

Identifying and exploring factors influencing career choice, recruitment and retention of Anaesthesia trainees in the UK

Running title: What is important to UK Anaesthesia trainees?

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Competing interest

The authors declare no competing interests.

Prior presentation

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Contributions

JM, JC and PJ had the original idea for the study, which was developed in collaboration with AMcD. JM prepared the ethics application. JC and JM lead on the literature review. JM carried out the data collection, which was facilitated by AMcD. JM carried out the analysis, supervised by JC and PJ. JM prepared the original draft of the paper which was reviewed by JC, PJ and AMcD. All authors contributed to the final paper. The study is guaranteed by the University of Aberdeen.

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Abstract

Background

Many acute hospital specialties are experiencing low recruitment and high attrition of trainees. Understanding what is important to current trainees is critical in terms of identifying and addressing factors which adversely affect recruitment and retention.

Objectives

To identify and explore factors involved in anaesthetic trainees' career decision making.

Methods

This was a mixed-methods study utilising a questionnaire survey (assessing how influential 18 different factors were when choosing anaesthetics, using a 5-point Likert scale), supplemented by semi-structured interviews, carried out in August-December 2014, in Scotland, UK.

Results

42/68 (62%) completed responses were received, representing over half of all core (58%) and ACCS (65%) trainees across Scotland. Overall, questionnaire data indicated that the following were most important in career decision making: perceived job satisfaction amongst those already in the specialty; structured training; the nature of the work (practical, varied, immediate outcomes). Thirteen interviews were carried out. These highlighted that prior, positive exposure and experience with anaesthetists encouraged trainees into the specialty. Enthusiastic, supportive colleagues and structured training (including clear milestones, regular teaching and feedback) were considered to enhance the quality of training. Sustainable working conditions, flexibility within programme and out-of-programme opportunities were valued. Respondents reported concerns about the impact of increasing service delivery demands on training quality.

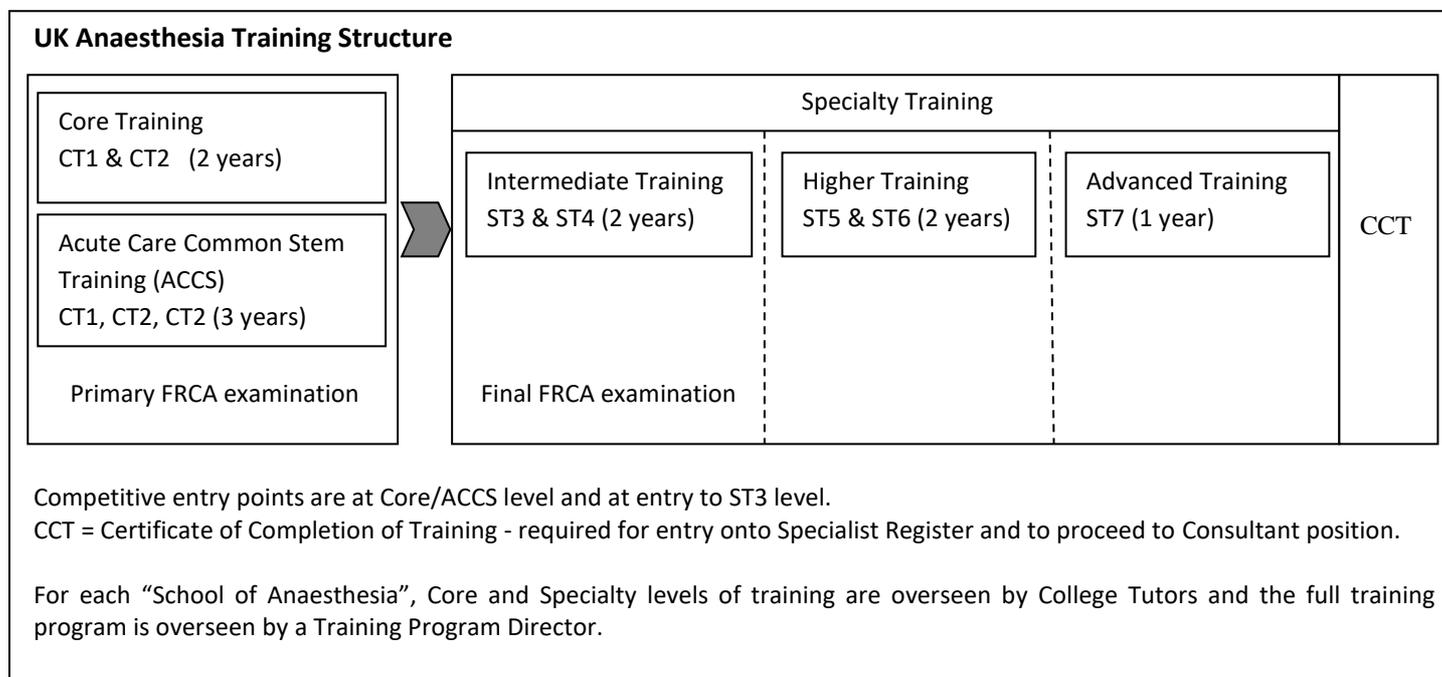
Conclusion

Many of the elements important to today's anaesthetics trainees are related to positive learning and working environments. This fits with research findings from other professional groups. These findings can inform the development of programmes which cultivate trainee commitment to, and enthusiasm for, anaesthetics.

250 words

Introduction

The role of the anaesthetist has widened substantially over the past two-three decades, with anaesthetists making up one of the largest groups of hospital medical specialists with involvement in the care of up to two thirds of hospital patients. Anaesthetists have roles in multiple aspects of patient care: pre-operative planning, preparation and optimisation of patients for surgical procedures, provision of anaesthesia for all types of surgery, care of critically ill patients within high dependency, critical and intensive care units, transfers within and between facilities, trauma and resuscitation teams and acute and chronic pain services. Training in Anaesthesia in the UK is possible through two alternate pathways - Core and Acute Care Common Stem Anaesthesia programmes (see boxed text).



However, while still a popular option at the earlier stages of training – there are more applicants than places for core training and all core training places are filled routinely - statistical data from the UK Royal College of Anaesthetists (RCoA) indicates the emergence of difficulties in both recruiting trainees to, and retaining trainees in, higher levels of training (ST: see Box 1) [email communication with RCoA, 1].

While these data suggest that influences during core training may be relevant to future recruitment and retention, they give no indication as to what these influences may be. It is essential to gain an understanding of what may deter junior doctors from working towards a career in anaesthesia: inadequate numbers of trainees acquiring CCT and progressing to consultant grades leads to a shortage of fully qualified doctors to deliver service, with implications for patient safety and care, as well as impacting on the training and development of the next generation of anaesthetists.

Interestingly, although a number of studies have been conducted regarding career decision making factors amongst medical students [2-4], and research exists from qualified doctors related to specific specialties e.g. general practice [5] and psychiatry [6], we could identify little research exploring why anaesthesia may or may not be an attractive medical career option in the UK [7]. Thus, the aim of this study was to identify and explore factors involved in anaesthetic trainees' career decision making.

Methods

We used a pragmatic philosophic approach [8] to underpin a mixed-methods design [9] involving a questionnaire survey and qualitative interviews.

Subjects

The study sample was newly-appointed core and ACCS (see boxed text) anaesthesia trainees within Scotland at the time of the study (August 2014: n=68). We targeted newly appointed trainees to assess career decision making factors at the point of entry into specialty training and to enable a longitudinal follow-up study in the future.

Permission to approach trainees was sought and obtained from training programme directors (TPDs) within each School of Anaesthesia in Scotland, and from the postgraduate dean of The Scotland Deanery (<http://www.nes.scot.nhs.uk>).

Questionnaire

The survey asked respondents to rank, on a five point Likert scale, the most influential factors associated with choosing anaesthesia as a career and the important elements within their current anaesthesia training. The factors and elements presented to survey participants were identified via a formal review of the literature on medical careers decision making which JC and PJ carried out for NHS Education for Scotland in 2014, their prior work on this topic [3], the work of the UK Medical Careers Research Group (<http://www.uhce.ox.ac.uk/ukmcrg>), as well as from formal discussions with key stakeholders. Demographic questions were also included in the survey, as were opportunities for free text responses. The survey included an invitation to participate in follow up interviews.

Eighteen factors influencing career decision making were identified and included in the survey: variety of workload, immediacy of results, practical nature, student experience, work experience, perceived job satisfaction of those in the specialty, presence of role model, advice from others, family/friends in the specialty, work-life balance, career prospects, prestige, financial prospects, opportunities for flexible training, working hours, domestic circumstances and ease of obtaining a post.

Twelve factors within training posts which trainees were asked to rank in terms of importance were also identified. These were: quality of training, academic reputation, exam structure, health and wellbeing, senior support, morale, pay equity, hours, working patterns, working conditions, future job prospects.

Core and ACCS Anaesthesia trainees were contacted by email from The Scotland Deanery, with full details of the study. Two weeks later, an invitation to participate and a link to the online survey, administered using SNAP® survey software, were emailed to the survey population. Reminders to complete the survey were sent at fortnightly intervals and the survey remained open for eight weeks between mid-August and mid-October 2014.

Interviews

Only those who gave their consent to be approached for this stage of the project (see above) were approached for interview. Individual, focused interviews, using a semi-structured interview schedule developed from the survey responses, were carried out by telephone. The purpose of the interviews was to explore survey responses in more depth, to gather detail and aid our interpretation of the survey findings [10]. Interview questions were generalized and not specific to individual responses e.g. "X appeared to influence decision making, was this the case for you...can you elaborate why". Interviews were carried out by JM, recorded with permission and transcribed for analysis.

Data analysis

Completed questionnaires, interview recordings and transcriptions were anonymised before analysis and a unique identifier was assigned to each respondent to link questionnaire responses with personal and interview data.

Responses to survey questions were analysed using descriptive statistics and chi-squared statistical analysis. Sub-group analysis was carried out for gender. Free-choice responses on the survey and interview data were analysed using thematic framework analysis to identify and code key themes [11].

Ethics permission for this study was granted by the College of Life Sciences and Medicine Ethical Research Board (CERB) of the University of Aberdeen, and permission for research was also obtained from the NHS Grampian

Research and Development Office. Informed consent for survey participation was implied by questionnaire completion. The survey included an invitation to participate in follow up interviews: only if questionnaire respondents opted to take part in the interview study did the research team have direct access to their contact details. At all stages of the project, the voluntary nature of participation was reinforced.

Results

Questionnaire survey

Forty-two completed responses were received, a response rate of 62%, drawn from across Scotland. The sample population was aged mostly between 25-30 years (83%). Core and anaesthesia trainees were represented amongst respondents with two thirds (n=29: 67%) undertaking core training and one third (n=13: 31%) ACCS, representing over half of all core (58%) and ACCS (65%) trainees in Scotland at the time of the survey. Respondent demographics are presented in Table 1.

Table 1. Questionnaire respondents and interviewee demographics.

Demographic Descriptor	Questionnaire Respondents No. (%)	Total Interviewed No. (%)
Male	23 (55%)	8 (62%)
Female	19 (45%)	5 (38%)
Core	29 (67%) (58% of all core)	6 (46%) (13% of all core)
ACCS	13 (31%) (65% of all ACCS)	7 (54%) (35% of all ACCS)

Trainees were asked to rank on a five point Likert scale how influential 18 different factors were when choosing anaesthesia. Figure 1 illustrates that the most important factors were: perceived job satisfaction amongst those already in the specialty, structured training and the characteristics of the work within the specialty – practical nature, variety of work and immediacy of results. Of all the 18 factors, only role model in the specialty (p=0.001) and structured training (p=0.024) demonstrated a significant association with gender, with females ranking these factors higher.

Trainees were then asked to consider 12 factors -“Thinking about your anaesthesia training now, comment on the importance of each of these following elements to you”, again on a 5-point Likert scale (see Figure 2). Quality of training was ranked as the most important element of training. Personal health, senior support, staffing levels, sustainability of working conditions and morale were also important. Shift working pattern was the only element of training with a significant association with gender. Female respondents placed more importance on shift patterns than male trainees (p=0.016).

Respondents were then invited to give free text responses on one key factor which would make them remain in anaesthesia training. Thirty-three (78%) provided a free text response to this question, of whom seven (21%) stated good quality training and six (18%) commented on flexibility and opportunities within the training programme to pursue other interests or activities. Other common themes related to good departmental morale, job prospects and work-life balance. We also asked which one factor would make them leave anaesthesia training. Thirty-five people (83%) provided comments, of whom 11 (31%) said increased antisocial hours, workload and poor work-life balance would make them leave. Concerns about progress against curricular milestones were also recognized in this section (n=4: 11%).

Interviews

Of the 42 survey respondents, 19 (45%) agreed to follow up interview. A total of 13 focused, qualitative telephone interviews were performed (six of those who volunteered for interview could not be contacted during the study time period), representing 19% of newly appointed anaesthesia trainees in Scotland. The demographics of interviewees are presented in Table 1 (see earlier).

Trainees were attracted to the characteristics of anaesthesia, its variety, practical nature and immediacy of results. Whilst all interviewees were aware that these features were available in other specialties, they each commented it was not to the same degree as in anaesthesia: *"The intensity was what I was interested in"* [P9] and *"The other specialties don't get down to the smaller details"*[P11]. "Containability" was also important – knowing when your input ended: *"There's a finality about the end of the day. I think because you can, kind of, walk away. Once your patients are settled in recovery and back on the ward your work is effectively done"* [P6].

The decision to pursue anaesthesia training was also very much influenced by role models, the interactions interviewees had observed and experienced: *"It was their enthusiasm, they were obviously very passionate about it"* [P2]; *"generally the people that I thought looked really happy and seemed to enjoy their jobs were the anaesthetists"*[P12]. It appears that trainees are influenced by those around them not only when choosing a specialty but also within training: *"It's very important to me I'm working in an area that I enjoy, with people that enjoy the job. I see a lot of satisfaction around me, and I see a lot of people who are satisfied with the work that they do on a day-to-day basis, that can be quite contagious and it does have quite a big impact on the entire department"*[P9]. Enthusiasm for training from senior colleagues was highlighted as playing a significant role in the quality of training: *"the people that you're working with - those individuals have a huge impact on how training is"* [P12]; *"consultants who are interested in training"* [P10].

Peer support was also important (*"You can offload problems"* [P3]; *"all of the new starts meet once a week for an afternoon of teaching in one of the hospitals. So it's quite a nice kind of social group"* [P12]) and this is where differences were apparent between core and ACCS trainees. It was clear from the interviews that ACCS trainees felt quite isolated from the core trainees and from anaesthesia generally: *"You're a little bit more isolated...I don't have an anaesthetist as a supervisor... kind of left to your own devices"* [P4]; *"I do think the people who are on ACCS kind of get forgotten a little bit"* [P6].

Structured training featured as a highly influential and important factor both when choosing a specialty and for trainees within the specialty. We explored what trainees considered to represent structure in a training post. It was clear that this encompassed clear goals, defined milestones, dedicated teaching and feedback. All trainees commented on most of these features: for example, *"having an idea what you're going to do each year as opposed to coming along and making it up as you go along"* [P7].

Less positive features of training in anaesthesia were also highlighted. The tensions between service delivery and training was discussed by our interviewees: *"the biggest threat to quality of training is always training versus service provision and when there aren't enough people about, that tends to have the most detrimental effect on training"* [P4]. This seemed to have consequences other than lack of supervision, most notably being expected to function beyond competency: *"I think certainly we're doing things that we probably wouldn't normally be doing, we're not really ready for it"* [P6].

The theme of inflexible training was also apparent in the interviews: *"The mentality that seems to be getting across is: we own your soul now, you need to come and do your training programme...for the next seven years you do what I say, and it's completely inflexible and you have no options."* [P9]. It was also clear that trainees wanted to be appreciated for their contribution to the activities of a department/unit; *"the way that you get treated. I'm happy to work hard, but I think it has to be appreciated...if you're being refused opportunities to do your fellowships or time out of programme...if that was getting refused then I'd probably consider other options...if they're just using you to provide a service rather than further your career"* [P13] and that this (or lack of it) is a factor which would influence them most in terms of moving away from anaesthetics: *"if there was a lot of animosity, strife, lack of training numbers, more pressure"* [P11].

Discussion

Our objective was to identify and explore factors involved in UK anaesthetic trainees' career decision making using a mixed methods approach. Survey data indicated that perceived job satisfaction amongst those already in the specialty, support and enthusiasm from seniors, structured training and the nature of the work (practical, varied, immediate outcomes, "containable") were more important to trainees than other factors identified from the literature as relevant to medical careers decision making (such as job prospects, pay, academic reputation of the

department). Interview data contextualized these responses but also highlighted some additional issues. These were the importance of peer (as well as senior) support; flexibility within programme and out-of-programme opportunities; and concerns as to the impact of increasing service delivery demands on training quality.

Our findings are supported by reports of the importance of role modeling [12-13] on career choice and suggest that positive role models improve teaching and thus impact on training quality. Moreover, adverse “culture” within a specialty has been cited as a reason for deterring from a specific medical career [14]. Interpersonal relationships have been shown to influence decision making and emotional states can be transferred [15], thus morale within a department may impact on working environment and ultimately affect recruitment and retention.

Overall, these findings emphasize the importance of the learning environment for anaesthesia trainees. The learning environment (LE) comprises a range of elements, such as atmosphere, learning opportunities, role modelling and attitudes towards teaching. Together these generate a climate that may be more, or less, conducive to learning and learner satisfaction [16-17]. The importance of the LE for learning has been widely acknowledged [18,19]: numerous studies have shown significant associations between learners’ perceptions of the clinical LE and optimal learning [17, 20], the development of professionalism [21], and achievement [17, 21]. Of particular interest is the literature from other professional groups, which indicates that career choice is influenced by the LE [22-23]. Perceptions of the LE have been studied in medical students [24-25], less so in doctors-in-training [26-27], so this study adds to that literature. Of theoretical importance in terms of conceptualizing the LE is desire for structured learning from our trainees, which is consistent with other reports [27], but does not tend to be included explicitly in the learning environment literature.

Our study population ranked work-life balance as relatively influential when choosing the specialty, in keeping with other reports [4]. However, trainees did not focus on shift working patterns as such; rather, they were concerned with the sustainability of their current working conditions and with personal wellbeing. This is of relevance given studies have shown that the LE also has a profound impact on burnout [28] - unsurprising given the practice environment is a major determinant of doctor well-being [29].

Of practical importance is insight into the specific factors which contribute to anaesthesia trainees’ perceptions of their learning environment: ensuring the factors which are most important to trainees are acknowledged and addressed (if required), may inform the development and sustainability of high-quality, attractive learning environments which may, in turn, attract and retain trainees. Clearly, this may be a challenge in environments where high attrition has led to low staffing levels with a resulting negative impact on workload, educational opportunities and morale. Possible ways to stop this vicious circle include prioritizing trainee needs and maintaining morale across departments, neither of which may be easily achieved when increased clinical demands for those remaining impacts on time available for educational opportunities [30].

The strengths of this study include our use of a triangulated approach, combining subjective, qualitative data with objective, quantifiable data. We also conducted the study across a region rather than a locality or specific unit and across core and ACCS (anaesthesia) trainee populations. The latter provided a useful comparison as it is clear that ACCS trainees feel less sense of “belonging” than core trainees. This is perhaps unsurprising given organizational structures, but it would be of interest to examine whether the attrition rate for ACCS trainees is higher than that for core anaesthesia trainees. A possible limitation of this study is the authors’ involvement (JM and AMcD) in anaesthesia (as trainee and Consultant/Training Programme Director respectively, which could have led to unintentional bias during interpretation of results. However, this was counterbalanced by a mix of authors included one from another specialty (Histopathology) and one of whom is a psychologist.

Future work in this area could include comparing the findings of this study of UK anaesthesia trainees with those working in other contexts and/or comparing this population with UK trainees in other specialties (e.g., surgery, internal medicine). Further studies are required to attempt to identify reasons why trainees leave anaesthesia following core training. We hope to follow-up the trainees who took part in this study through to their next career decision making points, to explore if the same careers-related factors are important over time.

Main messages

- Today's trainees seek high quality training, flexibility, opportunity and support.
- Early exposure to the specialty and the behaviour of those within it plays a large role on recruiting junior doctors to anaesthesia
- The learning environment plays a significant role in contributing to training quality and trainee satisfaction

Current Research Questions

- Can the individual (e.g., resilience) and organizational (e.g. the learning environment) factors which lead to trainees leaving a specialty, in this case anaesthesia, be investigated further to tease out the relative weighting of these at different times in a training journey?
- The impact of under-recruitment or attrition on "those left behind" and the broader learning environment is yet to be explored.

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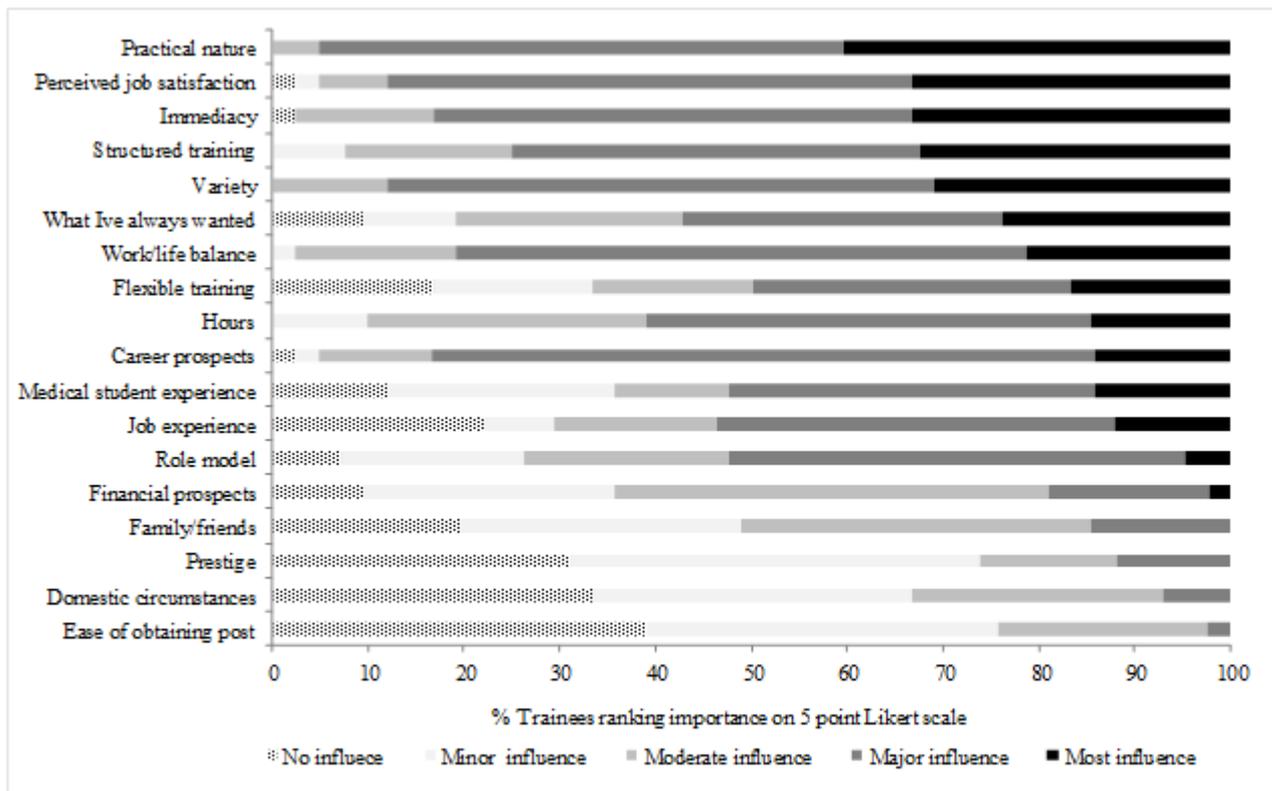


Figure 1. Influential factors when choosing anaesthesia as a specialty

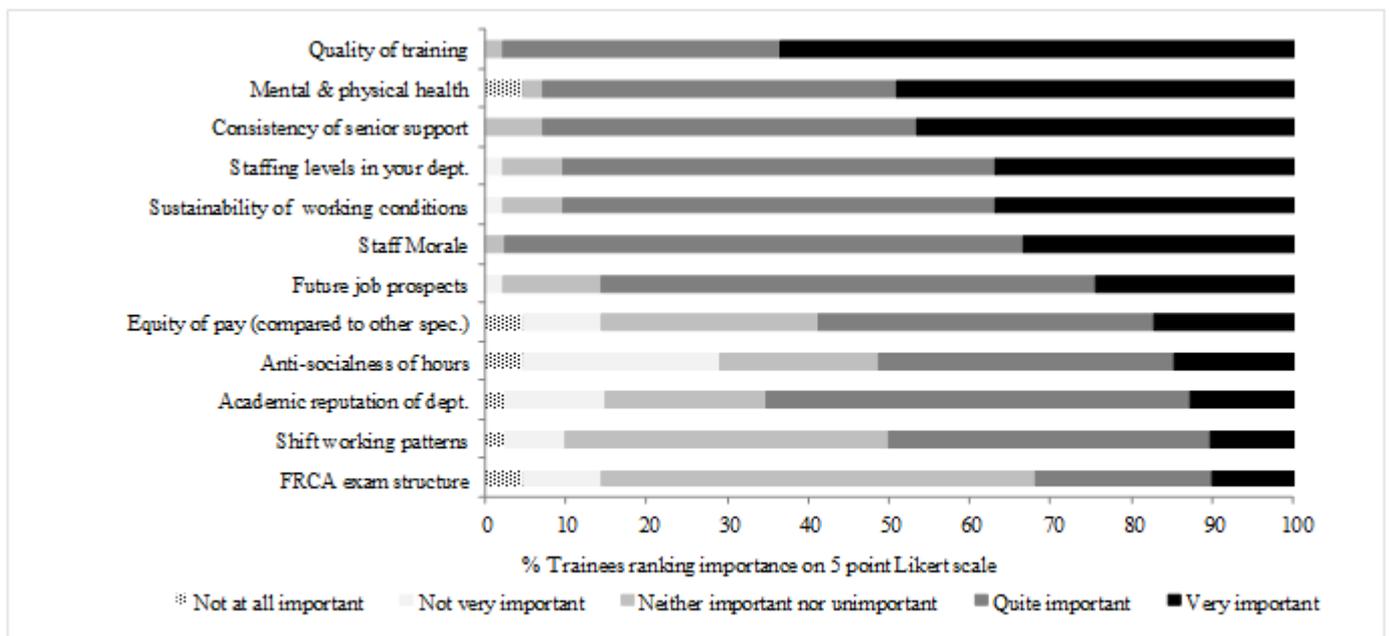


Figure 2. Factors ranked as most important within training