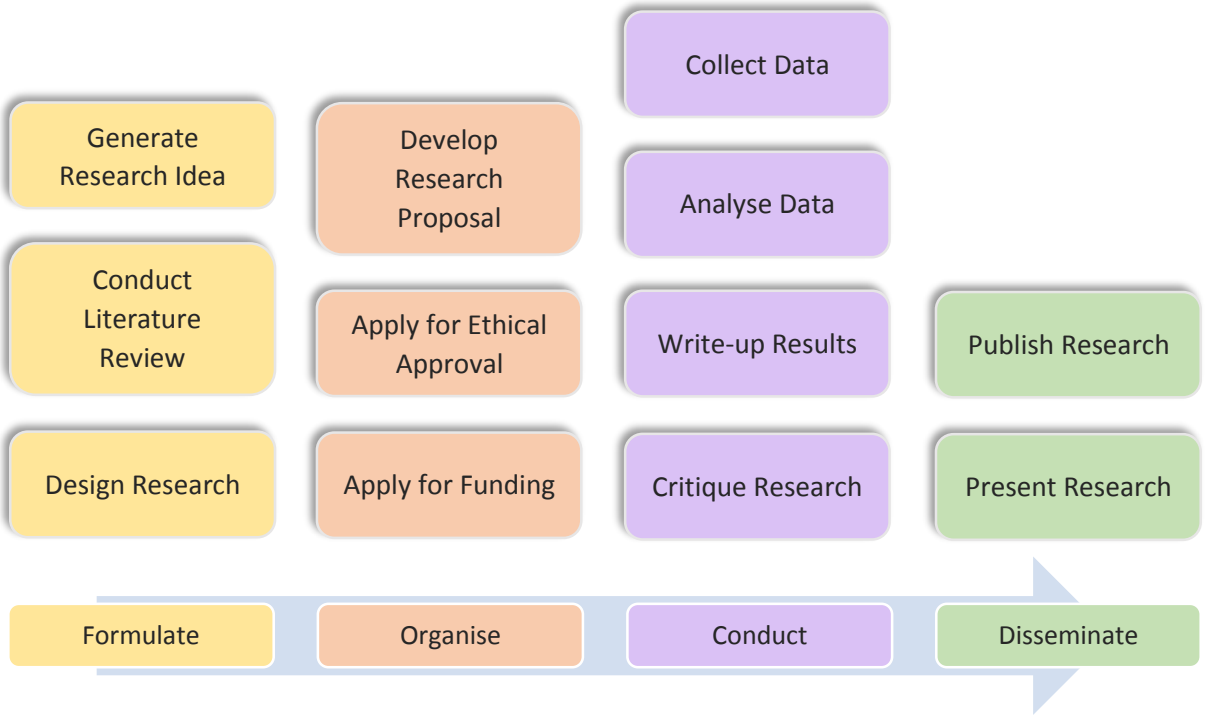

Figure 24. Research skills needed at each step of research process

The strongest research skills for participants were 'orally presenting research', 'conducting a literature review' and 'generating a research idea'. These skills would typically be well developed during academic training and this may account for the self–reported competence. Skills relating to applying for funding and publishing research will tend to have less direct relevance for academic coursework and thus may be given less attention (Yanos & Ziedonis, 2006). There would appear to be a need to greater synchronise the research skills developed by academic training and those required in practice. Professional training can subsequently build upon those skills needed to be an effective clinician-researcher.

Participants showed a preference for practically-based, interactive types of research training such as mentorship and workshops. Such training has more flexibility in adapting to the needs

of researchers and better addresses the challenges that can occur when conducting research in practice. Participants indicated a low preference for online training, possibly reflecting a belief that such training is ineffective, or that no protected time would be allocated for such training. Indeed, when discussing enablers of research, some participants specified the need for ring-fenced time for training. Despite this low preference, the accessibility of online training and its ability to reach a large audience may make it a valuable supplement to other training modalities (Childs et al., 2005). It may be particularly valuable for the training of more technically simple research skills, such as conducting a literature review or developing a research proposal. More complex research skills such as data analysis or research design would require more intensive training.

4.4 Funding

As only a small proportion of the projects sampled were funded, it is unsurprising that increased funding was a commonly cited enabler of research. In the current environment of economic pressures within services, allocating greater funding for research may be difficult to justify. It is therefore important that increased funding for research has demonstrated value-for-money. For example, greater funding could be allocated towards research that has direct benefits for services, such as that which identifies inefficiencies and improves the cost-effectiveness of services. Greater funding needs also to be considered for those activities that enhance the research capacities of HSCPs. Indeed, some participants indicated a need for funded continuous professional development and funding the expenses of research conferences. As applying for funding was a significant difficultly for HSCPs, it is important that funding is advertised as in way that increases its accessibility (Waldron & Byrne, 2011). For example, a centralised online catalogue of available research funding in Ireland could be developed.

4.5 Research motivation

Participants' motivation for research was examined to provide another perspective on how HSCP researchers can be best supported. The finding that research active participants cited personal factors as their main source of motivation has a number of implications. It is positive that many participants engaged in research because of intrinsic reasons (e.g., interest in topic, sense of achievement) and is consistent with the finding that a large majority of participants wanted to increase their level of research activity. However, it may also reflect a lack of external incentives for research, with researchers relying too heavily on their own personal drive and initiative. The finding that only 6% of research active participants were motivated by career advancement may reflect this. It is proposed that the research activity of HSCPs needs at least to be incentivised through career progression. One important step would be for all interview panels (e.g., as organised by the National Recruitment Service) to independently assess research competence. Furthermore, there is a need to define the career pathway for clinician-researchers. For example, the Association of U.K. University Hospitals (AUKUH) has mapped a model of career progression in the U.K., detailing the steps from progressing from a basic practitioner to a clinical professor (Department of Health, 2012). A similarly defined pathway in our own health service would provide HSCPs with a clear direction and vision for how research could advance their careers.

A significant proportion of research active participants indicated service improvement and service evaluation as their motivation for research. This again supports the importance of research in the routine functioning of services (McHugh et al., 2011). Participants also cited professional development as a motivator for research, in particular, developing their knowledge and skills in order to improve the quality of care they could provide. Thus, it appears that much research originates from a drive among HSCPs to improve the quality of their services. This motivation needs to be utilised by encouraging staff to identify problems of service provision, and to collect and report on data that may provide solutions to these problems.

4.6 Management and peer support

Participants cited the importance of managerial support for research activity. This included management facilitating research, such as in allocating protected time, as well as management creating a more supportive atmosphere for research. In the current environment where services are under increasing pressure to achieve clinical efficiency and value for money, management may often view research as an unnecessary use of resources. However, as discussed, research needs to be considered as a necessary component of enhancing service provision. It is encouraging that some participants indicated that their managers actively requested service-based research. It may be of benefit to require managers to demonstrate service provision efficiencies through research, rather than relying on basic performance metrics such as waiting list times.

Participants indicated a need for greater support from colleagues on a number of levels. First, reference was made to the value of colleagues in helping to create a research-supportive atmosphere and culture in their organisation. This may range from colleagues simply encouraging research to colleagues who adapt their workload to facilitate researchers. Participants also cited the supportive role of research assistants and students in completing research, particularly with regard to time-consuming research activities such as data collection and analysis. Many such research assistants and students engage in research to enhance their research experience and competencies, and may often voluntarily engage in such activities. There is a need to develop more structured (and preferably funded) work experience programs to facilitate such individuals contributing to health service research.

As well as support from work colleagues, participants cited a need for support from fellow researchers. This included a need for structured research groups as well as peer-based research training. There are various ways the development of such research groups could be supported. First, an online research network could be developed for HSCP researchers, possibly using an online learning resource such as HSELanD (McHugh et al., 2012). Through forums for example, researchers could ask colleagues for advice on accessing funding or applying for ethical approval. Researchers could also have profiles on this site in order to facilitate collaboration. At a more local level, researchers could join together to form research clusters. Researchers in such groups could meet on a regular basis to discuss ideas for projects (e.g., determine research priorities); provide each with support regarding research methodology; and collaborate with one another on projects. Furthermore, it is important that HSCPs have an opportunity to meet with one another at national or regional research conferences. Only half of research active participants had presented at a research conference in the previous year,

suggesting that there is scope for more research conferences, or possibly better support for researchers to attend these conferences (e.g., allocated time from work, funded conference expenses). The annual HSCP research conference organised by the HSCP Education and Development Advisory Group has been successful in recent years in bringing HSCP researchers together; profiling HSCP research; providing practice-based workshops; and presenting ideas on how to enhance the research capacity of HSCPs.

4.7 Supervision and mentorship

Participants indicated a need for experienced researchers or mentors to guide them through the research process. This is consistent with previous research demonstrating the value of such support (Cooper & Turpin, 2007; Roberts, 1997). Almost half of the projects sampled had some form of mentorship or supervision, with the majority of participants describing its quality as 'Good' or 'Excellent'. Such support was found to be particularly useful with regard to the technical aspects of research, such as research design or analysis. While research projects of academic degrees will typically have structured supervision, there may be a need for more structured mentorship programs for clinical research, similar to the Mentorship for Health Research Training Fellows scheme in the NHS. As it may not be possible to link up every researcher with a mentor, the formation of research networks as discussed will play an important role in ensuring that all HSCP researchers have access to support.

4.8 Coordination and collaboration

While over half of the projects sampled involved some form of collaboration, there is much scope for improvement. Without high levels of collaboration between researchers and across sites, there is a danger of research becoming isolated, with research topics becoming too focused on individual interests or local priorities. In order to enhance collaboration and coordination, there would appear to be a need to establish a national-level research strategy for HSCPs. This could identify research priorities across professions and recommend how resources could be best utilised to meet these priorities. This strategy could be driven and evaluated by a national HSCP research lead and an associated national HSCP research group.

Academic institutions are the primary collaborators for health service research and are an important source of support for clinical researchers. The results suggest that HEIs play a significant role in HSCP research, with one third of the projects sampled being part of an academic degree and one quarter of projects involving collaboration with an academic researcher. There are a number of ways HEIs could greater support and contribute to HSCP research in the future. First, HEIs could be involved in advancing the research skills of HSCPs, such as by hosting research training modules. Second, there is greater scope for more collaborative research between the health service and academic institutions. An important part of this may be the re-alignment of the research priorities of academic institutions towards the priorities of health research. Third, academic researchers need to be supported and encouraged to have a greater consultative role on health service research. Academic researchers could be particularly helpful in providing guidance on research design and analysis. One piece of research that would help facilitate collaboration between clinical researchers and academic researchers would be to profile the research activity and needs of HSCPs who are employed by

HEIs. Such research would help to identify shared goals and projects of mutual benefit for HSCPs across the two domains.

4.9 Comparing 2013 and 2011 HSCP surveys

A comparison of the key results of the current survey with our original 2011 survey (McHugh & Byrne, 2011) are presented in Table 14. Given the substantial increase in participants and the associated increase in representativeness of HSCPs, it would be expected that the results would differ on a number of dimensions. Indeed, the proportion of participants that were research active showed a decline, providing evidence for a response bias towards research active HSCPs. However, the results overall are highly similar, suggesting that the response bias had minimal effects on many of the results, and that the research capacity and needs of HSCPs have changed little in the last two years. Furthermore, the consistency between the two surveys lends support to the reliability of the results.

The strengths and weaknesses of participants' research skills were quite consistent across the two surveys, supporting the need for training to develop the latter. As with our previous survey, research active participants spent minimal levels of their work time engaged in research, with clinical workload and time pressures again acting as the major barriers. The importance that participants placed on protected time for research in the two surveys indicates the need for innovative strategies to ensure that HSCPs can conduct and complete research during work.

Table 14. Key results of 2013 and 2011 HSCP surveys

	Survey 2011	**Survey 2013**
Participant numbers	N = 373	N = 1325
Proportion research active	47.5%	40.7%
Research weaknesses	• Publishing research • Applying for funding • Qn. data analysis	• Applying for funding • Publishing research • Qn. data analysis
Training preference	• Mentorship	• Mentorship
Proportion spending < 10% work time on research	54%	65%
Service evaluation	35%	34%
Academic degree	34%	34%
Funded	23%	19%
Collaboration	75%	58%
Barriers to research*	• Clinical workload • Lack of time • Lack of support	• Lack of time • Clinical workload • Lack of funding
Enablers of research*	• More protected time • Greater funding • Greater mentorship	• More protected time • Greater funding • More training

Note. * Analyses different in each survey due to differential use of closed and open-ended questions
Qn. = Quantitative

With regard to the characteristics of projects, high similarity was observed between the two surveys for the proportion of projects that were part of a service evaluation, academic degree or were funded. This suggests that these project characteristics are relatively stable across time and may require significant structural changes to modify. There was however a decline in the proportion of projects involving collaboration, supporting the current need for a research strategy to greater coordinate resources.

Chapter 5: Conclusions and recommendations

The results of this survey suggest that there is substantial technical and motivational potential among HSCPs to enhance the research capacity of our health service. Based on the results of the survey, a number of recommendations are made on how the research capacity of HSCPs could be developed in the future (see Table 15). In the current context of increased service and economic pressures, the achievement of many of these recommendations will be challenging. It is therefore critical that research capacity development is framed in terms of how it can add value to services, whether it be enhancing service efficiency at the local level, to developing interventions or programmes that benefit services across the health system.

Table 15. Recommendations to increase the research capacity of HSCPs

Recommendations
1. Prioritise research time
1.1 Allocate more protected research time for research active staff.
1.2 Based on local negotiations, line managers to allocate more capacity for staff to conduct service evaluations and audits.
1.3 Allocate more protected time for research training for those staff seeking to enhance their research skills.
2. Provide research training
2.1 Provide workshops for research inactive participants interested in getting started in research which refresh basic research skills.
2.2 Provide practice-based workshops targeting HSCPs' weakest research skills.
2.3 Trial online learning modules as a supplement to other training modalities and evaluate this form of training.
2.4 Ensure all academic courses associated with HSCP qualification have modules focused on developing skills specific to health service research.
2.5 Develop a second edition to the original HSCP research methodology guidebook (Byrne, 2012).
2.6 Continue to promote and develop HSELanD, including the HSCP Hub.
2.7 Ensure the HSCP Education and Development Advisory Group and Research Sub-Group continues to support the research capacity development of HSCPs in Ireland.
3. Increase access to funding
3.1 Develop and maintain an online catalogue of funding sources for health research in Ireland.
3.2 Provide staff with greater guidance on how to apply for research funding.
3.3 Provide all health service staff with access to HRB feeds regarding funding opportunities.
3.4 Increase the number of funded fellowships and scholarships accessible to HSCPs.
4. Incentivise research
4.1 Ensure all interviews for health service posts independently assess the research competence of candidates.
4.2 Establish national awards for excellence in research at the annual HSCP research conference.
4.3 Define the career framework of a clinician-researcher within the health service, including the required academic training at each level.

(continues)

Table 15. Recommendations to increase the research capacity of HSCPs (continued)

5. Coordinate research

5.1 Identify strategic priorities for HSCPs across the various types of research (e.g., population health research, health services research).
5.2 Develop a national HSCP research strategy document.
5.3 Nominate a national HSCP research lead to drive the HSCP research strategy.
5.4 Develop a national HSCP research group to coordinate research activity around strategic priorities and to evaluate the quality and impact of HSCP research activity.

6. Promote collaboration

6.1 Ensure health service research is greater represented in the research agenda of HEIs.
6.2 Support academic researchers to provide consultation on health service research projects.
6.3 Consult with representatives from the health service, academic institutions and industry to identify shared research priorities that will provide the basis for collaborative research.
6.4 Develop a database of research active HSCPs that will allow researchers to contact one another.

7. Disseminate research

7.1 Continue to support the annual HSCP research conference.
7.2 Continue to promote and develop Lenus and other open access initiatives.
7.3 Support efforts to translate research findings into policy and practice.

8. Support researchers

8.1 Develop local research groups/clusters to facilitate collaboration and provide peer support.
8.2 Develop online networks to allow HSCP researchers to share ideas and seek advice.
8.3 Develop structured work experience programs to allow students and pre-qualified graduates to gain experience working with HSCPs on health service research projects.
8.4 Improve and update research technology to support research activity (e.g., ensure access to statistical software, research databases).

9. Future research

9.1 Conduct a survey of the research activity and training needs of HSCPs employed by HEIs.
9.2 Continue to profile level of research activity among HSCPs and their associated needs for research capacity development.

References

Barkham, M., & Mellor-Clark, J. (2003). Bridging evidence-based practice and practice-based evidence: Developing a rigorous and relevant knowledge for the psychological therapies. *Clinical Psychology & Psychotherapy, 10*(6), 319-327.

Byham-Gray, L.D., Gilbride, J.A., Dixon, L.B., & Stage, F.K. (2006). Predictors for research involvement among registered dietitians. *Journal of the American Dietetic Association, 106*(12), 2008-2015.

Byrne, M. (Ed.) (2012). *How to conduct research for service improvement: A guidebook for health and social care professionals.* Roscommon: HSE.

Childs, S., Blenkinsopp, E., Hall, A., & Walton, G. (2005). Effective e-learning for health professionals and students – barriers and their solutions. A systematic review of the literature – findings from the HeXL project. *Health Information and Libraries Journal, 22*, 20-32.

Choi, B.C.K., & Pak, A.W.P. (2006). Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical and Investigative Medicine, 29*(6), 351-364.

Cooke, J., Nancarrow, S., Dyas, J., & Williams, M. (2008). An evaluation of the 'designated research team' approach to building research capacity in primary care. *BMC Family Practice, 9*(1), 37.

Cooper, M., & Turpin, G. (2007). Clinical psychology trainees' research productivity and publications: An initial survey and contributing factors. *Clinical Psychology & Psychotherapy, 14*(1), 54-62.

Davey, G. (2002). Clinical research: Worth our support. *Psychologist, 15*(7), 331.

Department of Health (2012). *A strategy for developing clinical academic researchers within nursing, midwifery and the allied health professions.* Retrieved from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215124/dh_133094.pdf

Department of Health & Children (2009). *Action plan for health research 2009 – 13*. Dublin: Stationary Office.

Dowd, H., Sarma, K., & Byrne, M. (2011). A survey of psychologists' workload in Ireland. *Clinical Psychology Forum, 223*, 42-46.

Eke, G., Holttum, S., & Hayward, M. (2012). Testing a model of research intention among UK clinical psychologists: A logistic regression analysis. *Journal of Clinical Psychology, 68*(3), 263-278.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107-115.

Flay, B. R., Biglan, A., Boruch, R. F., Castro, F. G., Gottfredson, D., Kellam, S., ... & Ji, P. (2005). Standards of evidence: Criteria for efficacy, effectiveness and dissemination. *Prevention science, 6*(3), 151-175.

Fontanarosa, P. B., & DeAngelis, C. D. (2002). Basic science and translational research in JAMA. *JAMA, 287*(13), 1728-1728.

Forfás & Advisory Council for Science, Technology & Innovation (2006). *Towards better health: Achieving a step change in health research in Ireland*. Retrieved from: http://www.sciencecouncil.ie/media/forfas061123_towards_better_health_full_report.df

Gelso, C.J. (2006). On the making of a scientist-practitioner: A theory of research training in professional psychology. *Training and Education in Professional Psychology, 1*, 3-16.

Harrison, J.A., Brady, A.M., & Kulinskaya, E. (2001). The involvement, understanding and attitudes of dieticians towards research and audit. *Journal of Human Nutrition and Dietetics, 14*(4), 319–330.

Health Research Board (2009). *HRB strategic business plan 2010 – 2014*. Dublin: HRB.

Health Research Group (2011). *Implementation of the action plan for health research 2009-2013*. Retrieved from: http://www.dohc.ie/publications/pdf/action_plan_AIR_1stReport.pdf?direct=1

Health Service Executive (2013). *Personnel census report.* Retrieved from: http://www.hse.ie/eng/staff/Resources/Employment_Reports/dec13.pdf

Hicks, C., & Hennessy, D. (1997) 'Mixed messages in nursing research: their contribution to the persisting hiatus between evidence and practice', *Journal of Advanced Nursing*, *25*(3), 595-601.

Hiney, M., Curran, B., & Clarke, P. (2011). *Review of population health research and health services research in Ireland.* Dublin: Health Research Board.

Holttum, S., & Goble, L. (2006). Factors influencing levels of research activity in clinical psychologists: A new model. *Clinical Psychology & Psychotherapy*, *13*(5), 339-351.

IBM Corp. (2012). *IBM SPSS Statistics for Windows, Version 21.0.* Armonk, NY: IBM Corp.

Ilott, I. (2004). Challenges and strategic solutions for a research emergent profession. *American Journal of Occupational Therapy, 58*(3), 347-352.

Ilott, I., & Bury, T. (2002). Research capacity: A challenge for the therapy professions. *Physiotherapy, 88*(4), 194-200.

McHugh, P., & Byrne, M. (2011). *Survey of the research activity, skills and training needs of health and social care professionals in Ireland*. Roscommon: HSE.

McHugh, P., Byrne, M., & Liston, T. (2012). What is HSELanD? *The Irish Psychologist*, *38*(7), 188-192.

McHugh, P., Sarma, K., & Byrne, M. (2012). Evaluating clinical services within the health care system: An introduction. In M. Byrne (Ed.), *How to conduct research for service improvement: A guidebook for health and social care professionals*. Roscommon: HSE.

Milne, D., Freeston, M., Paxton, R., James, I., Cooper, M., & Knibbs, J. (2008). A new pyramid of research knowledge for the NHS. *Journal of Mental Health, 17*(5), 509-519.

Morton, A., Patel, S., & Parker, J. (2008). Are we practitioners rather than scientists? A survey of research activity in a psychology department. *Clinical Psychology Forum*, *189*, 32-36.

National Health Service Education for Scotland (2008). Workforce planning for psychology services in NHS Scotland: Characteristics of the workforce supply in 2007. In *National Health Service Education for Scotland*. Retrieved from: http://www.isdscotland.org/Health-Topics/Workforce/Psychology/January%2008%20publication%20FINAL%20VERSION.pdf

Niederhauser, V.P., & Kohr, L. (2005). Research endeavors among pediatric nurse practitioners (REAP) study. *Journal of pediatric health care: Official publication of National Association of Pediatric Nurse Associates & Practitioners, 19*(2), 80-89.

Page, A.C., & Stritzke, W.G.K. (2006). *Clinical psychology for trainees: Foundations of science-informed practice.* Cambridge, UK: Cambridge University Press.

Paxton, R. (2008). Survival of the biggest. *The Psychologist, 19*(5), 284-286.

Peters, D. H., Adam, T., Alonge, O., Agyepong, I. A., & Tran, N. (2013). Implementation research: What it is and how to do it. *BMJ: British Medical Journal*, 347.

Pickstone, C., Nancarrow, S., Cooke, J., Vernon, W., Boyce, R., Mountain, G. & Campbell, J. (2008). Building research capacity in the allied health professions. *Evidence and Policy, 4*(1), 53-68.

Roberts, K. (1997). Nurse academics' scholarly productivity: framed by the system, facilitated by mentoring. *Australian Journal of Advanced Nursing*, *14*(3), 5-14.

Rosenberg, L.E. (1999). Physician-scientists: endangered and essential. *Science, 283*, 331–332.

Santucci, A.K., Lingler, J.H., Schmidt, K.L., Nolan, B.A.D., Thatcher, D., & Polk, D.E. (2008). Peer-mentored research development meeting: A model for successful peer mentoring among junior level researchers. *Academic Psychiatry, 32*(6), 493-497.

Segrott, J., McIvor, M., & Green, B. (2006). Challenges and strategies in developing nursing research capacity: A review of the literature. *International Journal of Nursing Studies, 43*(5), 637-651.

Short, A., Holdgate, A., Ahern, N., & Morris, J. (2009). Enhancing research interest and collaboration in the interdisciplinary context of emergency care. *Journal of Interprofessional Care*, *23*(2), 156-168.

Silberman, E.K., & Snyderman, D.A. (1997). Research without external funding in North American psychiatry. *American Journal of Psychiatry*, *154*(8), 1159-1160.

Slawson, D.L., Clemens, L.H., & Bol, L. (2000). Research and the clinical dietician: Perceptions of the research process and preferred routes to obtaining research skills. *Journal of the American Dietetic Association*, *100*(10), 1144-1148.

Steinert, Y., & Snell, L.S. (1999). Interactive lecturing: Strategies for increasing participation in large group presentations. *Medical Teacher*, *21*(1), 37-42.

The Health Foundation (2010). *Quality improvement made simple*. London: Author.

Thomas, G.V., Turpin, G., & Meyer, C. (2002). Clinical research under threat. *The Psychologist, 15*(6), 286-289.

Tugwell, P., Bennett, K. J., Sackett, D. L., & Haynes, R. B. (1985). The measurement iterative loop: A framework for the critical-appraisal of need, benefits and costs of health interventions. *Journal of Chronic Diseases*, *38*(4), 339-351.

Twomey, C., Byrne, M., & McHugh, P. (2013). 'Show me the money': Improving the economic evaluation of mental health services. *Irish Journal of Psychological Medicine*, *30*(03), 163-170.

Waldron, M., & Byrne, M. (2011). Psychology research funding opportunities in the Republic of Ireland. *The Irish Psychologist, 37*(11), 270-274.

Walker, A.G. (2008). Time to meet our match. *Psychologist, 21*(9), 772-774.

Watson, B., Clarke, C., Swallow, V., & Forster, S. (2005). Exploratory factor analysis of the research and development culture index among qualified nurses. *Journal of Clinical Nursing*, *14*, 1042–1047.

Wood, W. (1998). It is jump time for occupational therapy. *American Journal of Occupational Therapy*, *52*, 403-411.

Yanos, P.T., & Ziedonis, D.M. (2006). The patient-oriented clinician-researcher: Advantages and challenges of being a double agent. *Psychiatric Services*, *57*(2), 249-253.

Appendix A
Members of the HSCP Education and Development Advisory Group[1]

• Dr Michael Byrne	Heads of Psychology Services Ireland / Psychological Society of Ireland
• Frances Conneely	Senior Executive Officer, HSCPs Education and Development Unit, HSE
• Caroline Cronly	Social Care Ireland
• Edel Dunphy	Irish Association of Speech and Language Therapists
• Ineke Durville	Irish Association of Social Workers
• Sinead Fitzpatrick	Irish Nutrition & Dietetic Institute
• Ann Kennelly	Association of Occupational Therapists of Ireland
• Nora Joyce	Phlebotomists Association of Ireland
• Maria McNeill	Irish Institute of Clinical Measurement Science
• Orla Maguire	Association of Clinical Biochemists in Ireland
• Margaret Moore	Irish College of Physicists in Medicine
• Claire Poole	Irish Institute of Radiography and Radiation Therapy
• Irene Regan	Academy of Medical Laboratory Science
• Jackie Reed (Chair)	General Manager, Health and Social Care Professions Education and Development, National HR Directorate, HSE
• Dr Emma Stokes	Irish Society of Chartered Physiotherapists

[1] Members as of 2013

Appendix B
Staff numbers of health and social care professions

HSCP	No. in health service[1]	Professional body
Audiologist	62.5	• Irish Academy of Audiology (IAA)
Clinical Biochemist	77.4	• Association of Clinical Biochemists in Ireland
Clinical Engineering Technician	144.7	• Biomedical/Clinical Engineering Association of Ireland
Clinical Measurement Scientist	299.1	• Irish Institute of Clinical Measurement Science
Dietitian	383.5	• The Irish Nutrition & Dietetic Institute (INDI)
Environmental Health Officer	480.8	• Environmental Health Association of Ireland
Medical Scientist	1830.7	• The Academy of Medical Laboratory Science
Occupational Therapist	1,263.8	• The Association of Occupational Therapists in Ireland (AOTI)
Orthoptist	24.1	• Irish Association of Orthoptists
Pharmacist	679.1	• Hospital Pharmacists Association of Ireland
Phlebotomist	142.2	• The Phlebotomy Association of Ireland (PAI)
Physicist	135.5	• The Irish College of Physicists in Medicine (ICPM) • The Irish Association of Physicists in Medicine (IAPM)
Physiotherapist	1,497.2	• The Irish Society of Chartered Physiotherapists (ISCP)
Play Therapist	41.8	• Irish Play Therapists Association (IPTA)
Podiatrist & Chiropodists	51.3	• The Irish Chiropody/Podiatry Organisation • The Institute of Chiropodists and Podiatrists • The Society of Chiropodists and Podiatrists in Ireland (SCPI)
Psychologist & Counsellors	995.6	• The Psychological Society of Ireland (PSI)
Radiation Therapist	122.7	• The Irish Institute of Radiography and Radiation Therapy
Radiographer	1,024.8	• The Irish Institute of Radiography and Radiation Therapy
Social Care Worker	3,075.8	• The Irish Association of Social Care Workers (IASCW)
Social Worker	2,329.3	• The Irish Association of Social Workers (IASW)
Speech and Language Therapist[2]	838	• The Irish Association of Speech and Language Therapists (IASLT)
Other HSCPs	825	
Total HSCPs	15,844	

1. Health Service Personnel Census Report (HSE, 2013)

Appendix C
Entry-level qualifications and associated research training of HSCPs

HSCP	Entry-level qualification	Related research training
Audiologist	• BSc in Audiology	• Undergraduate thesis
Clinical Biochemist	• BSc (Clinical Biochemistry)	• Undergraduate thesis
Clinical Engineering Technician	• Diploma or Level 7 engineering qualification	
Clinical Measurement Scientist[2]	• BSc (Clinical Measurement Science)	• Undergraduate thesis
Clinical Perfusion Scientist	• Certificate of accreditation from the Society of Clinical Perfusion Scientists of GB & I	• Undergraduate thesis
Dietitian	• BSc (Human Nutrition & Dietetics)	• Undergraduate thesis
Medical Scientist	• BSc (Biomedical Science)	• Undergraduate thesis
Occupational Therapist	• BSc (Occupational Therapy) • MSc (Occupational Therapy)	• Undergraduate / Masters thesis
Orthoptist	• Bachelor of Medical Science in Orthoptics • Bachelor of Science in Orthoptics	• Undergraduate thesis
Pharmacist	• BSc (Pharmacy)	• Undergraduate thesis
Phlebotomist	• Certificate in Phlebotomy	• Small research study
Physicist	• MSc in Medical Physics	• Masters thesis
Physiotherapist	• BSc (Physiotherapy)	• Undergraduate thesis
Play Therapist	• Undergraduate degree (psychology, social work, etc.)	• Undergraduate thesis
Podiatrist	• BSc (Podiatry)	• Undergraduate thesis
Psychologist	• DpsychSc in Clinical Psychology • Doctorate in Counselling Psychology • MA in Educational Psychology	• Masters or doctoral thesis
Radiation Therapist	• BSc (Therapeutic Radiography)	• Undergraduate thesis
Radiographer	• BSc (Radiography)	• Undergraduate thesis
Social Care Worker	• BA (Applied Social Studies in Social Care *or* Social Care Practice *or* Social Care)	• Undergraduate thesis
Social Worker[3]	• Bachelor of Social Work *or* Social Studies • Masters in Social Work • PG[1] Diploma in Social Work Studies	• Undergraduate / Masters thesis
Speech and Language Therapist	• BSc (Clinical Speech & Language Studies *or* Speech & Language Therapy) • MSc (Speech & Language Therapy)	• Undergraduate / Masters thesis

1. PG = Postgraduate
2. Clinical Measurement Scientists represent Cardiac Catheterisation Technicians, Gastro Intestinal Technicians, Neurophysiological Measurement Technicians, Respiratory Technicians, and Vascular Technicians
3. It is estimated that approximately 85% of all Social Workers have a 2-year post-graduate qualification in Social Work that requires completion of a thesis

Appendix D
Copy of HSCP survey

Section 1: Background information

1. **What organisation are you employed by?**
   - ○ HSE
   - ○ HSE Funded Organisation

Please note that this questionnaire is directed at those HSCPs either employed by the HSE or a HSE funded organisation.

2. **Sex**
   - ○ Female
   - ○ Male

3. **Age**
   Please write your answer here:

4. **What profession are you working in?**
   Please write your answer here:

5. **What is your current professional grade?**
   - ○ Staff/Basic Grade
   - ○ Senior
   - ○ Clinical Specialist
   - ○ Principal Specialist
   - ○ Manager
   - ○ Chief
   - ○ Other

6. **How many years have you worked as a qualified health professional?**
   Please write your answer here:

7. **What HSE region are you working in?**
   - ○ Dublin Mid-Leinser
   - ○ Dublin North East
   - ○ South
   - ○ West

8. What level(s) of the health service are you currently working in?

Please choose all that apply:

- ☐ Primary Care: Typically the first point of contact for service users, these are accessible community-based services that act as a gatekeeper for specialist services and may provide non-specialist interventions.
- ☐ Secondary Care: These services provide specialist treatment and may be located in a hospital or community setting. Service users will typically not be inpatients.
- ☐ Tertiary Care: Specialised treatment provided to inpatients in a facility that has capacity for advanced medical assessment and treatment.

9. What is your highest academic qualification?

- ○ Doctorate Degree
- ○ Masters Degree
- ○ Postgraduate Diploma
- ○ Higher Diploma
- ○ Bachelors Degree
- ○ Other

Section 2: Research skills

10. Please evaluate your research skills using the table below:

	Very Weak	Weak	Average	Strong	Very Strong
Generating a research idea	○	○	○	○	○
Conducting a literature review	○	○	○	○	○
Designing quantitative research	○	○	○	○	○
Designing qualitative research	○	○	○	○	○
Developing a research proposal	○	○	○	○	○
Applying for funding	○	○	○	○	○

(continues)

(Continued)

	Very Weak	Weak	Average	Strong	Very Strong
Applying for ethical approval	○	○	○	○	○
Collecting data/ Negotiating access to participants	○	○	○	○	○
Quantitative data analysis	○	○	○	○	○
Qualitative data analysis	○	○	○	○	○
Writing up the results	○	○	○	○	○
Critical appraisal of own research	○	○	○	○	○
Orally presenting research	○	○	○	○	○
Publishing research	○	○	○	○	○

11. Do you currently feel that you have the research competence to engage in research? Please choose the statement that is most appropriate:

- ○ Yes, my research competence would be very strong
- ○ Yes, my research competence would be adequate
- ○ Unsure of whether I have the necessary research competence
- ○ No, my research competence would not be quite adequate
- ○ No, my research competence would be very weak

12. The table below presents different ways of delivering research training to clinicians. Please rank in order of preference from 1-5, with 1 representing your highest preference & 5 representing your lowest preference.

☐ Lectures: The presentation of educational material with little audience involvement.

☐ Practice-based workshops: Participants get an opportunity to discuss and work through problems.

☐ Online training: May include online modules, collaborative hubs, online resources etc.

☐ One-to-one mentorship: The provision of support from an experienced researcher when conducting research.

☐ Research clusters: Conducting research within a network of supportive peer clinicians &/or academics.

13. Have you engaged in training/education opportunities to improve your research skills since qualifying as a health professional?

○ Yes
○ No

Section 3: Enablers and barriers to research

14. What changes could be brought about to support you to become research active, or if currently research active, help maintain or increase your research activity?
Please write your answer here:

15a. For the following potential barriers to research engagement:

- **Please tick any that prevents or discourages you from engaging in research.**
- **For those factor(s) you select, please rank using the boxes on the right hand side, with 1 representing your greatest barrier.**

☐ Not enough time available to engage in research

☐ Clinical workload pressures

☐ Lack of support/encouragement

☐ Lack of funding

☐ Lack of available resources for research

☐ Difficulties gaining ethical approval

☐ Research not valued in organisation

☐ Weaknesses in research skills

☐ Personal circumstances (e.g., family commitments limiting time for research)

☐ Lack of research opportunities

☐ Lack of supervision/mentorship

☐ Difficulties collecting or gaining access to data

15b. Please indicate if there are any other factors that prevent or discourage you from engaging in research?
Please write your answer here:

16. Would you have any ideas to increase the overall research capacity of HSCPs in Ireland? If Yes, please specify:
Please write your answer here:

Section 4: Research activity

Research activity

- Research activity is defined here as being involved in the design or implementation of a research project either as a researcher or as a supervisor.
- Research activity within the last two years will be examined.
- Research considered relevant includes both primary research which involves the collection of new data, and secondary research which involves the analysis of existing research (e.g., review articles, meta-analyses).
- Research conducted as part of an academic degree is considered relevant to this section if conducted since qualifying as a health professional. Research conducted prior to professional qualification should not be reported in this section.

17a. When have you been last research active as a health professional?

- ○ Within the last two years
- ○ Outside the last two years
- ○ Never been research active as a health professional

Research activity is defined here as being involved in the design or implementation of a research project either as a researcher or a supervisor.

17b. Have you been involved in collecting data for a research project in the last two years?

- ○ Yes
- ○ No

18. Would you like to spend more of your time engaged in research?

- ○ Yes
- ○ No

19. Please specify the number of projects you have been involved with in the last two years according to the different types of research presented below:

☐ Primary Research Only: The collection of new data for the purposes of generating new knowledge (e.g., randomised controlled trial, correlational study, service evaluation, clinical audit etc.)

☐ Secondary Research Only: The collation and analysis of existing research (e.g., systematic review, review article, meta-analysis etc.)

☐ Project involved both Primary and Secondary Research

☐ Total number of projects

20. For the total number of projects you have been involved in, please indicate the number of times you had each role:

☐ Researcher

☐ Supervisor

21. How many of these projects involved an evaluation of the performance of a service?
Please write your answer here:

22. How many of these projects were part of yours or another's academic degree?
Please write your answer here:

23. In the last two years, please indicate how many times you have completed the following:
Achieved a research publication in a peer review journal

☐ Achieved a research publication in a non-peer review journal

☐ Presented poster at a research conference

☐ Orally presented research at a research conference

24. In the last two years, estimate the percentage time you were engaged in research during working hours:

○ <1%	○ 20-30%	○ 50-60%	○ 80-90%
○ 1-10%	○ 30-40%	○ 60-70%	○ 90-99%
○ 10-20%	○ 40-50%	○ 70-80%	○ 100%

25. In the last two years, estimate the percentage of your total research time that occurred outside of working hours:

○ <1%	○ 20-30%	○ 50-60%	○ 80-90%
○ 1-10%	○ 30-40%	○ 60-70%	○ 90-99%
○ 10-20%	○ 40-50%	○ 70-80%	○ 100%

26. In the last two years, have you reduced your contracted working hours with your organisation to pursue part-time research?

○ Yes
○ No

27. In the last two years, what has motivated you to be research active?
Please write your answer here:

28. In the last two years, what were the main factors that enabled or supported you to be research active?
Please write your answer here:

29. Have you been involved in a research project that has been completed in the last two years?

○ Yes
○ No

30. Please answer the remaining questions in relation to the most recent completed research project you have been involved with in the last two years.

30a. My most recent completed research project involved:

○ Primary Research Only: The collection of new data for the purposes of generating new knowledge (e.g., randomised controlled trial, correlational study, service evaluation, clinical audit etc.)
○ Secondary Research Only: The collation and analysis of existing research (e.g., systematic review, review article, meta-analysis etc.)
○ Project involved both Primary and Secondary Research

30b. Was the project involved in an evaluation of the performance of a service?

○ Yes
○ No

30c. Was the project part of an academic degree?

○ Yes
○ No

30d. Was the project funded?

- ○ Yes
- ○ No

30d(i). Please specify the source of funding:

- ☐ Health Research Board
- ☐ Science Foundation Ireland
- ☐ Irish Research Council
- ☐ Unsure of funding source
- ☐ Other:

30e. Were you provided with any source of mentorship/supervision or did you provided mentorship/supervision?

- ○ Yes
- ○ No
- ○ Provided Mentorship/Supervision

30e(i). Please indicate whether this support was provided by a clinical or academic researcher and the aspects of supervision/mentorship that were most helpful?

Please write your answer here:

30e(ii). How would you describe the level of support provided by this mentorship/supervision?

- ○ Poor
- ○ Adequate
- ○ Good
- ○ Excellent

30e(iii). Please indicate the type of support you provided as part of this mentorship/supervision?

Please write your answer here:

30f. Was the research project conducted as one part of a larger research stream?

- ○ Yes
- ○ No

30g. Did you collaborate with others on the project?

- ○ Yes
- ○ No

30g(i). Was there collaboration from researchers outside of your discipline/profession?

- ○ Yes
- ○ No ○ Unsure

30g(ii). Was there collaboration with academic researchers?

- ○ Yes
- ○ No
- ○ Unsure

30g(iii). Please specify the type of support provided by this academic researcher or researchers?

Please write your answer here:

30h. Was a private organisation (non-government / non-public) involved with the research project?

- ○ Yes
- ○ No
- ○ Unsure

Any additional comments

Please write your answer here:

Appendix E
Survey cover email

Dear All,

The Health and Social Care Professionals Education and Development Advisory Group is seeking all Health and Social Care Professionals (HSCPs) working in either the HSE or HSE-funded organisations to complete an anonymous online survey examining their research activity, research competencies and attitudes to research. Please note that this survey is intended for both 'research active' and 'research inactive' HSCPs.

We conducted a similar survey in 2011. Thanks again to all those who participated. The current survey will attempt to provide a more comprehensive and representative profile of HSCP research activity, competencies and attitudes to research. Discipline-specific data will be aggregated. The information collected from this survey will be used to inform efforts to support HSCP research activity.

Completion of the survey will take approximately 10 minutes for HSCPs who have not been research active in the past 2 yrs, and 20 minutes for HSCPs who have been research active in the past 2 yrs. Please note that you can save your responses and resume the survey at a later time.

Please click the link below to start this anonymous online survey. Please contact Patrick McHugh at mchughps@tcd.ie for enquiries / assistance. The deadline for completion of this survey is Friday 19th July 2013.

http://www.surveyconal.com/index.php?sid=79355&lang=en

Regards,

Patrick McHugh
Researcher
HSE Psychology Department
Primary Care Centre
Golf Links Road
Roscommon
Co. Roscommon

Appendix F
Barriers to research: Chi-Squared Tests

	Research Active (n=539)		Research Inactive (n=786)		
	n	**%**	**n**	**%**	**Test Statistic**
Not enough time to engage in research	452	83.9%	681	86.6%	X^2 (1, N = 1325) = 2, p > .05.
Clinical workload pressures	440	81.6%	650	82.7%	X^2 (1, N = 1325) = .25, p > .05.
Lack of funding	337	62.5%	451	57.4%	X^2 (1, N = 1325) = 3.51, p > .05.
Lack of support/encouragement**	245	45.5%	415	52.8%	X^2 (1, N = 1325) = 6.9, p < .01.
Lack of available resources for research	241	44.7%	310	39.4%	X^2 (1, N = 1325) = 3.66, p > .05.
Lack of supervision/mentorship*	221	41%	374	47.6%	X^2 (1, N = 1325) = 5.6, p < .05.
Research not valued in organisation*	186	34.5%	227	28.9%	X^2 (1, N = 1325) = 4.72, p < .05.
Personal circumstances***	138	25.6%	294	37.4%	X^2 (1, N = 1325) = 20.27, p < .001.
Weaknesses in research skill***	130	24.1%	361	45.9%	X^2 (1, N = 1325) = 65.21, p < .001.
Lack of research opportunities***	100	18.6%	217	27.6%	X^2 (1, N = 1325) = 14.41, p < .001.
Difficulties gaining ethical approval***	79	14.7%	66	8.4%	X^2 (1, N = 1325) = 12.86, p < .001.
Difficulties collecting or gaining access to data	73	13.5%	99	12.6%	X^2 (1, N = 1325) = .25, p > .05.

Note. * p < .05, ** p < .01, *** p < .001

Appendix G
Academic and non-academic projects: Chi-Squared Tests

	Academic (n=177)		Non-Academic (n=180)		
	n	**%**	**n**	**%**	**Test Statistic**
Collaboration***	79	44.60%	128	71.10%	X^2 (1, n=357) = 25.68, p < .001.
Service Evaluation***	63	35.60%	112	62.20%	X^2 (1, n=357) = 25.3, p < .001.
Multidisciplinary***	40	22.60%	76	42.20%	X^2 (1, n=357) = 15.67, p < .001.
Funded	33	18.60%	34	18.90%	X^2 (1, n=357) < 0.01, p > .05.
Larger Stream	33	18.60%	31	17.20%	X^2 (1, n=357) = .12, p > .05.
Private Organisation	17	9.60%	26	14.40%	X^2 (1, n=357) = 1.97, p > .05.

Note. * p < .05, ** p < .01, *** p < .001