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An exploration of the emotional intelligence (EI) of radiographers in the UK

Abstract

The project is designed as the first of a series of projects that could potentially benefit radiographers, patients and the practice of radiography.

EI in Radiography

This project will survey the emotional intelligence of radiographers. Emotional intelligence (EI) is a set of competences and skills which are self-awareness and management, social awareness and relationship management (Goleman 1995). If these skills are applied to a radiographic context then one might expect the following outcomes. An impact on patient care where for example a diagnostic radiographer with high emotional intelligence would be able to read and meet the emotional needs of a patient during a mammographic examination. Alternatively a therapy radiographer with high emotional intelligence, when working with a patient with a terminal illness, might be able to recognise and manage her own emotions in relation to a patient whom she has built up a relationship with over several therapy sessions. There would also be an impact on team working where for example radiographers with low emotional intelligence might not be able to manage their own emotions well and may not recognise emotional responses in their colleagues. Therefore they would not be able to work as well in a team as those with high emotional intelligence.

The survey

This survey will explore radiographers as a whole and subgroups of radiographers e.g. diagnostic and therapeutic radiographers or mammographers or CT radiographers, in order to characterise their emotional intelligence. It will then compare subgroups within the profession and all radiographers and the subgroups to other professional/discipline groups. This will provide unique and valuable information about radiographers levels of emotional intelligence within and outside the profession.

The future impact

This data could open up several new avenues for research and development in radiographer performance (see Potential Impact section). For example it has been shown that EI can be developed with various interventions (Boyatzis, Cowan and Kolb 1995 and others). Therefore training programmes can be targeted to improve EI in radiographers and hence improve patient care and inter and intra professional team working skills.

The research team behind this proposal have ambitions to develop emotional intelligence research within radiography. Several research questions are unanswered such Is there a link between emotional intelligence and radiographer performance in mammography? Are there baseline levels of emotional intelligence that applicants to the radiography profession should reach before being allowed to enter the profession, Do improvement in EI in radiographers lead to improved team working in practice? The outcomes of this survey would pave the way for research in these areas.

Aim

To determine the emotional intelligence (EI) levels of radiographers and radiography subpopulations e.g. diagnostic radiographers, mammographers, in the UK and compare them to other disciplines/professions

Objectives

1. to conduct a UK wide survey of radiographers emotional intelligence
2. to compare radiographer subgroups to each other and to other discipline/professional groups
3. to disseminate this data thereby enabling and promoting a new strand of research into Radiographer EI which could impact upon patient care and the profession (see Potential Impact section below)
4. to promote the College of Radiographers aim to develop the research capability of radiographers (In this context the two co-investigators of the project from the Countess of Chester Hospital Trust)

Method

The project consists of a UK wide online survey of radiographer's emotional intelligence scores using a published measure of emotional intelligence.

The Sample

The population for this study is all diagnostic and therapeutic radiographers see table 1. There are approx 20,000 radiographers practicing in the UK at the moment. It is intended to obtain a quarter of the population as the sample for this research.

	Diagnostic	**Therapy**
England*	13,423	2,213
Wales**	1,215	152
Scotland (approx) ***	1,898	380
Sub total	16,536	2,745
Total	**19,281**	

Table 1: Estimated numbers of diagnostic and therapeutic radiographers (by headcount) practicing in the UK

Data source

*NHS information centre website England – 2008 headcount
**statswales - 2008 headcount
***NHS Scotland – (n.b. data source those in AfC =2278 D & T. working at 6:1 ratio as in Eng and Wales gives)
NI – stats not available

The survey tool

This survey will use the Shutte et al (1998) measure of EI. This is based on the Salovey and Mayer model (1990), has good validity, internal consistency and reliability (Shutte et al 1998). It is a 33 item questionnaire so has good usability taking only 10 minutes to complete and can be adapted for online use. Other measures of EI (e.g. Mayer-Salovey-Caruso 1990) can take 45 minutes to assess one individual. The Bristol Online Survey Tool will be used to adapt and present the Shutte questionnaire to participants online. Access to the tool is password protected but participants go online and 'see' the front end of the questionnaire. Behind this the software collects the data into a single excel spreadsheet. This whole data set can then be exported to SPSS for efficient data analysis without having to input each individual value.

Demographic data will be collected from the sample and will classify radiographers into specific subgroups to enable analysis of key subgroups. The subgroups are Diagnostic or Therapy radiographers, mammographers, ultrasonographers, general radiographers (i.e. rota-ed into mixed areas of practice), CT, MRI, nuclear medicine, education, clinical practice, agenda for change banding (higher EI is linked with management performance at work - Slaski and Cartright 2002), gender (females score more highly than males -Schutte et al 1998)

As with all self-report questionnaires there is the potential for 'social desirability' bias. Therefore several questionnaire items will be incorporated into the tool to identify those respondents likely to be giving biased responses.

Increasing questionnaire response

One of the challenges of this type of survey work is a lack of response and particularly with paper-based surveys (Edwards et al 2007). Previous work done by two members of the team has initiated a high response rate (Mackay et al 2008) and it is intended to build on this survey experience and to use the internet to obtain the data. This will be achieved in a variety of ways over a long data collection period. Using paper based questionnaires would greatly increase the time taken to collect and process the data and would increase the cost of the project beyond the maximum allowable. This internet method enables an ergonomic collection of data into a single spreadsheet for analysis.

The survey will be launched with a short article which will be submitted to Synergy magazine there will also be a news item submitted to Synergy News. This will explain EI and its potential impact on professional practice. The research team will then encourage radiographer participation over a 6-12 month period by publicizing the survey within the profession. This will be followed up with the use of current communication networks to continually get the message out about the survey e.g. during the 6-12 month survey period members of the research team will visit conferences, professional meetings, clinical visits etc and will encourage radiographers to complete the survey tool. As soon as the required number of subjects have been acquired the data collection phase will cease. It is anticipated that we will recruit participants at a rate of approximately 120 per week giving 500 per month and take 10 months to collect 5,000.

Another method we will use to help improve questionnaire response is to offer to provide feedback to each participant on their own emotional intelligence score. This will be provided along with the group mean, max and minimum scores plus the caveat that these scores can be developed through training. Participants wishing to obtain this feedback will voluntarily provide an email address where their result will be sent.

Pilot study

A Pilot study will be undertaken with a small sample of radiography students to ensure the online survey tool is accessible and working effectively.

Ethical approval

Ethical approval will be applied for through the University Research Governenace and ethics system. NHS approval not required (see section 9.4 below)

Statistical analysis

The results will be presented descriptively by subgroup using charts and graphs. Inferential statistics will be used to determine differences between sub groups. This data will be characterised to determine whether the assumptions are met for parametric or non-parametric test using a Kolmogorov-Smirnoff test of normality. Then the appropriate test type will be used. Subgroup Scores will be compared within the data set to explore any group differences e.g. between therapy and diagnostic between mammography and general radiographers. Descriptive data will be used to compare the whole group scores to other professional groups in published data (Shutte 1998). There is a lack of comparative data in the field of health but where measures of EI are available they will be compared descriptively with this data.

Potential impact

This work is of primary importance because emotional intelligence has the potential to influence the way radiographers perform in their professional practice and hence impact upon the patient. New initiatives (Next stage review - Darzi 2008) place the patient at the center of the government's healthcare policy and so this bid is timely and relevant to national healthcare initiatives. Yet there has been no previous research found within the searches performed which looks at emotional intelligence in radiographers and the impact of this on patient care. Characterising radiographer emotional intelligence will open the door to further research work looking at where social and emotional skills impact on the profession and the patient. The following are some areas where further work is being undertaken by this team and where this emotional intelligence survey may benefit the profession.

1. exploration of possible link between EI and image quality (a bid is in preparation by this research team and 5 clinical partners to continue research in this area)
2. exploration and development of radiographer/patient/carer interactions
3. exploration and development of radiographers inter- and intra-professional team working
4. to determine an appropriate level of emotional intelligence for entry into and satisfactory performance within the profession
5. exploration of its application to recruitment and selection for the radiography profession
6. application to radiographic curricula pre and post qualification (a project is underway looking at emotional intelligence across different student groups at the University of Salford with occupational therapy and sport science)
7. development of new assessment methods utilizing EI within radiographic curricula
8. development and evaluation of educational interventions to improve EI in different professional groups within radiography
9. exploration of the impact of emotional intelligence on the level achieved within the agenda for change tiers

Outcomes

The study will elicit emotional intelligence data characterising radiographers within the EI spectrum. Emotional intelligence data for subgroups of radiographers e.g. mammographers, therapy radiographers. This baseline data will be published and therefore available to researchers and practitioners for use in further studies such as those listed above in 'potential impact' section.

A further outcome will be the development of the research capability of the clinical radiographers who are co-investigators on the project.

Evaluation and dissemination strategy

Conference presentation
Articles in Synergy 'Emotional Intelligence and its role in Radiography practice' and in international peer-reviewed publication such as Journal of Personality and Individual Difference 'Emotional Intelligence in the Radiography Profession: Characterising the national picture'

Timetable

Total project length - 18 months

Project Start	Activity
1 month	Set up of the online version of the questionnaire and data collection table
1 month	Marketing of the survey in Synergy and using networks
6- 12 months	Data collection (including reminders)
2 months	Analysis of data
1 month	Interim report to SCOR
2 months	Write up of project
1 month	Presentation to Conference, Preparation of articles for submission to 2 peer reviewed international journals e.g. Journal of Personality and Individual Difference and Final report sent to SCOR

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Mackay S, Anderson C and Hogg P, (2008) Preparedness for clinical practice – perceptions of graduates and their work supervisors, International Journal of Radiography, Vol14, 3, pp 226-232

Literature Review / References:

The HPC standards of proficiency state that radiographers should be able to:

"..understand the psychology of illness, anxiety and uncertainty and the likely behaviour of people undergoing diagnostic radiographic imaging procedures, as well as that of their families and carers".
HPC standards of proficiency 1b.3

In order to be able to meet this standard radiographers need to have an ability to recognise, process and utilise emotional information both within themselves and within their patients. This then enables them to understand the behaviour of patients and to react appropriately to that behaviour to both care for that patient and to acquire a diagnostic image or to provide a therapeutic treatment. Having this ability to manage emotions is called Emotional Intelligence (Goleman 1995) and the authors of this bid believe that research in this area has the potential to have a significant impact on the development of the profession of radiography. For example do we know how emotionally intelligent radiographers are ? Are some radiographer subgroups e.g. therapy radiographers more emotionally aware than others. Should radiographers have a certain level of emotional intelligence to be able to enter the profession?

This short review will now define and explain emotional intelligence and present some of the research that has already been undertaken in this field with a focus on health related research. It will also explore the evidence which shows the potential for individuals to learn and develop their emotional intelligence.

What is Emotional Intelligence (EI)?

Emotional intelligence (EI) is the extent to which people can recognise, process and utilise emotional information (Davey 2005 p306). It was first brought to prominence in the bestselling book "Emotional Intelligence, Why it can matter more than IQ." by Daniel Goleman in 1995. However EI has its roots in the work of Thorndike (1920) who explored the idea of 'social intelligence' which was the ability to "..understand and manage people and to act wisely in human relationships" (Davey 2005). EI has been conceptualised in three different ways, as an ability, a personality trait or a mixed model (both ability and trait).

The 'ability' model views the emotions as useful sources of information that help one to make sense of and navigate the social environment (Mayer & Salovey 1997: p5). Petrides & Furnham (2000) propose a 'trait' based model which is "a constellation of emotion-related self-perceptions located at the lower levels of personality". The mixed model or competence model which incorporates both trait and ability models is favoured by Goleman (1995) and Bar-On (1997) who provide evidence to support the mixed or competency based model of EI. Each of the above models divide their concept into different domains. Kooker et al (2006) however, point out that there are essentially four domains of EI that are shared by all three models; self-awareness; self-management; social awareness and social/relationship management.

Shutte et al (1998) add some clarity to the different models of EI by saying that the models do not contradict one another rather they look at the nature of emotional intelligence from different perspectives.

There has only ben eight to nine years of research into emotional intelligence and there is great interest in the field and its application to different contexts. This has led Cherniss (2000) to suggest that capability in EI could provide the basis for the kinds of social and emotional competencies that are important for success in almost any job. These abilities appear to have particular relevance to patient care where an ability to recognise emotion in others and to regulate one's own emotions to meet the emotional needs of others could be valuable in determining the performance of a radiographer patient or radiographer colleague interaction.

Research into EI

EI is a fairly new field of psychology and little research was found in the health domain. Much of the research undertaken in EI has been in non-health domains such as industrial and organisational psychology (Kirk et al 2009), teacher training (Subramaniam and Cheong 2008), sport to predict performance (Crombie et al 2009) and management and leadership (Wang and Huang 2009)

EI in Health

There has been a small amount of research in the health domain. Rimmer et al (2009) undertook a study to investigate whether emotional intelligence and coping skills affect the health care providers satisfaction, success and longevity in the acute burns and intensive care units in a hospital setting in Phoenix, Arizona. There were 171 multiprofessional, multicultural participants who completed a self report measures of emotional intelligence, coping skills and burnout. The study found a statistically significant relationship ($p \leq 0.01$) and concluded that staff with higher emotional intelligence and stronger coping skills are more likely to be satisfied with their work, more successful in dealing with patients and less likely to burnout on the job. This was a small study which was focused to assessing burnout and did not take account of gender differences. Nonetheless evidence for the link between EI and patient care was also found in a study by Hannah et al (2009).

Hannah et al's study explored the relationship between emotional intelligence and clinical performance of dental students in New Zealand. The aim of the study was to assess the consultation skills performance of the 3rd year undergraduate students using the views of tutors, simulated patients, and the student's perception of their own performance. One hundred and sixteen students took part in the study which utilised the Social Skills Inventory. This is a published, 90 item validated and standardized self report measure that assesses the emotional intelligence or social communication skills. This 'before and after' educational intervention study used measures several months apart. There was no control group for the educational

intervention nor control of gender, ethnicity nor age in the study and participation was voluntary indicating potential bias. The findings for this group showed that there was a significant relationship between higher social skills abilities and the students competence in a consultation situation. Hannah et al go on to say that all students had improved their professional interviewing skills after training and that this would maintain a higher standard of patient satisfaction in clinical practice. This study also suggests that emotional intelligences can be taught and learned. There is other evidence for this which shall be returned to later.

Kooker et al (2006) used the concept of EI rather than measures of EI, to explore nurse's stories about their practice in order to identify factors that could be used to improve nurse retention and patient/client outcomes. They found that EI competencies were present in the nurse's stories about their professional practice. All domains were represented in their stories with social awareness being the most prominent and self-regulation the least prominent. They concluded that EI may provide fresh insights into ways to keep nurses engaged in professional practice and to improve retention and patient outcomes.
Codier et al in their 2009 study have also found a link between performance and EI. They used a convenience sample of 193 nurses to explore EI performance of clinical staff nurses in Hawaii. Using the Mayer-Salovey-Caruso EI test instrument they found that EI correlated positively with both performance level and retention variables. Whilst only a convenience sample and relatively small numbers, this provides further support for the link between EI and performance in the healthcare environment.

No studies have been found in the literature over the past 20 years in the radiography field. Yet there is now this emerging evidence in related fields to suggest that the radiography profession might benefit from being able to quantify the EI of its members and explore the opportunities this will provide.

Can EI be developed with training?

A key question in this field is, Can EI be improved with training? There is some evidence that this is the case. Early evidence came from a study by Boyatzis, Cowan and Kolb (1995) who used a longitudinal study to explore the EI of Management school students at an American university. Students assessed their emotional competences, selected those they wished to improve and then developed and implemented an individualized learning plan to strengthen those competencies. Objective assessment of students was undertaken at the beginning of the programme, upon graduation and several years later when they were working. The results showed sustained improvement in EI.

Further evidence of the ability to develop EI comes from Nelis et al, (2009), who investigated whether it is possible to increase EI through a training intervention using an experimental design. They used 37 French speaking psychology students (19 training/18 control) and found a significant increase in emotion identification and emotion management abilities following the intervention of EI training. In addition, they also found that EI had significantly improved even up to six months following the training intervention.

A pilot study has also been undertaken in health to explore the effect of EI training on medical students. Fletcher et al (2009) undertook a study on 3rd year medical students to explore the effect and feasibility of conducting a quasi-randomised control design educational intervention study with an EI development programme. EI was assed using the validated self report, Bar-On EQ-I measure of emotional intelligence. There were 36 subjects in the control group and 35 in the intervention group. Result highlight that the intervention group who had experienced the EI training had statistically significantly higher scores post training. Whilst this is only a pilot study these findings do concur with others (Hannah et al (2009). Boyatzis, Cowan and Kolb (1995) and Nelis et al, (2009) and suggest that EI can be improved with training.

So EI can be described as the social and emotional abilities that govern our ability to interact and emotionally connect with others. There is evidence emerging that high EI in a health professional is linked to high level of performance and that it is a skill or ability that can be developed with training. In conclusion emotional intelligence has the potential to open up several new avenues of research within radiography and this might enable the profession to use this concept of EI to improve aspects of its work including practitioner/colleague and practitioner/patient/carer interaction.

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