
Final report

Measuring professionalism as a multi-dimensional construct

Professionalism and Conscientiousness in Healthcare

Professionals – Study 2

Final report for the HCPC

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Executive Summary

The Health and Care Professions Council (HCPC) commissioned research to investigate professionalism and conscientiousness in healthcare professionals.

Aim

1. To develop a quantitative approach to assessing professionalism in paramedics
2. To revise an existing professionalism scale for use more widely to facilitate learning on professionalism amongst health and care professionals.

Method

Professionalism Questionnaire Development

The scale to measure professionalism in paramedics was developed in several phases. Literature on the measurement of professionalism was reviewed and items were generated, informed by findings from an earlier qualitative study. The questionnaire was tested and refined following workshops and piloting of the questionnaire with student paramedics.

Following the pilot study, the questionnaire was revised and an 80-item version was developed. The final questionnaire included three global items designed to measure overall professionalism, one based on the American Board of Internal Medicine (ABIM) measure (ABIM, 1995; Papadakis et al. 2008), one asking respondents to compare themselves to other paramedics using a relative scale, and one asking whether respondents behaved professionally 'at all times' (see Box 1).

The remaining 77 items covered a range of key dimensions of professionalism:

- Professional identity
- Professional status
 - Normative elements such as regulation and social status
 - Comparative perceived status in relation to other professions
- Adherence to ethical practice principles
- Interactions with patients
- Interactions with staff
- Reliability
- Competence, knowledge and improvement
- Pride in the profession
- Appearance
- Flexibility
- Behaviour outside work
- Organisational context
- Situational awareness

To provide some evidence on the concurrent validity of the questionnaire, and to address the questions of bias arising from a self-report questionnaire, global ratings of professionalism were also obtained from trainers.

Conscientiousness Index (CI)

The CI tool is an objective, behaviourally based measure of conscientious acts, which is associated with educator and peer ratings of professionalism (McLachlan et al. 2009). The CI was adapted to collect relevant data (e.g. attendance, punctuality) in participating organisations. However, there were issues with availability and reliability of data in this context.

Results

Participants and organisations

A total of 770 questionnaire responses were obtained. All of the students who were present for the teaching sessions in which the questionnaire was distributed agreed to participate. Three organisations participated: Ambulance Trust A, University B and Ambulance Trust C. These represented different training routes and enabled comparison between student and qualified paramedics.

Professionalism Questionnaire Construct Validity and Reliability

A series of analyses were conducted to test the construct validity and reliability of the questionnaire. These showed that the data adequately (statistically) represented the proposed model. This model was tested on new data and also demonstrated satisfactory fit. The analysis identified six factors of professionalism. These included feeling valued by the public, appropriate behaviours, organisational and professional care, positive/proactive professional behaviours, professional identity and pride, and learning orientation.

The internal consistency of the factors identified was further tested using Cronbach's alpha (α). Results show that all factors reached $\alpha = 0.7$, the standard threshold for good internal consistency). This indicates that the factors formed coherent sub-scales.

All professionalism factors correlated positively with self-rated ABIM. This indicated that these factors are relevant to self-rated global professionalism, and offer evidence of construct validity. Logistic regression analyses also found that five of the professionalism factors were important for the prediction of high and low self-rated professionalism (feeling valued by the public, appropriate behaviours, positive/proactive professional behaviours, professional identity and pride, and learning orientation).

Self-rated and Trainer-rated Global Measures of Professionalism

There was a weak but significant relationship between self-rated and trainer-rated global measures of professionalism. However, when focusing on the extremes of the scale (i.e. high or low professionalism), student self-ratings could be used to distinguish between students with low versus high levels of professionalism, as rated by the trainer.

Changes in Professionalism over Time

A number of participants ($n=121$) completed the questionnaire on two occasions over the course of their training, enabling an analysis of changes in professionalism over time. In general, scores on five of the professionalism factors declined over time (except feeling valued by the public), suggesting a reduction in professional attitudes and behaviours. However, global self-ratings of overall professionalism tended to increase over time.

Predictive validity: Cases for Concern

There were 20 (16.5%) 'cases for concern' which identified individuals who experienced difficulties that may be related to professionalism. These provided useful insights into the types of professional problems and concerns encountered in training (including poor attendance, practice concerns, fitness to practise investigations, unprofessional attitude issues, and poor academic abilities), but the low frequency of such cases presents a challenge in establishing predictive validity.

Across the other factors, means were generally in line with the whole sample average, with a few exceptions. Some students who were struggling academically (and a few in practice) scored higher

than the mean on factor 6 (learning orientation) possibly reflecting difficulty with the course or placement and attempts to focus more on learning. Students with unprofessional attitudes also tended to score lower than most on factor 1 (feeling valued by the public) and factor 2 (appropriate behaviours). Scores on the professionalism factors, global self- and trainer-ratings, indicate that the trainer ratings are the most consistent source of indication of professionalism issues.

Group Differences

A series of analyses found that student paramedics tended to have higher scores on three professionalism factors: appropriate behaviours, organisational and professional care, and learning orientation; although there was no significant difference on self-rated global professionalism. Overall, there were few gender differences, but female respondents tended to have higher scores on the factor measuring appropriate behaviours.

Academic Performance

Higher levels of academic performance were associated with higher trainer ratings of professionalism and to higher self-rated professionalism relative to others at University B. Academic performance was not significantly related to the professionalism factors.

Conscientiousness Index (CI)

There were ongoing issues with the collection of appropriate CI data, and the utility of the CI depends on the quality of component data. When data quality was higher, CI scores were positively related to trainer ABIM ratings.

Utility of questionnaire

The questionnaire is a self-report measure and subject to concerns about the accuracy of self-assessment. Unsurprisingly, no paramedics rated themselves in the unsatisfactory range on the self-rated ABIM global scale, whereas the trainers used the full range of the scale. There was a group of 26 (5.9%) respondents who self-rated as low on professionalism, but were rated as high by trainers. Conversely, there was also evidence of a group of questionnaire respondents (n=27) who self-rated as high on professionalism, but were rated as low by trainers. This particular discrepancy between trainer- and self-rated scores may highlight individuals who are overconfident in comparison to the assessments of their trainers and may indicate a group for further analysis and interest to HCPC. This suggests that the measure developed here may have identified a group for further targeted training. These inaccuracies in self-assessment have been observed in other research on the 'unskilled and unaware' and on under-estimation of performance by highly competent individuals (e.g. Kruger & Dunning, 1999).

During the development of the professionalism questionnaire, workshops were conducted with students and trainers. For some items and issues, there was considerable discussion and debate regarding professional attitudes and behaviours, as well as organisational and practical constraints. Self-completion of the questionnaire, followed by discussion, has considerable potential for educational purposes. The discussion enabled students to reflect on their own practice, consider behaviours they have observed in qualified paramedics, debate differences of opinion and seek guidance from trainers. This report appends the original long version of the questionnaire which may be used for educational purposes, and the 'tested' short version, which is a verified instrument to measure professionalism for paramedics.

Generic questionnaire

For paramedic students, the workshops generated significant discussion about how professionalism was perceived, defined, and experienced by trainers and students. This highlighted the clear potential for a professionalism scale to have utility as a reflective practice educational tool, as well as

a measurement tool. Therefore, the professionalism questionnaire for paramedics was adapted to a generic questionnaire, with input from a range of HCPC-regulated professionals. Participants (n= 50) included biomedical scientists, allied health professionals, and social workers. The generic professionalism questionnaire may be used for reflection and discussion by a wider range of professionals for professional development and training purposes.

Practical Implications

This research has highlighted several important practical implications associated with measuring professionalism using a self-rated tool, alongside global ratings and CI data.

Firstly, the research has produced a validated measure of professionalism. Secondly the questionnaire has been used successfully to prompt discussion and reflection on professionalism in workshops with a range of professionals in addition to the paramedics for whom it was designed. One potential practical application of the generic tool is in educational and professional development settings as a means of self-reflection to highlight key issues relating to professionalism. This type of formative learning would have particular value in small group learning or CPD, perhaps in combination with vignettes or case studies during which the factors may elicit discussion of professional behaviours, situational judgement and organisational support for professionalism.

Secondly, the measure of professionalism developed by this research demonstrates potential to identify over-confident individuals, when concurrent trainer ratings are also captured. This could be used to provide specific feedback for improvement and to target additional training where individuals may not be aware of poor professional practice.

Conclusion

This study reports on the development of a valid and reliable questionnaire for measuring professionalism in paramedics. The tool measures different attitudinal and behavioural dimensions of professionalism, reflecting the breadth of the construct. A six factor model has been identified through exploratory and confirmatory factor analysis. The measure presented here demonstrates construct validity, especially in its strong associations with self-rated professionalism using a global measure. However, interpretation of self-rated scores on this measure must take account of the anonymous research context, the role of situational judgement, and possible inaccuracies in self-assessment.

Relationships between the professionalism factors, trainer-rated professionalism, CI and academic performance were also investigated. The professionalism factors were not consistently related to trainer ratings of professionalism, although the factor measuring positive/proactive professional behaviours was important for the prediction of high and low trainer-rated professionalism. Academic performance was related to trainer ABIM ratings and self-ratings of relative professionalism. CI scores were related to trainer ABIM ratings where data was of higher quality, but the nature and quality of CI data and trainer assessment of professionalism require improvement in order to fulfil the potential of a valid concurrent measurement against which to identify low or high levels of professionalism.

In response to a request from HCPC a generic professionalism tool was created that can be used in practice to provoke an educational discussion around the topic of professionalism. We piloted the questionnaire that we developed for measuring professionalism in paramedics with a wide range of healthcare professions regulated by the HCPC. The questionnaire was adapted for generic use so that it was more widely relevant and applicable. The generic questionnaire can be used as a reflective aid amongst health care professionals to guide discussions about complex professionalism constructs.

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HCPC Final Report: Measuring professionalism as a multi-dimensional construct

1 Introduction

There is considerable interest in the concept of professionalism in health and social care among regulators, employers and service-users, and 'unprofessional' behaviours are often implicated in fitness to practise cases among health and social care practitioners.

The Health and Care Professions Council (HCPC) commissioned a research project to investigate professionalism and conscientiousness in healthcare professionals. This included: Study 1) a qualitative study to explore the perceptions of professionalism held by healthcare professionals, and Study 2) a quantitative study to investigate the measurement of professionalism in paramedics. This report presents the findings of the quantitative study. Specifically, it describes the development, data collection and analysis of a questionnaire designed to measure different aspects of professionalism, including several dimensions that were identified in the qualitative Study 1 (Morrow et al. 2011). While Study 1 considered three professional groups (paramedics, occupational therapists, podiatrists), the development of a measure of professionalism in Study 2 is focused on paramedics. A generic version of the professionalism scale has also been developed with input from HCPC registrants, for educational use across the broad range of professional groups regulated by the HCPC.

1.1 Aim and Objectives

The aim of study 2 was "To develop a meaningful quantitative approach to assessing professionalism, and to investigate links with the Conscientiousness Index (CI)".

Objectives included:

- 1) To develop a professionalism scale or scales (PS), informed by existing theoretical approaches to professionalism and related constructs such as professional identity.
- 2) To adapt the Conscientiousness Index (CI) for use with paramedics.
- 3) To explore the psychometric properties of both the PS and CI, including their concurrent validity and reliability.
- 4) To examine any relationships between the two measures and academic results over the training course, and with outcomes in the first post-registration years.
- 5) To compare the component PS scores of the trainee sample with those of qualified paramedics, to see which elements of professionalism may develop over time.
- 6) To monitor the time costs involved in administering both tools.

1.2 Overview of Study 1

The current study has drawn upon the qualitative findings of study 1 (Morrow et al. 2011). Study 1 sought to increase understanding of professionalism within three HCPC regulated professions (paramedics, occupational therapists, podiatrists). Aims of study 1 were to explore: what constitutes professionalism among students and educators in the three professions, how professionalism and professional identity develop, examples of professional and unprofessional behaviour; and any potential indicators of professionalism which would inform study 2.

Twenty focus groups were conducted, with a total of 112 participants across the three professions. Participants' interpretations of professionalism encompassed many and varied aspects of behaviour, communication and appearance, as well as perceiving professionalism as a holistic concept relating to all aspects of practice. The findings indicated that professionalism had a basis in individual characteristics but was also defined by context. Its definition varied with a number of factors, including organisational support, the workplace, the expectations of others, and the specifics of each service user/patient encounter.

Views of professionalism did not diverge widely, regardless of professional group, training route or status as student or educator. All saw the interaction of person and context, and the importance of situational judgement, as key to 'professional behaviour'. Rather than a set of discrete skills, the study concluded that professionalism may be better regarded as a meta-skill, comprising situational awareness and contextual judgement, which allows individuals to draw on the communication, technical and practical skills appropriate for a given professional scenario.

Study 1 also identified additional themes for the development of the questionnaire in Study 2, particularly pride in one's profession, appearance (including uniform, for some), flexibility and behaviour outside work.

1.3 Outline of current report

This report describes the development and analysis of a professionalism questionnaire, and reports on findings on relationships with trainer ratings, the Conscientiousness Index, and, where data are available, academic performance. The method section outlines questionnaire development and design, data collection procedures and participants. The results section reports the findings on assessment of the reliability and validity of the professionalism measures and explores group differences. Feasibility issues are considered, and the potential use of the questionnaire as an educational tool is discussed. Finally, the development of a generic version of the questionnaire is described, and potential uses are highlighted.

2 Method

2.1 Recruitment of organisations

Three organisations participated in this study, referred to here as Ambulance Trust A, University B and Ambulance Trust C. Ambulance Trust A and University B offered different training routes, and Ambulance Trust C provided a sample of qualified paramedics. The first steps of this study were to contact these organisations and meet with key personnel to find out more about the delivery of training, to give initial briefings on the purpose of the project, and to gain agreement to participate. These steps were conducted in parallel with the development of Study 1 (Morrow et al, 2011).

The organisations were selected, following discussions with the HCPC, to include perspectives from different training routes. Paramedic training has changed substantially in recent years, and there are a number of different models in use across the UK. The two organisations involved differ on two key features – the employment status of the trainees, and the organisational location of training. Students at University B are either enrolled on a three year Foundation Degree or on a four year Honours degree. While both routes involve substantial periods of operational duty as ambulance service staff, their training experience is focused on the university, and both complete at least one

year as full time students before moving to operational duty. On graduation, these students must apply to the ambulance service for employment.

By contrast, trainees with Ambulance Trust A complete a Foundation Degree which is delivered wholly in service (awarded by a local university). After an eleven week introductory period which is delivered by the Trust, they are fully operational staff. All trainees must be members of Trust staff before starting the degree.

2.2 Ethical and R&D approval

Participants in Ambulance Trusts A and C were NHS staff and so NHS research governance procedures were followed. This involved the completion of the Integrated Research Application Service form, and the submission of the protocol and draft materials for review by an NHS research ethics committee as well as R&D registration. A favourable ethical opinion was received from the Leeds (West) Research Ethics Committee in September 2010. Registration with a trust involved in University B's programme was also completed in March 2011. In addition to the NHS ethical review, the project was reviewed by the Durham University School of Medicine and Health Ethics committee, and by internal processes at University B.

2.3 Questionnaire Development

A questionnaire to measure professionalism in paramedics was developed in several phases (see Figure 1). Firstly, literature on the measurement of professionalism was reviewed alongside findings from the qualitative study. Key dimensions of professionalism which should be incorporated in measures were identified, including: professional status, professional identity, attitudes, behaviours, organisational context, and situational awareness.

Professional attitudes and behaviours were organised with reference to the five clusters of professionalism identified by Wilkinson et al. (2009):

- Adherence to ethical practice principles
- Effective interactions with patients and people important to those patients
- Effective interactions with others working in the healthcare system
- Reliability
- Commitment to autonomous maintenance and continuous improvement of competence

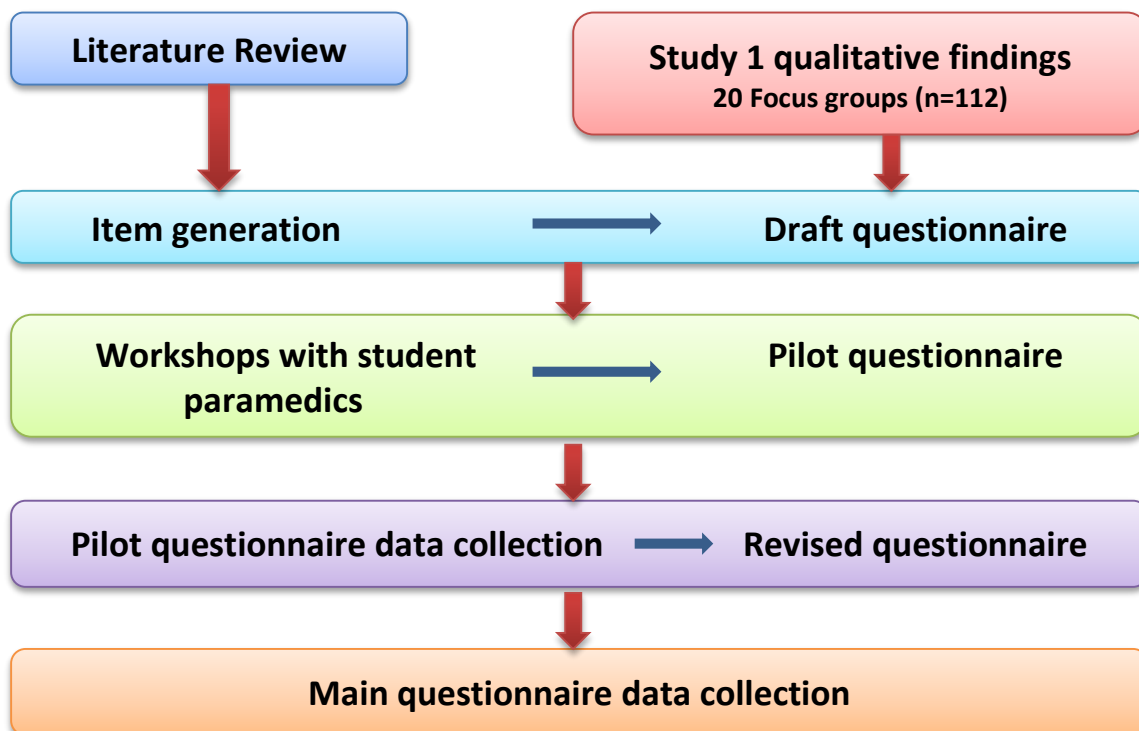
Items were also designed to reflect additional themes which were identified in the qualitative study:

- Pride in profession
- Appearance
- Flexibility
- Behaviour outside work

These themes were used to generate and organise 137 candidate items, with the addition of two global items (ABIM, 1995; Papadakis et al. 2008), for the professionalism questionnaire.

These items were reviewed by the research team to eliminate redundant and ambiguous items. Following this process, a first draft questionnaire of 105 questionnaire items (plus demographic questions) was developed for piloting.

Figure 1: Overview of questionnaire development



2.3.1 Pre-pilot workshops

The first draft was revised in two workshops with student paramedics in Ambulance Trust B (12 participants in each workshop, total n=24). Participants discussed each item, focusing on issues of clarity (did the questions make sense?), relevance (were questions relevant to paramedics?) and utility (will the questionnaire produce useful data, or will respondents be reluctant to respond honestly?). Concerns were raised about whether some items would elicit truthful or complete answers if they involved a disclosure of breaching or bending of rules. These items were revised to be less specific, and to require responses that might be seen as less personally revealing.

The first workshop led to the elimination of 19 items and revision of others, while the second led to further revisions. Following both workshops, the questionnaire included 102 scale items. This draft was then used to collect pilot data.

2.3.2 Pilot data collection

The pilot questionnaire was used to collect data from second and final year undergraduate student paramedics at University B. Questionnaires were distributed, completed and collected in lectures. All students who attended those sessions completed the questionnaires.

Forty-three questionnaires were returned – 18 from Year 2 and 25 from Year 4 BSc students. Data were reviewed for content validity, as indicated by completion rates for different items, free text comments and further consideration by the researchers. A number of items were removed following this, leaving a final questionnaire of 79 items for the main data collection.

In addition to the questionnaire, global trainer ratings were collected using adapted versions of the two global ratings used for self-assessment in the student questionnaire.

2.3.3 Revised Questionnaire Design

A revised questionnaire was developed for the main data collection phase, including two global items designed to measure overall professionalism. One rated on a nine-point response scale with 'compound anchors', and one on a relative scale with end-point and mid-point anchors (see Box 1):

1. ABIM measure of professionalism with compound anchors (ABIM, 1995; Papadakis et al. 2008)
2. Professionalism relative to other paramedics

The ABIM measure of professionalism has been used as a rating tool for trainers, but it has not previously been used as a self-rating instrument. However, its design has a significant drawback: the scale has compound anchors which mean that individuals are rating multiple constructs using the same scale. The ABIM measure rates the constructs of respect, compassion, integrity, honesty, role-modelling of responsible behaviour, commitment to self-assessment, willingness to acknowledge errors and consideration for the needs of others in a single scale; whereas raters may, for example, want to rate a student as high in compassion but low on willingness to acknowledge errors. These broad descriptions can conflate interpretations of the numerical components of the scale. This approach is often avoided in questionnaire design because it contains assumptions that each respondent interprets the descriptor similarly and therefore that the descriptors vary in the same way. There is consequently a risk of misrepresenting a respondent's views. The second scale was included to mitigate some of this risk, and focus the rater on comparing the student with others, rather than a numerical value associated with professionalism.

A third global item was added during the final year of data collection, resulting in an 80-item questionnaire. The additional item asked respondents to rate their agreement with the statement: "I behave professionally at all times," using a 5-point scale ranging from strongly disagree to strongly agree. See Appendix A for the Questionnaire in full.

2.4 Data linkage and questionnaire distribution

To enable questionnaire responses to be linked to CI data and global ratings by trainers, questionnaires included an identifying number. For ethical reasons, the University/NHS Trust retained the only copy of an ID key linking the student's name to an ID code. Questionnaires were distributed by trainers during teaching sessions, to ensure the questionnaires were distributed to the correct students.

The completed questionnaires, which featured the ID code but no identifying details, were then passed on to Durham University researchers. This ensured that the University/NHS Trust had access to the student name associated with each ID code, but did not have access to questionnaire data; and that the research team had access to the data, but not to the students' names.

At Ambulance Trust A, the ID keys for several cohorts were lost, which meant that questionnaire data could not be linked to trainer ratings or CI data.

2.5 Trainer ratings of professionalism

To provide some evidence on the concurrent validity of the questionnaire, and to address the questions of bias arising from an entirely self-report questionnaire, global ratings were also obtained from trainers in both Ambulance Trust A and University B, using the first two scales presented in Box 1, but with the wording adapted from "my professionalism" to "his/her professionalism".

In July 2014, a third scale was added, which asked trainers to rate their agreement with the statement "I believe he/she behaves professionally at all times" on a 5-point scale ranging from strongly disagree to strongly agree. In this scale, each response has a single anchor (e.g. strongly agree) and the 5-point scale simplifies responding. The focus of the question is on whether students always exhibit professional behaviour, rather than a more general 'standard of professionalism' (which may include attitudes).

Ratings were matched by trainers to student responses using the anonymised identifier. One site produced a single rating of each student agreed by consensus between two members of staff, the other provided a single rating from a member of staff who was familiar with all students in a particular year group. One site reported that as their rating on the ABIM scale was based on relative judgements, there was no difference in their use of the scales.

2.6 Conscientiousness Index (CI)

The CI tool is an objective, behaviourally based measure of conscientious acts, which has been found to correlate with educator and peer ratings of professionalism (McLachlan et al. 2009). The components of the CI are flexible and are tailored to the environment in which it is applied, but it typically includes measures of attendance, punctuality in submission of work, and completion of feedback.

In the current study, the CI was adapted to the availability and accessibility of data in Ambulance Trust A and University B. The components of the CI were developed in consultation with trainers within each institution.

At Ambulance Trust A, trainers collated CI data using a class register. Attendance during training sessions was routinely-collected, but data on uniform and punctuality was collected for the purposes of the research. CI data was based on three measures, recorded for each half-day during training sessions. This produced between 64 and 216 possible data points for each measure (depending on the cohort). The measures included:

- 1) **Attendance:** Attendance was recorded for each half-day of training over the course (length of training course varied by cohort).
- 2) **Punctuality:** Punctual arrival was recorded for each half-day of training.
- 3) **Uniform compliance:** Any deviations from full uniform were recorded for each half-day of training.

At University B, CI data varied by year. In 2013-14, one trainer collated CI data based on four measures. Each measure provided only one data point for the CI, resulting in low quality data. The measures included:

- 1) **Attendance in class:** Detailed daily attendance data was not available therefore a significant absence of seven or more sessions per year was recorded.
- 2) **Use of an online learning tool/organiser:** Students were expected to login to the online tool. Detailed data on number of logins was not available therefore usage that amounted to less than 50% of the average usage for a given module was recorded.
- 3) **Attendance on campus:** Students were expected to 'swipe in' to the university monitoring system to indicate their presence on campus. Detailed data were not available therefore a significant absence of three weeks or more without registering presence (no swipe in) was recorded.
- 4) **Late submission of assignments:** Data were recorded on assignments which were submitted after the deadline without prior agreement of an extension.

In 2014-15, data availability was further limited as class attendance was no longer recorded using registers and the University had switched to using a swipe in system to monitor attendance on campus. Unfortunately, data from this system did not tally with attendance expectations and suggested that the system was used inconsistently and did not provide an accurate measure of attendance. Data on use of the online learning tool/organiser was not available at the individual level so could not be used to calculate an individual's CI. Late submission of assignments was recorded, but in some year groups there were no assignment deadlines prior to data collection, and there was only one late assignment across the remaining year groups, resulting in very little variance (which is needed for statistical analysis).

Given these data quality issues, it was decided to focus CI analysis only on Ambulance Trust A. Furthermore, it is important to note that there were numerous logistical issues and some ethical concerns which acted as barriers to CI data collection. These are described in more detail in the Feasibility section below.

2.7 Academic performance

Academic performance data was obtained from University B, where available. Some year groups received only a pass/fail grade or were awarded the same number of points for passing a module, and this data did not provide sufficient variance for statistical analysis. Where available, academic performance percentages for the year were obtained.

2.8 Data analysis

Data analyses were conducted using several statistical software packages. Parallel analysis (adapted for ordinal questionnaire responses) was conducted using Factor (Urbano Lorenzo-Seva), exploratory and confirmatory factor analyses were conducted using MPlus 7.2, and other analyses (descriptives, correlations, regression and t-tests) were conducted using SPSS v.20. Statistical advice was provided by Dr Paul Tiffin at the School of Medicine, Pharmacy and Health at Durham University. The full dataset (excluding old duplicates, where the questionnaire had been completed on more than one occasion) was used for the analyses reported here. For the repeated measures analyses (to examine changes to levels of professionalism over time) only data for those individuals who had completed the questionnaire on two occasions were analysed.

3 Results

3.1 Participants

A total of 770 questionnaire responses were obtained. This included 149 responses from Ambulance Trust A, 528 responses from University B, and 93 from Ambulance Trust C. All of the students who were present for the teaching sessions in which the questionnaire was distributed agreed to participate.

Some student paramedics completed the questionnaire twice, at different points in their training (n=121). The results of repeated measures analyses are presented in Section 3.6 below. However, for the majority of the analyses in this report, only the most recent version of the questionnaire responses was retained for respondents who completed it twice. Therefore, the total sample size for these analyses was n=646. Of these 646 respondents, 149 were from Ambulance Trust A, 404 responses from University B, and 93 from Ambulance Trust C.

Table 1 presents the number of participants in different job roles by organisation. The sample from Ambulance Trust A is primarily composed of student paramedics, University B is wholly students' paramedics, and Ambulance Trust C is primarily composed of qualified paramedics.

Table 1: Respondent job roles by organisation

Job Role	Ambulance Trust A	University B	Ambulance Trust C
Qualified paramedic	41	0	72
Student paramedic	104	397	8
EM Technician	0	0	9
Other	2	0	4

Figures 2a and 2b present the frequencies of respondents within each gender and age group and show that the majority of respondents were male and belonged to the younger age categories.

Figure 2a: Respondent gender

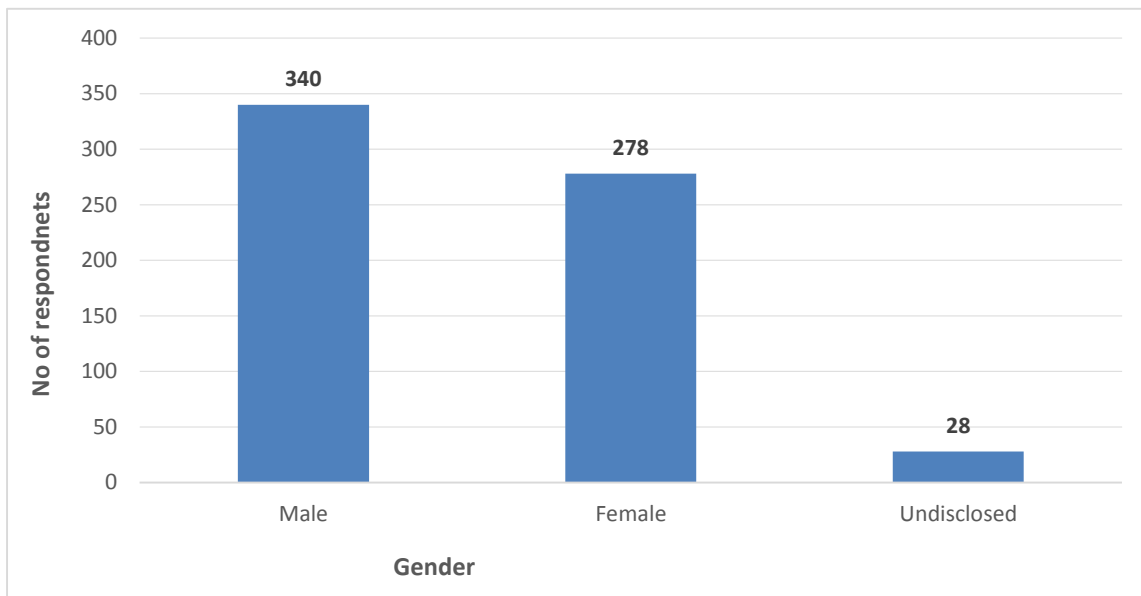
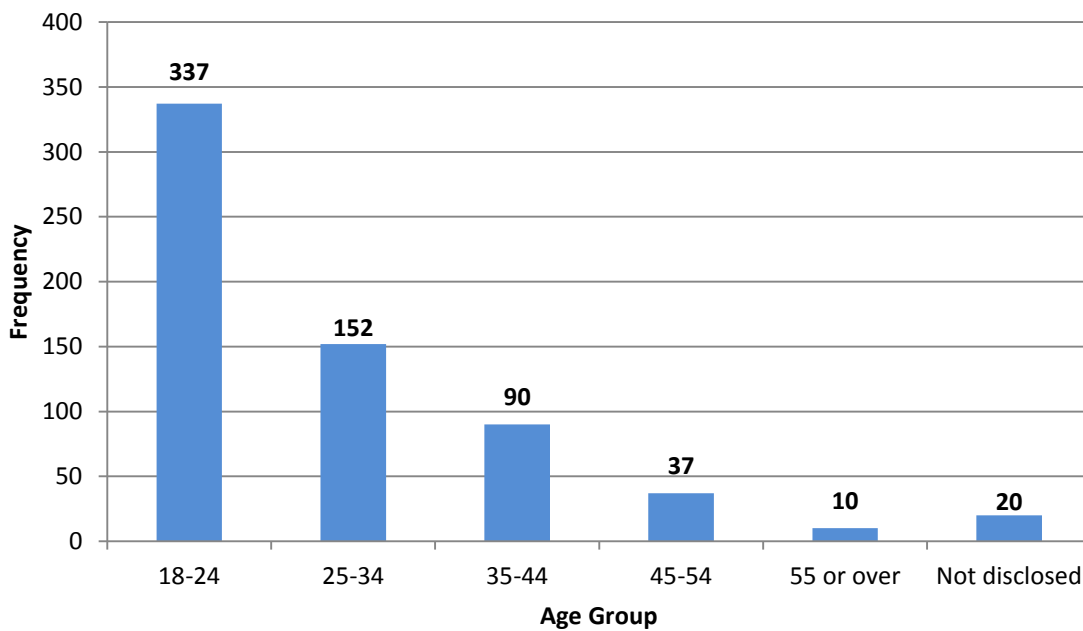


Figure 2b: Respondent age categories



3.2 Content validity

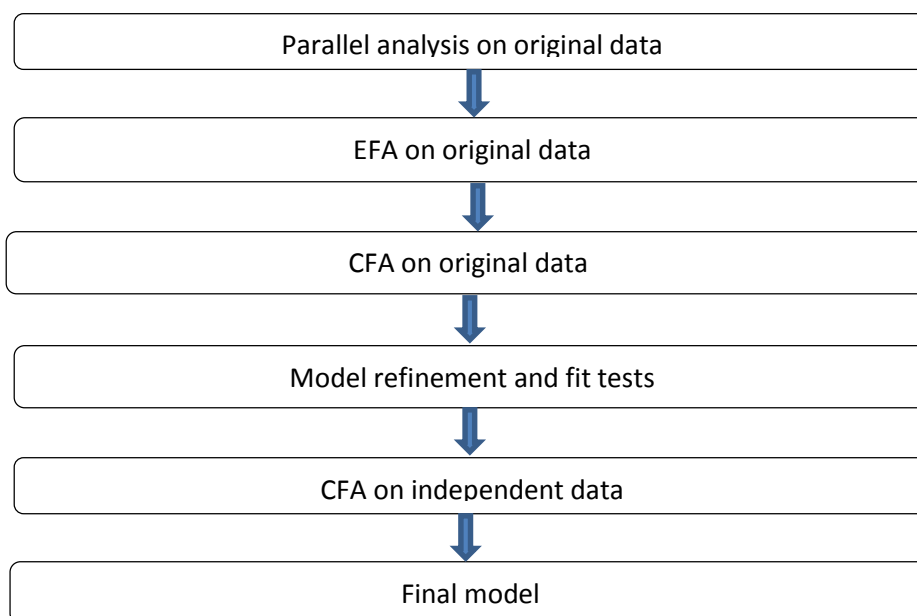
Content validity was established during the development process, which included a review of relevant literature and the workshops with student paramedics. This means that the questionnaire items are relevant and meaningful to the respondents and so should obtain meaningful responses. Content validity was also assessed by checking for systematic patterns in missing values, which may indicate that some items were regularly not completed and may not yield useful information.

3.3 Development of a Measurement Model: Factor analysis

The questionnaire was designed to reflect the multiple dimensions of professionalism that were identified in the literature review, the qualitative analysis from Study 1, and from workshops conducted as part of the development of the tool. However, it was important to establish the construct validity of the questionnaire. Construct validity is the degree to which a measure behaves like the theory says a measure of that construct should behave (Brown, 1996; Cronbach & Meehl, 1955), and is related to the overall validity of the measure. One key pre-requisite of construct validity is a good measurement model: when the dimensions measured by the questionnaire are understood, then the relationships between the dimensions and key constructs of interest can be examined, and evidence relating to construct validity can be gathered.

To test the measurement properties of the questionnaire, a series of analyses were conducted following good practice, as outlined in Brown (2006, see Figure 3). An additional aim of the factor analyses was to reduce the number of items in the questionnaire.

Figure 3: Analyses conducted to develop and test the measurement model



A full technical description of these analyses is available in Appendix B but the factor analysis process and findings are summarised here.

Firstly, parallel analysis was conducted to identify the maximum number of factors in the dataset, to guide subsequent factor analysis. The parallel analysis found that we should identify no more than seven factors in an exploratory factor analysis (EFA), although fewer than seven factors could be used based on theoretical judgement.

Secondly, following good practice in conducting factor analysis, the dataset was split in order to generate a dataset for identifying provisional concepts or factors, and a second, 'independent' dataset to test the validity of the factor structure.

Factor analysis is a statistical method used to identify underlying factors by correlating homogenous items to create new, unobserved variables called factors. It also allows a reduction in the number of

items contributing to the identification of a factor, therefore reducing the number of redundant items. Exploratory factor analysis (EFA) is used to identify relationships among items that are part of unified concepts and to develop an initial factor structure.

To further refine and test the factor structure underlying the questionnaire, a Confirmatory Factor Analysis (CFA) was conducted on the same, original dataset (Hurley et al. 1997). A CFA should ensure coverage of the construct of professionalism while still refining the model to maximise fit. The factor solution statistics highlighted modifications that offered improvement in model fit when particular items were removed or allowed to correlate with other factors. The CFA further refined the model and a seven-factor solution was identified.

The original seven factor solution was submitted to CFA using a new, independent dataset. An iterative process of refining the model was conducted using modification indices and theoretical interpretation, necessitating a series of item deletions. The model was tested after each deletion and satisfactory fit was achieved (see Appendix B for deleted items). This process of refinement resulted in a six-factor model which demonstrated some improvements on model fit indices. The deleted items would therefore not be appropriate for use in the measurement of professionalism, but have been retained in an educational version of the questionnaire (Appendix C for this shortened version of the questionnaire), as they represent some areas of disagreement and therefore are fruitful areas for discussion in a training context.

The final CFA model, original EFA loadings and standardized CFA loadings are presented in Table 2. Model fit for this six-factor structure with 36 items was satisfactory (CFI = 0.916, TLI = 0.909, RMSEA = 0.049 [90% CI: 0.042-0.056]).

Table 2: Final CFA model

Factor and Items	EFA loading	Stzd CFA loading – orig data	Stzd CFA loading – new data
Factor 1: Feeling valued by the public			
14. Paramedics are as valued by the general public as fire fighters	0.916	0.910	0.902
15. Paramedics are as valued by the general public as police officers	0.891	0.899	0.928
16. Paramedics are as valued by the general public as nurses	0.812	0.847	0.839
17. Paramedics are as valued by the general public as doctors	0.724	0.781	0.629
Factor 2: Appropriate behaviours			
21. It is not always possible to follow codes of conduct to the letter ^R	0.650	0.611	0.741
22. It is not always possible to follow procedures exactly ^R	0.722	0.659	0.777
39. 'Take the mick' /banter with colleagues while they are there ^R	0.541	0.584	0.690
40. 'Take the mick' out of colleagues when they are not there ^R	0.538	0.726	0.615

Factor and Items	EFA loading	Stzd CFA loading – orig data	Stzd CFA loading – new data
41. Use humour about patients as a way of letting off steam after a job ^R	0.527	0.698	0.616
42. Swear around colleagues ^R	0.481	0.718	0.528
Factor 3: Organisational and professional care			
3. The organisation I work for allows me to be professional	0.460	0.730	0.631
4. The organisation I work for looks after my welfare	0.679	0.830	0.743
5. The organisation I work for is professional	0.658	0.814	0.734
6. Patients are more important than targets to my organisation	0.512	0.651	0.371
29. Feel some patients waste the ambulance service's time ^R	0.708	0.638	0.557
30. See some referrals from other healthcare providers (e.g. GPs, urgent care centres) as a waste of time ^R	0.709	0.641	0.409
72. I have a good work/life balance	0.460	0.527	0.387
Factor 4: Positive / proactive professional behaviours			
34. Make sure patients understand what is happening	0.484	0.473	0.648
37. Try to take time to reassure patients/their families	0.452	0.588	0.528
51. Approach work in an organised way	0.465	0.480	0.624
63. Take the initiative to improve or correct my behaviour	0.570	0.734	0.657
64. Accept constructive criticism in a positive manner	0.513	0.744	0.521
65. Make sure my uniform is well presented (ironed, shoes polished)	0.486	0.741	0.718
66. Make sure I look clean, tidy and well-groomed at work	0.640	0.811	0.885
68. Adjust how I speak to different colleagues	0.756	0.443	0.358
69. Tailor information to a patient's or relative's needs	0.712	0.424	0.359
Factor 5: Professional identity and pride			
7. I think of being a paramedic as 'a career', not just a job	0.517	0.754	0.588
18. I feel I represent the ambulance service when I am wearing the uniform in public	0.454	0.588	0.657
19. I try to always act in a manner that brings credit to the profession	0.511	0.695	0.772
73. Being a paramedic is important to me	0.713	0.876	0.884
74. Being a paramedic makes me feel good about myself	0.603	0.903	0.837
Factor 6: Learning orientation			
12. It is important that paramedics have their own professional organisations (such as the College of Paramedics)	0.472	0.450	0.442

Factor and Items	EFA loading	Stzd CFA loading – orig data	Stzd CFA loading – new data
56.Read books and articles on paramedic practice	0.742	0.760	0.536
57.Attend training which is not mandatory	0.805	0.847	0.704
58.Keep my CPD portfolio up to date	0.585	0.726	0.810
59.Regularly refresh my skills	0.560	0.812	0.729

Note: ^R identifies items which have been reverse-scored.

What does this tell us?

The six-factor model above was tested on another sample of paramedics and the results supported it. The model's ability to transfer to the new sample suggests that the six-factor model is a robust description of professionalism for paramedics.

3.3.1 Interpretation of factors

Throughout the process of exploratory and confirmatory factor analysis, retained items and factors were assessed according to theoretical criteria to ensure that a broad coverage of the construct of professionalism was retained.

Factor 1: Feeling valued by the public

Factor 1 includes four items which ask whether paramedics are as valued by the general public as other professionals working in healthcare (doctors, nurses) and the emergency services (fire, police). This suggests that, when compared with other recognised professional groups, individuals who score highly on this factor feel a sense of respect and value from the public.

Factor 2: Appropriate behaviours

Factor 2 includes six items which represent behaviours that may be perceived as unprofessional by some, such as not always following codes of conduct and swearing around colleagues. These could be considered as 'borderline behaviours' but are sometimes seen as acceptable in very particular circumstances. Although an 'ideal' professional may not exhibit any of these behaviours, in practice, some of these behaviours do occur and some may reflect cultural norms and/or use of situational judgement.

Factor 3: Organisational and professional care

Factor 3 includes seven items, four of which refer to perceptions of organisational support for professionalism, the organisation's concern for individual welfare and work-life balance. The other three items describe perceptions of the importance of patients over organisational targets and of some patients and referrals being a waste of time (of which two were reverse-scored). Individuals who score highly on this factor are likely to hold positive perceptions of the organisation and regard all patients and calls as important. This implies that the factor measures perceptions of organisational care for employees and paramedics' care for patients.

Factor 4: Positive/proactive professional behaviours

Factor 4 includes nine items which include reference to patient care, being organised, openness to feedback and improving behaviour. This factor also includes items on professional appearance and positive flexible communication with patients and colleagues. Taken together, this factor refers to positive and proactive displays of professionalism, including both verbal and behavioural communication to patients and colleagues. This would include being well groomed and maintaining a professional appearance.

Factor 5: Professional identity and pride

Factor 5 includes five items related to professional identity and positive associations with the role. This factor primarily measures attitudes describing a positive sense of attachment and belonging to the profession, as well as feeling like a representative of the ambulance service and/or paramedic profession.

Factor 6: Learning orientation

Factor 6 includes five items relating to learning and maintenance of skills and training, including discretionary activities such as attending non-mandatory training and reading about paramedic practice. One item also measures the importance placed on being part of a professional body. In the context of this factor, importance given to the existence of a professional body (such as the College of Paramedics) may relate to its role in formalising standards for education and learning. Taken together, these items represent an ongoing commitment to learning.

What does this tell us?

Based on an interpretation of the items and understanding of the professionalism literature, we identified and described six factors of professionalism. These were: feeling valued by the public, appropriate behaviours, organisational and professional care, positive/proactive professional behaviours, professional identity and pride, and learning orientation.

3.4 Reliability of sub-scales

The internal consistency reliability of the factors identified in the CFA model was tested using Cronbach’s alpha (α). Reliabilities are presented in Table 3 below.

Results show that all factors reached 0.7, the standard threshold for good internal consistency reliability, albeit to one decimal place in the case of factor four. This indicates that the factors form coherent sub-scales.

Table 3: Internal consistency reliabilities for factors (n=646)

Factor	α
F1: Feeling valued by the public	0.861
F2: Appropriate behaviours	0.735
F3: Organisational and professional care	0.742
F4: Positive/proactive professional behaviours	0.682
F5: Professional identity and pride	0.729
F6: Learning orientation	0.774

What does this tell us?

Our factors are reliable in the sense of being internally consistent. This means that individual items in a factor are consistently measuring the same suggested underlying dimension (e.g. learning orientation).

3.5 Descriptive statistics and inter-correlations between factors

Table 4 presents mean scores, standard deviations, and range of the factors. Each mean factor score has a possible range from 1 to 5. The descriptive statistics indicate that all factors have a reasonable range. Scores on three factors used the full range of the scale (F1, F2, F6). Factor four (positive/proactive professional behaviours) demonstrated the narrowest range.

Table 4: Descriptive statistics for professionalism factors

Factor	n	Mean	Std Dev	Min	Max
F1: Feeling valued by the public					
Total sample	644	3.07	1.01	1.00	5.00
Ambulance Trust A	149	2.95 ^B	0.99	1.00	5.00
University B	402	3.19 ^{AC}	0.97	1.00	5.00
Ambulance Trust C	93	2.77 ^B	1.15	1.00	5.00
F2: Appropriate behaviours					
A Total sample	646	2.98	0.65	1.00	5.00
Ambulance Trust A	149	3.01 ^C	0.65	1.33	4.67
University B	404	3.02 ^C	0.64	1.00	5.00
Ambulance Trust C	93	2.75 ^{AB}	0.61	1.17	5.00
F3: Organisational and professional care					
Total sample	646	3.21	0.63	1.43	4.71
Ambulance Trust A	149	2.97 ^{BC}	0.59	1.43	4.14
University B	404	3.40 ^{AC}	0.56	1.57	4.71
Ambulance Trust C	93	2.76 ^{AB}	0.62	1.57	4.00
F4: Positive/proactive professional behaviours					
Total sample	645	4.48	0.35	3.25	5.00
Ambulance Trust A	149	4.46	0.35	3.44	5.00
University B	403	4.50	0.34	3.25	5.00
Ambulance Trust C	93	4.42	0.37	3.44	5.00
F5: Professional identity and pride					
Total sample	646	4.51	0.48	2.20	5.00
Ambulance Trust A	149	4.53 ^C	0.47	2.20	5.00
University B	404	4.56 ^C	0.43	2.40	5.00
Ambulance Trust C	93	4.26 ^{AB}	0.62	2.40	5.00
F6: Learning orientation					
Total sample	646	3.82	0.58	1.00	5.00
Ambulance Trust A	149	3.96 ^C	0.51	2.40	5.00
University B	404	3.86 ^C	0.53	2.20	5.00
Ambulance Trust C	93	3.45 ^{AB}	0.73	1.00	5.00

^A Significantly different from Ambulance Trust A mean score

^B Significantly different from University B mean score

^C Significantly different from Ambulance Trust C mean score

There is some variation in the factor means in different organisations. Analyses of Variance (ANOVAs) with Tukey HSD post-hoc tests were conducted to test for differences in mean scores across organisations. Overall differences were detected on all factors, except factor four. Tukey's tests on the remaining five factors revealed a number of significant differences between pairs of organisations (see Table 4).

The results indicated that respondents from University B felt more valued by the public (F1) than respondents from either of the Ambulance Trusts. Respondents from Ambulance Trust C (who were primarily qualified paramedics) had a significantly lower mean score on appropriate behaviours (F2) than either Ambulance Trust A (primarily student paramedics) or University B (all student paramedics). This suggests that Ambulance Trust C respondents engaged in more 'borderline' unprofessional behaviours such as not always following procedures exactly.

Ambulance Trust C also reported the lowest scores on organisational and professional care (F3), followed by Ambulance Trust A, then University B (with significant differences between all organisations). This suggests that, compared to Ambulance Trust A and University B, respondents at Ambulance Trust C felt that there was less organisational support for professionalism. Ambulance Trust C had a lower mean score on professional identity and pride (F5) than both Ambulance Trust A and University B, indicating that these respondents had less positive associations with their role and identity than respondents from the other organisations, although mean scores were high overall on this factor (all above 4.2) across all three organisations.

Finally, respondents from Ambulance Trust C had lower mean scores on learning orientation (F6) compared to the other organisations, which reflects lower levels of commitment to ongoing learning.

Table 5 presents the inter-correlations between the six factors, overall and by organisation. The results indicated that the factors are related to each other and all of the correlations for the total sample are statistically significant. This is as expected, given the factors are all designed to measure aspects of professionalism. In addition none of the factors are highly correlated which would indicate strong relationships and the lack of correlations would indicate the factors are measuring something different.

Table 5: Inter-correlations between the six factors, overall and by organisation

Factor	F1	F2	F3	F4	F5	F6
F1: Feeling valued by the public	1					
F2: Appropriate behaviours						
Total sample	.133**					
Ambulance Trust A	.212**	1				
University B	.092					
Ambulance Trust C	.076					
F3: Organisational and professional care						
Total sample	.309**	.360**	1			
Ambulance Trust A	.292**	.392**				
University B	.235**	.330**				
Ambulance Trust C	.368**	.365**				
F4: Positive/proactive professional behaviours						
Total sample	.107**	.232**	.183**	1		
Ambulance Trust A	.066	.250**	.198*			
University B	.105*	.214**	.178**			
Ambulance Trust C	.105	.238*	.081			
F5: Professional identity and pride						
Total sample	.227**	.160**	.374**	.302**	1	
Ambulance Trust A	.232**	.142	.325**	.323**		
University B	.169**	.111*	.315**	.245**		
Ambulance Trust C	.270**	.197	.430**	.408**		
F6: Learning orientation						
Total sample	.159**	.228**	.232**	.365**	.375**	1
Ambulance Trust A	.220**	.287**	.251**	.300**	.424**	
University B	.146**	.165**	.208**	.372**	.297**	
Ambulance Trust C	.053	.218*	.126	.430**	.369**	

* Significant at 0.05 level, **Significant at 0.01 level

What does this tell us?

Our six professionalism factors are related to each other, as would be expected, but each factor measures different aspects of professionalism.

3.6 Repeated measures analyses: Changes in professionalism over time

A number of participants (n=121) completed the survey two times during the course of their studies, enabling an investigation into changes in professionalism scores over time. All of these participants trained at University B (unfortunately, questionnaires could not be linked at Ambulance Trust A as ID keys were not retained by the Trust between questionnaire administrations). No participants completed the questionnaire three times or more.

A series of repeated measures analyses (paired t-tests) were conducted to test for changes between the first and second questionnaire administrations in (1) the professionalism factor scores, (2) self-rated professionalism (ABIM and relative measures), and (3) trainer-rated professionalism.

When combined across year groups, scores on five of the six professionalism factors declined over time, indicating that levels of professionalism deteriorated (see Table 6). However, self-rated overall professionalism (on both the ABIM and relative measures) increased over time. There was no difference in trainer ratings of professionalism over time, using the ABIM measure.

Table 6: Change in professionalism factor and ratings (self, trainer) scores over time

Variable	Time 1 Mean	Time 2 Mean	t	df	p
Professionalism Factors					
F1: Feeling valued by the public	3.27	3.16	1.24	119	.219
F2: Appropriate behaviours	3.12	2.92	4.20	120	<.001
F3: Organisational and professional care	3.79	3.24	8.78	120	<.001
F4: Positive/proactive professional behaviours	4.59	4.45	4.57	119	<.001
F5: Professional identity and pride	4.70	4.45	5.83	120	<.001
F6: Learning orientation	3.93	3.72	4.85	120	<.001
Professionalism Ratings					
Self-rated ABIM	6.93	7.20	2.52	111	.013
Self-rated relative	5.75	6.19	3.84	111	<.001
Trainer-rated ABIM	5.30	5.14	1.76	119	.082

Note: No repeated measures data were available for trainer-rated relative measures

To further investigate changes in professionalism factor scores over time, the analyses were repeated for different year groups, where numbers were sufficient (please see Appendix D for full year by year analyses). Although there were some variations, in general, scores on several professionalism factors declined over time, whereas self-ratings of overall professionalism tended to increase. It is possible that, as trainees are exposed to more paramedics and spend more time in practice, they see a greater range of behaviours and may adopt some of them (including less professional behaviours), but still think of themselves as professional, perhaps especially compared to other professionals that they see in practice.

What does this tell us?

In general, scores on five of the professionalism factors declined over time, suggesting a reduction in professional attitudes and behaviours. However, global self-ratings of overall professionalism tended to increase over time.

3.7 Concurrent validity

Concurrent validity (a form of criterion validity) refers to the extent to which a measure correlates with scores on a related independent measure, when scores on both measures are obtained at the same time. In the current study, there is no 'true' single measure of professionalism against which to test the student's global ratings of professionalism or their scores on the professionalism factors

because professionalism is a multi-faceted concept. Therefore, trainers were asked to rate the overall professionalism of each student, using the anonymous identifier code. The trainer ratings of global professionalism were used to test for concurrent validity.

Use of trainer ratings of student professionalism comes with several caveats. Firstly, it assumes that trainers have sufficient knowledge of a student's professionalism to provide a valid rating. Although trainers should have some knowledge of levels of student professionalism and they reported that they could easily identify extremes (very high or very low scoring students), some trainers (particularly in University B) reported that they assumed many students were satisfactory unless issues had been brought to their attention regarding levels of student professionalism. Secondly, the reliability of the trainer ratings is unknown. Despite these caveats, if trainer ratings are assumed to be a closer approximation of 'true' professionalism, then a positive correlation would be expected between trainer ratings and a) student self-ratings on the global measures, and b) scores on the professionalism factors.

3.7.1 Concurrent validity of global measures (trainer and student ratings)

As described above, if trainer ratings are assumed to be a closer approximation of 'true' professionalism, then a high positive correlation between trainer ratings and student self-ratings of professionalism would indicate that student ratings are more accurate.

Global ratings of student professionalism were collected in both Ambulance Trust A and University B. Initially, two questions were presented – one asking trainers to rate student professionalism using the ABIM tool, and one asking trainers to rate the students' professionalism compared to other paramedics they know. At one site, trainers provided one rating using the ABIM tool, as they felt the rating would be the same on the relative measure. A third global item was added later in the study, asking trainers to rate their agreement with the statement "I believe he/she behaves professionally at all times." A version of this question was also asked of participants ("I behave professionally at all times").

Descriptive statistics for trainer- and self-rated global ratings are presented in Table 7. Frequency distributions for student self-ratings of ABIM and trainer ABIM ratings are shown in Figures 4 to 7. On average, trainer ratings tended to be lower than self-ratings. For the ABIM item, trainers used the full range of the scale, whereas self-rated ABIM scores were skewed towards the higher end of the scale. For the self-ratings of relative professionalism and whether they behaved professionally at all times, participants at Ambulance Trust A tended to use the higher end of the scale, whereas participants at University B used the full range of the scale.

Table 7: Descriptive statistics for trainer and self-ratings of global professionalism

Rating	Organisation	Mean	Std Dev	Median	Min	Max
Trainer ABIM	Overall score	5.26	1.14	5.00	1	9
	Ambulance Trust A	5.81	1.19	6.00	3	9
	University B	5.10	1.07	5.00	1	8
Self-rated ABIM	Overall score	7.13	0.91	7.00	4	9
	Ambulance Trust A	7.16	0.86	7.00	5	9
	University B	7.09	0.92	7.00	4	9
Trainer relative ratings	Overall score	5.88	1.45	6.00	2	9
	Ambulance Trust A	5.88	1.45	6.00	2	9
	University B	-	-	-	-	-
Relative self-ratings	Overall score	5.91	1.24	6.00	1	9
	Ambulance Trust A	6.16	1.36	6.00	3	9
	University B	5.95	1.09	6.00	1	9
Trainer-rated behaves professionally at all times	Overall score	3.28	0.68	3.00	1	5
	Ambulance Trust A	3.71	0.85	4.00	1	5
	University B	3.09	0.48	3.00	2	5
Self-rated behaves professionally at all times	Overall score	4.16	0.77	4.00	1	5
	Ambulance Trust A	4.32	0.47	4.00	4	5
	University B	4.10	0.84	4.00	1	5

Figure 4: Student ratings of ABIM

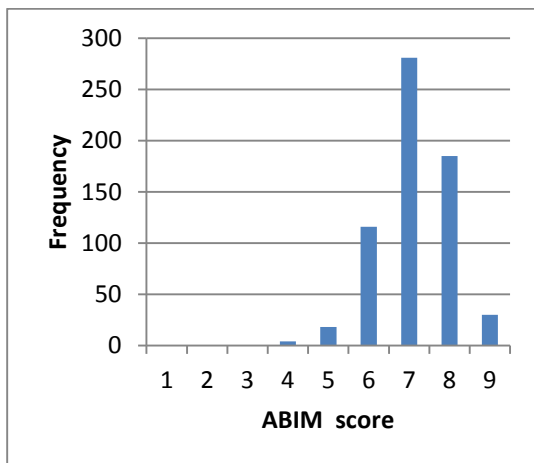


Figure 5: Student ratings of ABIM by organisation

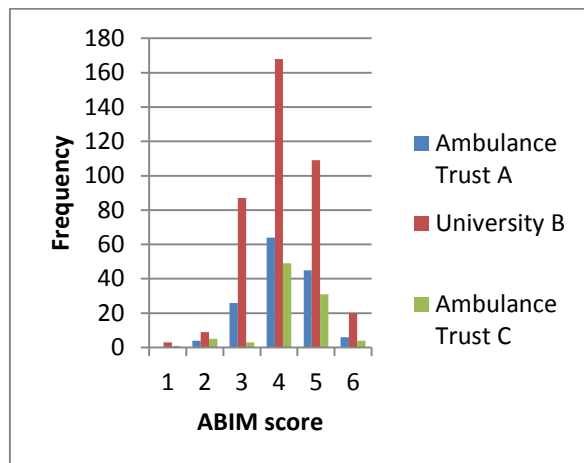


Figure 6: Trainer ratings of ABIM

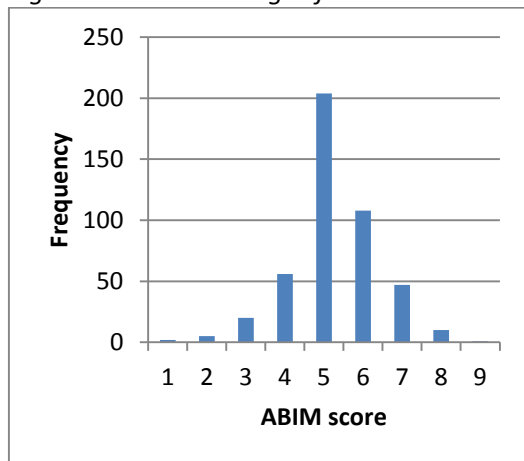
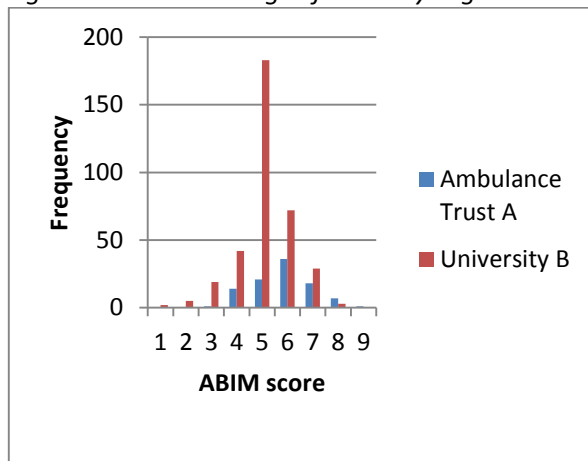


Figure 7: Trainer ratings of ABIM by organisation



Correlational analyses were conducted to assess the association between student and trainer ratings and are presented in Table 8.

Table 8: Correlations (*rho*) between self-rated and trainer global ratings of student professionalism

	Trainer ABIM	Trainer Relative Measure	Trainer-rated Professional Behaviours
Self-rated ABIM			
Total sample	0.133** (n=442)	-0.034 (n=95)	0.043 (n=232)
Ambulance Trust A	0.091 (n=95)	-0.034 (n=95)	0.107 (n=72)
University B	0.142** (n=347)	--	0.023 (n=160)
Self-rated Relative Measure			
Total sample	0.197** (n=439)	0.101 (n=96)	0.178** (n=233)
Ambulance Trust A	0.171 (n=96)	0.101 (n=96)	0.127 (n=72)
University B	0.164** (n=343)	--	0.116 (n=161)
Self-rated Professional Behaviours			
Total sample	0.012 (n=209)	0.038 (n=50)	0.006 (n=209)
Ambulance Trust A	0.150 (n=50)	0.038 (n=50)	0.189 (n=50)
University B	-0.086 (n=159)	--	-0.122 (n=159)

*Significant at 0.05 level, **Significant at 0.01 level

The correlations presented in Table 8 show that there was a statistically significant relationship between self-ratings and trainer ratings on the ABIM tool, although the association is fairly weak. There was also a statistically significant relationship between the student self-rating of relative professionalism and both the trainer ABIM and trainer-rated professional behaviours item. No statistically significant relationships were found between any of the student self-ratings and the trainer relative measure (although data are only available from Ambulance Trust A for these measures).

Further analyses were conducted to test whether there was a significant difference on student self-ratings between those rated as more professional by trainers on the ABIM tool (Trainer ABIM score of ≥ 6) and those rated as less professional by trainers (Trainer ABIM score of ≤ 4).

Students who were rated as more professional by trainers (high trainer ABIM) had significantly higher self-ratings on the ABIM tool (mean ABIM self-rating = 7.31) than students who were rated as less professional by trainers (mean ABIM self-rating = 6.98): $t(239)=2.67$, $p=0.008$. This indicates that the self-rated ABIM can differentiate between individuals rated as high vs low by trainers on the same measure.

What does this tell us?

Trainer ratings and students' self-ratings of professionalism were related, but only weakly. However, when we cut out the middle range of trainer ratings of professionalism and focus on high and low trainer scores, the student self-rating can distinguish between students given high and low trainer scores. Which shows good agreement between the two measures of professionalism particularly regarding the measures at either end of the scale.

3.7.2 Discrepancies between self-rated and trainer-rated ABIM

The relatively weak correlation between self-rated and trainer-rated ABIM indicated that there were discrepancies between these global ratings. Of particular concern are students who were rated as low on professionalism by trainers but who self-rated as high. Table 9 below shows the frequencies of individuals who were rated as low on professionalism by trainers (trainer ABIM score between 1

and 4) compared to the rest of the sample (trainer ABIM score between 5 and 9), split by their self-rating as high (self-rated ABIM score of 8 or 9) compared to the rest of the sample (self-rated ABIM score between 1 and 7).

Table 9: Frequencies of individuals with low trainer ABIM and high self-rated ABIM, compared to rest of sample

	Low trainer ABIM (% of total)	High/average trainer ABIM (% of total)	Total (% of total)
Low/average self-rated ABIM	55 (12.4)	229 (51.8)	284 (64.3)
High self-rated ABIM	27 (6.1)	131 (29.6)	158 (35.7)
Total	82 (18.5)	360 (81.4)	442 (100.0)

Table 9 shows that 6.1% of the sample were rated as low on professionalism by trainers but rated themselves as high on the global professionalism measure. These individuals are of particular concern as the discrepancy in ratings suggests that they may have a lack of awareness of their own deficiencies. This pattern of the ‘unskilled and unaware’ has been observed in other research (e.g., Dunning et al. 2003; Ehrlinger et al. 2008; Kruger & Dunning, 1999). These studies reported that low performers tend to overestimate their performance across a range of cognitive and social domains, whereas top performers tend to underestimate their relative performance. One explanation is that the skills that are required for good performance in a given domain are the same skills that are needed to assess the level of one’s performance in that domain (Dunning et al. 2003). These inaccuracies in self-assessment for low- and high-performing individuals tend to be more apparent when the domain is broad and ambiguous (Ackerman et al. 2002). Therefore, self-assessment of the broad, non-specific domain of professionalism may be prone to inaccuracies.

Mean factor scores for individuals with low trainer ABIM and high self-rated ABIM were compared to the rest of the sample. Results are presented in Table 10 and show that these individuals had significantly higher scores on the factor measuring professional identity and pride.

Table 10: Mean factor scores for individuals with low self-rated ABIM and high trainer-rated ABIM, compared to rest of sample

Factors	Low trainer + High self-rated ABIM mean	Mean for rest of sample	t
F1: Feeling valued by the public	3.41	3.08	1.70
F2: Appropriate behaviours	3.12	2.97	1.18
F3: Organisational and professional care	3.37	3.23	1.17
F4: Positive/proactive professional behaviours	4.56	4.46	1.44
F5: Professional identity and pride	4.77	4.50	4.40**
F6: Learning orientation	3.93	3.83	0.88

**p<.01

Another group of interest were the students who underrated their own levels of professionalism. That is, the 5.9% of participants who rated themselves as low on global professionalism, but who trainers rated as high on global professionalism. Table 11 shows the frequencies of individuals who were rated as high on professionalism by trainers (trainer ABIM score between 6 and 9) compared to the rest of the sample (trainer ABIM score between 1 and 5), split by their self-rating as low (self-rated ABIM score of 1 to 6) compared to the rest of the sample (self-rated ABIM score between 7 and 9). As described above, these findings may be explained by the tendency for high performers to underestimate their performance (Kruger & Dunning, 1999).

Table 11: Frequencies of individuals with high trainer ABIM and low self-rated ABIM, compared to rest of sample

	Low/average trainer ABIM (% of total)	High trainer ABIM (% of total)	Total (% of total)
Low self-rated ABIM	77 (17.4)	26 (5.9)	103 (23.3)
High/average self-rated ABIM	204 (46.2)	135 (30.5)	339 (76.7)
Total	281 (63.6)	161 (36.4)	442 (100.0)

Mean factor scores for individuals with high trainer ABIM and low self-rated ABIM were compared to the rest of the sample. Results are presented in Table 12 and show that there were no differences in factor scores.

Table 12: Mean factor scores for individuals with low self-rated ABIM and high trainer-rated ABIM, compared to rest of sample

Factors	High trainer + Low self-rated ABIM mean	Mean for rest of sample	t
F1: Feeling valued by the public	2.88	3.12	1.17
F2: Appropriate behaviours	2.77	3.01	1.82
F3: Organisational and professional care	3.04	3.24	1.58
F4: Positive/proactive professional behaviours	4.41	4.49	1.17
F5: Professional identity and pride	4.37	4.54	1.46
F6: Learning orientation	3.71	3.84	1.11

* $p < .05$

What does this tell us?

There were discrepancies between student and trainer ratings, suggesting that some students were poor at self-assessment. Of greatest concern were the 6.1% of participants who had rated themselves as high on professionalism, whereas the trainers rated them as low on professionalism. There was also a group of 5.9% of students who rated themselves as low on professionalism, but who the trainers had rated as high on professionalism.

3.8 Concurrent validity of professionalism factors

Table 13 presents the correlations between the professionalism factors and trainer global ratings, overall and by organisation (Ambulance Trust A and University B).

Although the correlations for the total sample are presented, there are some differential relationships between measures in the different organisations. Therefore, relationships were examined separately for the two organisations.

As expected, the professionalism factors were positively related to the self-rated ABIM measure (using the overall sample). These positive relationships indicated that students who had higher

scores on these professionalism factors tended to score themselves as higher on the ABIM global self-rating of professionalism. This suggests that the professionalism factors are measuring constructs which are related to a student's self-rating of overall professionalism.

The strongest correlations between the factors and self-rated ABIM were evident with positive/proactive professional behaviours (factor 4) and professional identity and pride (factor 5). The weakest relationships were between self-rated ABIM and organisational and professional care (factor 3) and feeling valued by the public (factor 1). This may be because perceptions that the organisation supports professionalism and cares for patients, and perceptions of the value the public place on paramedics, may not be closely related to an individual's construction of their own professionalism.

What does this tell us?

The factors are measuring relevant aspects of professionalism, most of which are related to students' self-ratings of overall professionalism. This further strengthens the validity of the measure.

The professionalism factors, as self-rated by students, did not demonstrate consistently significant correlations with trainer ratings (trainer ABIM, trainer relative measure or trainer-rated professional behaviour) of professionalism. This may reflect the well-established finding that self-assessment of performance is frequently inaccurate (Ehrlinger et al. 2008; Kruger & Dunning, 1999).

Interestingly, factor 3 (Organisational and professional care), was negatively related to trainer ABIM ratings in University B, but positively associated with trainer ratings of whether the paramedic behaves professionally at all times in Ambulance Trust A. The positive relationship found in Ambulance Trust A suggests that students who believe that patients do not waste service time, and who believe that the organisation is more supportive, tend to be rated by trainers as individuals who behave professionally at all times. Furthermore, the trainers are also more senior members of the organisation itself (Ambulance Trust A), therefore their ratings may be influenced by the student's view of the organisation.

The negative correlation between factor 3 and trainer ABIM in University B is more difficult to explain, as it suggested that students who believe that the organisation is more supportive and who do not think some patients waste their time tend to be rated as less professional by trainers. On closer examination of the items loading onto factor 3, it may be that they are less relevant to paramedic students in a university setting, as their views of the organisation (presumably the university) are less relevant to their professional practice as a paramedic. Another possible interpretation is related to this: if students are rating "the organisation" as their employing organisation, as the items intend, the rating expertise of students in a university setting may be limited by less exposure to professional practice settings than those in Ambulance Trust A. This may also explain the non-significant relationship between factor 3 and self-rated ABIM global scores in University B, where the "other paramedics" known to them, against which they score, may be other students not observed by the student rater in a practice setting.

A weak positive correlation was also observed between factor 6 (learning orientation) and trainer ratings. This indicated that students who have an ongoing commitment to learning tend to receive higher trainer ratings of professionalism.

What does this tell us?

Student ratings on the professionalism factors were not consistently related to trainer-ratings of their overall professionalism. Factor 3 (Organisational and professional care), was negatively related to trainer ABIM ratings in University B, but positively associated with trainer ratings on whether the paramedic behaves professionally at all times in Ambulance Trust A. The difference in trainer ratings of professionalism may be a reflection on trainers rating students in the context of a classroom rather than rating them in authentic practice, unlike the trainer ratings for paramedics in practice.

Table 13: Correlations between professionalism factors and global measures (trainer and student), overall and by organisation

Measure	Self-rated ABIM	Self-rated Relative	Self-rated Professional Behaviour	Trainer ABIM	Trainer Relative	Trainer-rated Professional Behaviour
F1						
Total sample	.102* (n=632)	.075 (n=514)	.059 (n=211)	-.016 (n=451)	-.014 (n=98)	-.071 (n=232)
Ambulance Trust A	.065 (n=145)	.073 (n=110)	.200 (n=50)	-.060 (n=98)	-.014 (n=98)	.011 (n=72)
University B	.127* (n=394)	.023 (n=388)	.038 (n=161)	.040 (n=353)	--	-.021 (n=160)
F2						
Total sample	.183** (n=634)	.004 (n=516)	.198** (n=212)	-.025 (n=453)	.142 (n=98)	.079 (n=233)
Ambulance Trust A	.232** (n=145)	.030 (n=110)	.361* (n=50)	-.048 (n=98)	.142 (n=98)	.243* (n=72)
University B	.184** (n=396)	-.052 (n=390)	.156* (n=162)	-.037 (n=355)	--	-.085 (n=161)
F3						
Total sample	.093* (n=634)	-.049 (n=516)	.214** (n=212)	-.112* (n=453)	.088 (n=98)	-.111 (n=233)
Ambulance Trust A	.124 (n=145)	.026 (n=110)	.213 (n=50)	.099 (n=98)	.088 (n=98)	.370** (n=72)
University B	.115* (n=396)	-.151** (n=390)	.269** (n=162)	-.109* (n=355)	--	-.103 (n=161)
F4						
Total sample	.281** (n=633)	.017 (n=515)	.213** (n=211)	.060 (n=452)	.126 (n=98)	-.052 (n=232)
Ambulance Trust A	.284** (n=145)	-.043 (n=110)	.188 (n=50)	.067 (n=98)	.126 (n=98)	.161 (n=72)
University B	.247** (n=395)	.036 (n=389)	.220** (n=161)	.061 (n=354)	--	-.124 (n=160)
F5						
Total sample	.261** (n=634)	.092* (n=516)	.126 (n=212)	.060 (n=453)	.021 (n=98)	.056 (n=233)
Ambulance Trust A	.329** (n=145)	.260** (n=110)	.190 (n=50)	.125 (n=98)	.021 (n=98)	.136 (n=72)
University B	.246** (n=396)	.003 (n=390)	.105 (n=162)	.021 (n=355)	--	.026 (n=161)
F6						
Total sample	.154** (n=634)	.202** (n=516)	.156* (n=212)	.112* (n=453)	.043 (n=98)	.095 (n=233)
Ambulance Trust A	.269** (n=145)	.316** (n=110)	.313* (n=50)	.056 (n=98)	.043 (n=98)	.041 (n=72)
University B	.151** (n=396)	.096 (n=390)	.108 (n=162)	.099 (n=355)	--	.078 (n=161)

*p<.05, **p<.01

3.9 Conscientiousness Index

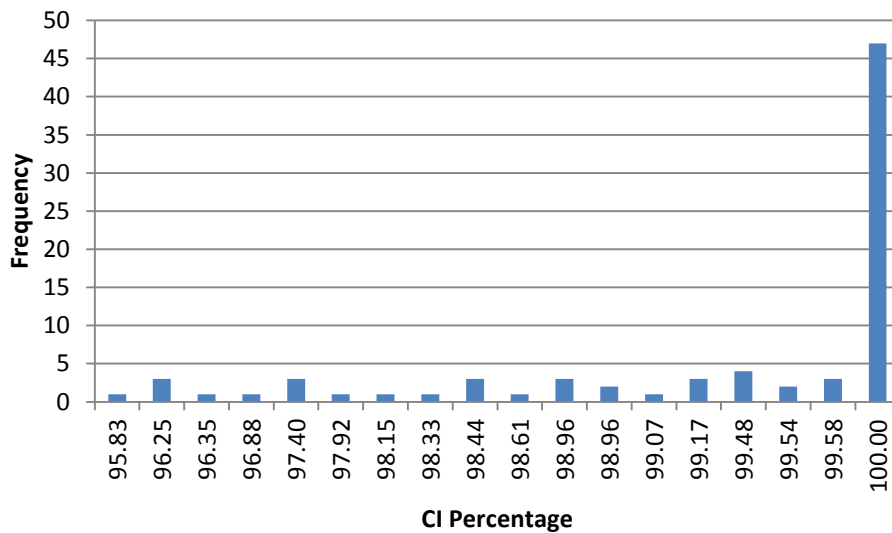
Conscientiousness Index (CI) data was obtained from both Ambulance Trust A and University B, although the type and quality of the data varied by organisation. As described in the Methods section, three types of data (attendance, punctuality and uniform compliance) were collected over many sessions at Ambulance Trust A. Therefore, the CI score is based on multiple behavioural episodes. At University B, four types of data (attendance in class, use of an online learning tool, attendance on campus and late submission of assignments) were collected, but threshold criteria were set (e.g. one point was deducted if the student had been absent more than seven times over a year). Therefore, at University B, the CI score was based on only four data points and it does not have the same granularity as a measure based on multiple behavioural episodes. Subsequent years had more limited availability of data, following the introduction of a swipe card system to replace class registers. Unfortunately, this system was used inconsistently and the data were not suitable for CI. As University B CI data is compromised by quality, range, and volume, we have conducted our analysis on data from Ambulance Trust A only. Descriptive data are presented in Table 14.

Table 14: Descriptive statistics for CI data

Organisation	Mean %	Std Dev	Median %	Min %	Max %
Ambulance Trust A	99.33	1.10	100.00	95.83	100.00

Figure 8 presents the frequency distribution for CI scores (percentages) in Ambulance Trust A. Many students have a perfect CI score of 100% but there is range of scores from 95.8 to 100.0%.

Figure 8: Frequency distribution of CI scores at Ambulance Trust A



Correlations between CI, trainer global ratings, student global ratings and the professionalism factors are presented in Table 15.

At Ambulance Trust A, CI scores are positively correlated with trainer ABIM ratings, indicating that students who demonstrate more conscientious behaviours on an objective measure (CI) tend to be rated as more professional by trainers. However, no other correlations were observed between CI scores and global self-ratings or the professionalism factors.

Table 15: Correlations between CI, trainer global ratings, student global ratings and the professionalism factors (Ambulance Trust A)

	CI (Ambulance Trust A)
Self-rated ABIM	-.024 (n=80)
Self-rated Relative	-.105 (n=81)
Self-rated Professional Behaviour	-.037 (n=38)
Trainer-rated ABIM	.238* (n=81)
Trainer-rated Relative	.104 (n=81)
Trainer-rated Professional Behaviour	.188 (n=60)

* Significance level <.05, ** Significance level <.01

The range of CI scores even in Trust A is very limited, however, with the great majority of trainees recording a CI of 100%. While it is of interest that so many trainees showed almost perfect conscientiousness by these measures, this creates a significant statistical problem of range restriction for the analysis, which may well weaken the correlations which might be observed. The shape of the distribution in Figure 8 is of interest: it can be seen that there is a quite small group of candidates who perform much worse than the others.

What does this tell us?

There were ongoing issues with collecting appropriate data for CI, and the utility of CI depended on the range the CI data covers. When there was higher quality CI data, CI was significantly related to the trainer-rating of overall professionalism.

3.10 Academic Performance

Data on academic performance was collected from University B. Performance across the year was reflected as a percentage for n=73 participants. In some year groups in University B (and all participants at Ambulance Trust A), students were assigned a pass/fail grade. Correlational analyses were conducted on the 73 students with academic performance percentages (see Table 16).

Table 16: Correlations (ρ) between academic performance, global ratings and factors (n=73)

	Academic Performance (University B)
Self-rated ABIM	-.164
Self-rated Relative	.248*
Self-rated Professional Behaviour	.031
Trainer-rated ABIM	.411**
Trainer-rated Professional Behaviour	.317**
F1: Feeling valued by the public	.097
F2: Appropriate behaviours	-.131
F3: Organisational and professional care	-.222
F4: Positive/proactive professional behaviours	-.221
F5: Professional identity and pride	-.182
F6: Learning orientation	-.043

* Significance level <.05, ** Significance level <.01

Results indicated that academic performance was positively correlated with the self-rated relative measure as well as two trainer ratings (ABIM and ratings of professional behaviour). In the university context, it makes sense that trainers would associate strong academic performance with higher levels of professionalism. Academic performance percentages also offer a method of comparison for students themselves, which may explain the positive relationship with global self-rated relative measure.

What does this tell us?

Higher levels of academic performance were associated with higher trainer ratings on the ABIM measure and ratings of professional behaviour, as well as to higher self-rated professionalism relative to others.

3.11 Prediction of global measures of professionalism

Linear and logistic regression analyses were conducted to test whether the professionalism factors predicted the self-rated and trainer-rated ABIM global measures of professionalism. Full details and analyses are presented in Appendix E, and summary results are presented below.

3.11.1 Prediction of Self-rated ABIM

Using linear regression, the six professionalism factors explained 13% of the variance in the ABIM self-rating ($R^2=0.131$, $p<.001$). Therefore, the professionalism factors predicted a significant amount of the variance in ABIM self-ratings, but there remains a considerable portion of unexplained

variance, suggesting that there are other influences on the ABIM measure that are not captured in the factors.

Results from separate regression analyses indicated that all six factors had a significant influence on ABIM self-ratings, with positive/proactive professional behaviours, and professional identity and pride having the greatest influence.

A further series of analyses were conducted to address concerns regarding global ratings. Global items (particularly trainer ratings) often do not discriminate well in the middle range of the distribution, although they tend to identify individuals at the extremes. This was evident in the global self-ratings, which tended to cluster together, and the majority of participants rated themselves as 7 or 8 on the 9-point ABIM measure (see Figure 4). This may be problematic for linear regression, which uses the range of scores on the global measures.

Logistic regression was conducted to test whether the professionalism factors could predict whether an individual was rated as low or high on global professionalism, by themselves (ABIM self-rating) and by trainers (trainer ABIM, reported in the 'Prediction of Trainer ABIM section below).

Predicting low self-rated ABIM professionalism

The results indicated that all of the factors, except organisational and professional care, significantly predicted global self-ratings of low professionalism. Odds ratios suggested that increases on factor scores reduced the odds of self-rating as low on global professionalism.

Predicting high self-rated ABIM professionalism

The results indicated that all of the factors, except organisational and professional care, significantly predict global self-ratings of high professionalism. Odds ratios suggested that increases on factor scores increased the odds of self-rating as high on global professionalism, particularly scores on positive/proactive professional behaviours and professional identity and pride.

What does this tell us?

Taken together, these results demonstrate the importance of five of the professionalism factors for the prediction of both low and high self-rated ABIM, specifically: feeling valued by the public, appropriate behaviours, positive/proactive professional behaviours, professional identity and pride, and learning orientation.

3.11.2 Prediction of Trainer-rated ABIM

Linear regression results indicated that, taken together, the six factors accounted for only 7.7% of the variance in the trainer ABIM ($R^2=0.077$, $p=0.004$). As with the ABIM self-rating, the professionalism factors predicted a statistically significant amount of the variance in trainer ABIM ratings, but there remains a considerable portion of unexplained variance, suggesting that the trainer ABIM measure is influenced by other factors that are not captured in the questionnaire.

Results from separate regression analyses indicated that scores on positive/proactive professional behaviours and learning orientation have a significant influence on trainer ABIM.

As described above, trainer global ratings may be useful for identifying extremes of high or low professionalism, but they do not typically differentiate well in the middle of the range. This was supported by feedback from trainers, who indicated that most students were assigned a middle range rating, unless the trainers were aware of them being particularly low or high on professionalism (e.g. the student had been brought to their attention because they were performing poorly). Examination of the frequency graph (see Figure 6) also shows that the majority of students received a trainer rating of 5 or 6 (on a 9-point scale).

Predicting low trainer-rated ABIM professionalism

Logistic regression results indicated that the factor measuring positive/proactive professional behaviours predicted trainer ratings of low professionalism. The odds ratios show that, on average, for every one point increase in the factor score on positive/proactive professional behaviours, the odds of being rated by trainers as low on global professionalism decrease by 63%. None of the remaining five factors significantly predicted trainer ratings of low professionalism.

Predicting high trainer-rated ABIM professionalism

Results indicated that positive/proactive professional behaviours predicted trainer ratings of high professionalism. The odds ratios indicated that, on average, for every one point increase in the factor score on positive/proactive professional behaviours, the odds of being rated by trainers as high on global professionalism increased by 173%. The other factors did not significantly predict the odds of trainers rating an individual as high on global professionalism.

What does this tell us?

These results demonstrate the importance of measuring 'positive/proactive professional behaviours' for the prediction of trainer ratings of professionalism.

3.12 Predictive validity: Cases for concern

If the professionalism scales measure relevant constructs, then it would be expected that students who have been identified as 'cases for concern' would have lower professionalism scores on the range of measures. Across Ambulance Trust A and University B, trainers identified 20 students (out of a total of 121) who had experienced some issues with their academic or paramedic practice, by supplying their ID code. These codes were checked for evidence of lower professionalism scores on the student and trainer global ratings, CI scores and professionalism factors. These analyses act as useful checks of the validity of the measures, but the numbers are too small (3% of total sample) to conduct statistical analyses or draw any firm conclusions. An earlier interim report for Study 2 (Burford et al. 2013) highlighted this low base rate and indicated that a very large dataset would be required to provide more predictive evidence. Burford et al. referred to the US study by Papadakis et al. (2008) which identified 638 cases giving cause for concern in a sample of over 66,000 doctors

over 16 years. The low prevalence of 'cases' is therefore a known challenge when testing the predictive validity of professionalism measures.

The current study on paramedic students was informed by the Papadakis et al. (2008) study which explored professionalism during training and later performance. Papadakis et al. found that there was a correlation between performance on behavioural and cognitive measures during residency training and risk for state licensing board actions against practicing doctors. Low professionalism ratings during residency predicted increased risk of disciplinary action, whereas high professionalism ratings predicted decreased risk for disciplinary action. We therefore explored professionalism in paramedic students to see if we could identify whether low ratings on the CI would be related to low trainer professionalism ratings.

Cases for concern identified a number of areas where students experience issues. These included poor attendance, practice concerns, fitness to practise investigations, unprofessional attitude issues, and poor academic abilities. Outcomes included 'resting from the programme', withdrawal from placement, repeating year, continuing on course, and resolved investigations.

Self-ratings on the global measures of professionalism are not significantly different from the mean data of the rest of the sample, suggesting that these students do not perceive themselves to be more or less professional than others. As would be expected, trainer ratings were all lower than the mean data, with the exception of case 20 which related to a patient care allegation, which was unproven. Across the other factors, means were generally in line with the whole sample average, with a few exceptions. Six students scored 4.40 or more on factor 6 (learning orientation). This may reflect an individual difficulty with the course and/or placement, as the student tries to project professional attitudes and behaviours towards learning, in spite of poor performance. The lowest scores on factor 1 (feeling valued by the public) and factor 2 (appropriate behaviours) are among those with unprofessional attitude issues, suggesting that they feel un-valued by the public and engage in more 'borderline' behaviours. Finally, the low score on factor 3 (organisational and professional care) by case 19, is most likely related to the handling and driving sanction outcome of the incident.

Taken together, these cases indicate that the factors, the CI data and student global ratings are less indicative of concern than trainer ratings, although trainer ratings may be influenced by their knowledge of poor performance and attendance.

Results are presented in Table 17, with details of outcomes where available (shown in red).

Table 17: Cases for concern analysis

N	Issue and Description	Self-rated ABIM	Self-rated relative	Trainer rated ABIM	F1	F2	F3	F4	F5	F6
MEAN DATA FOR COMPARISON		7.10	5.89	5.27	3.10	3.00	3.30	4.49	4.54	3.84
1	Fitness to practise investigation: Involved in a clinical incident while on ambulance placement. Focus on dishonest documentation, failure to maintain good practice standards and delaying reporting to the university. Investigation and hearing complete – continuing on course.	6	6	1	3.00	3.17	2.71	4.44	4.40	3.60
2	Academic ability: High rate of failure in modules and unable to pass lifting assessment for ambulance placements	7	6	-	3.75	4.33	3.83	5.00	5.00	4.40
3	Failed to attend lectures and placements: Repeating first year – failed year, unable to re-enrol	7	5	2	4.00	4.17	3.71	4.33	4.00	3.20
4	Failed to attend lectures: Repeating first year – failed year, unable to re-enrol	6	6	1	3.25	3.67	4.43	4.44	4.20	4.20
5	Practice concerns: Placement Educators and supporting Ambulance Trust have concerns over this individuals practice and some allegations of ‘misinformation’ in email communications. Resolved	5	5	3	2.25	3.50	4.14	4.67	4.60	3.00
6	Academic ability: Failed most elements of university modules, placement practice issues and incorrectly completed Practice Assessment Document. Attendance: Unable to attend placement due to lack of attendance	8	5	2	2.00	4.33	4.14	5.00	5.00	5.00
7	Practice concerns: University and Practice Partner concerned about honesty and integrity Resolved	7	6	6	5.00	2.83	3.71	5.00	5.00	5.00

N	Issue and Description	Self-rated ABIM	Self-rated relative	Trainer rated ABIM	F1	F2	F3	F4	F5	F6
MEAN DATA FOR COMPARISON		7.10	5.89	5.27	3.10	3.00	3.30	4.49	4.54	3.84
8	Fitness to practise investigation – suspended from practice: Unacceptable use of social media <i>Continuing course</i>	6	5.5	5	3.75	2.83	3.57	4.11	4.00	4.00
9	Fitness to practise investigation: Undertaking tasks outside their scope of practice <i>Continuing course</i>	8	6	5	2.75	4.33	3.43	4.56	4.20	3.33
10	Personal behaviour: Serious accident police involvement – under investigation by organisation – <i>now resting from the programme</i>	7	6	3	3.50	3.33	4.29	3.67	4.40	3.20
11	Attendance: Unable to attend placement due to lack of attendance – <i>now resting from the programme</i>	-	-	1	-	-	-	-	-	-
12	Academic ability: Multiple resits and missed meetings – <i>not allowed on placement at present</i>	7	6	-	3.75	4.33	3.83	5.00	5.00	4.40
13	Unprofessional attitude issues	8	7.5	4	2.50	2.83	2.43	4.44	4.60	4.00
14	Unprofessional attitude issues	7	7	4	2.50	3.00	2.86	4.78	4.00	4.00
15	Unprofessional attitude issues	8	5	3	3.25	2.67	2.71	4.56	5.00	4.40
16	Unprofessional attitude issues	7	5	4	1.00	1.83	2.14	4.89	5.00	3.25
17	Unprofessional attitude issues	6	8	4	1.00	1.50	1.86	4.33	4.80	4.75
18	Ex-EMT doesn't think should follow new procedures/protocols, possibly takes shortcuts	7	5	4	2.00	2.67	2.29	4.89	4.60	4.60
19	Driving incident: Dishonest reporting about incident. University referred for Fitness to Practise investigation (internal investigation). <i>Result: driving sanction</i>	6	7	5	3.75	2.67	1.57	4.33	5.00	4.40

N	Issue and Description	Self-rated ABIM	Self- rated relative	Trainer rated ABIM	F1	F2	F3	F4	F5	F6
MEAN DATA FOR COMPARISON		7.10	5.89	5.27	3.10	3.00	3.30	4.49	4.54	3.84
20	Patient care allegation (not proven) related to trauma care, although now cleared. Case investigated – staff performed appropriately.	8	8	7	3.50	3.67	3.86	4.00	5.00	4.20

What does this tell us?

Overall, the trainer ratings appear to be more indicative of issues than the professionalism factors, self-rated global professionalism and the CI. However, it may be that trainers provided their ratings after issues with these students were evident.

3.13 Group differences on professionalism measures

A factorial multivariate analysis of variance (MANOVA) was conducted to test for group differences on the self-rated ABIM measure and the professionalism factors between student and qualified paramedics, between males and females, and between different age groups.

The MANOVA included seven dependent variables, which are the outcomes we would like to test for group differences (DVs: the ABIM global measure and the six professionalism factors) and three independent variables, which indicate group membership (IVs: student/qualified, gender and age). The MANOVA detected a significant multivariate effect for all three IVs: student/qualified, Wilks' Lambda= 0.917, $F(7,554)=7.16$, $p<0.001$; gender, Wilks' Lambda= 0.952, $F(7,554)=4.00$, $p<0.001$; and age, Wilks' Lambda= 0.920, $F(28,1998.90)=1.67$, $p=0.016$. These results indicated that scores on the DVs varied depending on the level of the IVs. No significant interactions were found between IVs.

As a follow up to the multivariate test, univariate analyses (analysis of variance, ANOVAs) were conducted to identify differences on the DVs. These are described below. At the univariate level, the Bonferroni correction was applied to adjust for multiple comparisons. Therefore the alpha level used to establish statistical significance (typically 0.05) was divided by the number of comparisons (7), so $\alpha=0.05/7=0.007$.

3.13.1 Student versus qualified paramedics

Means for student and qualified paramedics on the factors and self-rated ABIM are presented in Table 18 below. Univariate analyses found that student paramedics tended to score more highly than qualified paramedics on three factors:

- F2: Appropriate behaviours, $F(1,560)=12.95$, $p<0.001$.
- F3: Organisational and professional care, $F(1,560)=22.15$, $p<0.001$.
- F6: Learning orientation, $F(1,550)=21.02$, $p<0.001$.

This suggests that students engaged in fewer 'borderline' behaviours which may be perceived as unprofessional by some, although it may be that they had fewer opportunities to do so. Students also tended to be more positive about their organisation, regard all patients and calls as important, and had a greater commitment to ongoing learning.

Table 18: Factor and self-rated ABIM means for student and qualified paramedics

Factor	Student Mean	Qualified Paramedic Mean
Self-rated ABIM	7.12	7.16
F1: Feeling valued by the public	3.15	2.78
F2: Appropriate behaviours	3.03*	2.79
F3: Organisational and professional care	3.32*	2.70
F4: Positive/proactive professional behaviours	4.49	4.42
F5: Professional identity and pride	4.57	4.29
F6: Learning orientation	3.90*	3.57

*Significantly higher than qualified paramedic mean at $p < .007$

3.13.2 Gender

Means for male and female participants on the factors and self-rated ABIM are presented in Table 19 below. Overall, there are few differences related to gender, although univariate analyses found that females tended to score higher than males on the appropriate behaviours factor (F2), $F(1,560)=8.87$, $p=0.003$. This suggests that females tended to engage in fewer behaviours which may be seen as less professional by some.

Table 19: Factor and self-rated ABIM means by gender

Factor	Male Mean	Female Mean
Self-rated ABIM	7.09	7.16
F1: Feeling valued by the public	3.11	3.06
F2: Appropriate behaviours	2.90	3.06*
F3: Organisational and professional care	3.12	3.33
F4: Positive/proactive professional behaviours	4.44	4.52
F5: Professional identity and pride	4.51	4.53
F6: Learning orientation	3.87	3.76

*Significantly higher than male mean at $p < .007$

3.13.3 Age

Univariate analyses detected a difference across the age groups on factor 2 (appropriate behaviours): $F(1,560)=4.19$, $p=0.002$. However, post hoc pairwise comparisons of age groups did not find that any particular age group tended to score higher than another on factor 2. The mean scores for all factors in different age groups are presented in Table 20. The means for factor 2 show a trend towards higher scores among older age groups, but tests of statistical significance did not detect a difference between any specific comparisons, possibly due to the lower number of older participants.

Table 20: Factor and self-rated ABIM means by age group

Factor	Age Group				
	18-24	24-34	35-44	45-54	55 and over
Self-rated ABIM	7.10	7.19	7.16	6.97	7.50
F1: Feeling valued by the public	3.09	2.96	3.05	3.46	3.40
F2: Appropriate behaviours	2.97	2.98	2.90	3.14	3.37
F3: Organisational and professional care	3.37	3.09	2.94	2.96	2.99
F4: Positive/proactive professional behaviours	4.48	4.47	4.41	4.52	4.72
F5: Professional identity and pride	4.56	4.52	4.36	4.49	4.40
F6: Learning orientation	3.83	3.86	3.67	3.82	3.80

What does this tell us?

Student paramedics tended to have higher scores than qualified paramedics on three professionalism factors (appropriate behaviours, organisational and professional care, and learning orientation), and females tended to have higher scores than male paramedics on appropriate behaviours.

3.14 Free text comments

All paramedic questionnaire respondents were asked for additional comments about issues of professionalism. The factors identified from confirmatory factor analysis help to provide interpretation of five core themes to the data.

Perceived value of the profession from patients

The first relates to respondent experiences and descriptions of professional value from the public. Some suggested that the professional classification of the ambulance service as an 'essential' service rather than an 'emergency' service devalued the profession from the perspective of patients, and this in turn affected public knowledge about how the service should be used appropriately.

"If the home secretary refers to the professional as ambulance driver, how can we expect the public to be aware of our level of medical knowledge in order to use the service appropriately?"

Items relating to public perceptions of the profession are included in Factor 1, and items regarding patients' use of the service are included in Factor 3.

Perceptions of poor professional culture in employing organisation

The value perceived to be placed on professionalism is communicated through training and the practices of the employing organisation. Where training quality is considered poor, or where improvement cultures are substituted for blame cultures, the organisation signals the importance placed on professionalism to trainees.

"I feel after a year encountering different [employer] that professionalism isn't always a key priority."

"The quality of initial training on my course has been poor, with little consideration being given to professional standards."

"I feel [employing organisation] in general has a blame culture where staff are guilty until proved innocent. This in itself leads to unprofessionalism among staff."

"[employing organisation] does not have an open culture about reporting."

Perceptions of value of trainees and training from the employing organisation

Free text data also referred to perceptions of value placed on welfare. Mismanagement of working patterns, rotations, the supply of appropriate uniforms, and tight turn-around times may act as proxies to feeling low organisational support.

"Often the hairpin turn-around times do not leave time to take care of needs and has made it harder to complete necessary breaks."

"We rarely have official rest breaks. This is the time we need to eat or go to the loo."

"Concerns about welfare.... Expectations of employee to do more and more for reduced pay."

Such perceptions may be related to feelings of low organisational support for employee/trainee welfare, and professional behaviours (for example, ensuring paramedics are well presented and feel resourced to take on necessary tasks). Items relating to paramedic perceptions of the organisational support and care are included in Factor 3.

Problems with self-assessing professional behaviour as students

Some students commented that being removed from the practice setting may alter their ratings of professionalism. In particular, students felt less expert as raters on questions about the employing organisation.

"Not employed by service as a student paramedic so it is difficult to answer some questions."

"Some questions are not relevant to myself / I don't have an opinion on as I'm not qualified."

Factor 3 included some items where respondents were asked to rate perceived support from their employing organisation, as well as provide judgements about their organisations' value of patients (e.g. item 6). Moreover, students may not interpret their placement Trust as an employer, therefore, not provide scores that reflect their own personal professional attitudes about being a professional practitioner.

"I attend work placements with an ambulance trust... I am not employed by the service therefore do not work for them."

This semantic difference may offer some explanation for items in Factor 3 where the "The organisation I work for..." or "my organisation", or "service" (items 3-6) relates to organisations about which students feel they are poor raters. A further interpretation is that student raters may be using their University, training provider, or another unknown organisational body as their reference for these items.

Pedagogies

Students expressed a preference for learning through experience and practical training over classroom-based teaching and assessment. Preparation for practice, it is perceived, is best acquired through a more integrated learning model, which balances assessment with learning clinical skills.

“I personally feel that as a student paramedic, exam boards... are more focused on students passing OSCEs and exams as opposed to actually learning clinical skills...”

“10% of things learned in the classroom is actually used on the road, 90% picking up the elderly who have fallen and dealing with cases... that isn’t taught in the classroom.”

A further comment highlighted the powerful learning opportunities provided through observation of and role modelling of mentors and supervisor behaviours on placement, especially when unprofessional behaviours are exhibited.

“I believe the role of the mentor is instrumental in the attitudes and behaviours that new paramedics adopt. I believe better training and selection of mentors is required as a number have poor attitudes that new staff might copy as the culture of ‘norm’ in the ambulance service.”

4 Feasibility

4.1 Questionnaire

Observations of questionnaire administrations with student paramedics indicated that completion of the questionnaire took approximately 10 minutes and no more than 20 minutes. With regard to use of the questionnaire tool for summative purposes, or use in a non-anonymised context, it may be that student paramedics would feel less able to respond honestly to some items, particularly items asking about borderline/appropriate behaviours. There may be scope to use the questionnaire for formative purposes, potentially as part of a broader teaching session on professionalism (see section 5).

4.2 Conscientiousness Index (CI)

Data collection for the CI involved the collation of basic, objective behaviours which may be linked to professionalism. Following consultation with partner organisations, CI data included behaviours such as attendance (and notification of absence), punctuality for classes, handing in assignments on time, and wearing full uniform. However, obtaining suitable data for the CI has proved to be challenging on several grounds, including logistical and ethical issues.

The CI was originally designed to be based on a simple collation of existing data. Data for CI use should include data that is routinely collected by the organisation and the CI score should be derived from the low-burden exercise of collating data across sources. However, when applied to Ambulance Trust A and University B, there have been several difficulties in obtaining CI data.

In Ambulance Trust A, some trainers routinely used an attendance register, although others did not. For the purposes of the research, all trainers maintained a register for each half-day session. This included 3 dichotomous yes/no ratings of attendance, punctuality and uniform compliance. Prior to

CI data collection, trainers had agreed on the criteria for punctuality and uniform compliance. However, upon completion of data collection, discussions with trainers indicated that there may have been some subjectivity in ratings. For example, one trainer reported that they marked students as late if they arrived any time after the start of a teaching session regardless of the reason, whereas another trainer reported that students who were late due to known issues (such as major traffic delays) were not marked as late in the register. These issues are problematic for CI, as the aim of the CI tool was to offer an objective measure of behaviours. Some trainers reported that they did not complete the register due to workload issues. The feasibility of collecting data from portfolios was also investigated in Ambulance Trust A, but there were no clear objective behaviours that could be easily scored within the parameters of the CI and portfolios of paper documents were not easily accessible.

In University B, the first batch of CI data was received in March 2014, with a follow-up in February 2015. Trainers reported that the process of data collation had been time-consuming and had taken approximately 6-7 hours (although this time calculation would also include linking data to ID codes). This had been challenging in the context of a heavy workload. Furthermore, obtaining the data had been difficult in its self and only four data points were available in March 2014 (see section 2.6 for details). This was in contrast to published examples of CI use which had many more data points, often with attendance as a large component. In University B, attendance for March 2014 data was reduced to a single dichotomous measure (a significant absence or 7 or more sessions). During 2014, University B introduced a campus swipe card system which replaced class registers. However, data quality was limited by availability (no data were available for some individuals and year groups) and unreliability of use. Late hand-in of assignments was also collated, but several year groups had not had an assignment deadline at the point of data collection, and of those that had, there was only one late hand in, therefore there was a lack of sufficient variance in the data.

In earlier stages of the project, there were also some ethical concerns at University B relating to the monitoring of students, which was perceived by some to be antithetical to the educator-student relationship. Whereas students in Ambulance Trust A are employed by the Trust, and they are subject to the rules and regulations of employment (such as attendance and sickness notification), which are monitored as a matter of course.

5 Use of the professionalism tool in educational settings

There is considerable interest in professionalism among educators and employers, including in how to teach professionalism and promote professional behaviours. In response to a request from Ambulance Trust A, the professionalism questionnaire was used as part of a broader workshop on professionalism in paramedics. Student paramedics were given a brief introduction to the research study and completed the questionnaire. They then participated in an interactive workshop on professionalism, delivered by the research team with input from the paramedic trainers.

The workshop session included a discussion of the key components of professionalism, examples of professional and unprofessional behaviours, and important themes that had emerged from the qualitative data collected for Study 1. These themes included situational awareness, professional attitude towards patients, challenges to professionalism, organisational support for professionalism, uniform and appearance, and representing the ambulance service. Feedback from trainers was positive and they reported that the workshop provided the opportunity for them to raise issues related to professionalism, including concerns related to appearance and use of equipment in training.

Following this success, the questionnaire has been adapted into a generic tool for educational use across the professions regulated by the HCPC (see Section 6).

6 Generic questionnaire

6.1 Development of generic questionnaire

Following the development of a questionnaire tool to measure professionalism in paramedics, the questionnaire was adapted for use across the broad range of professional groups regulated by the HCPC. The generic version of the questionnaire is intended for use as an educational tool for a wide range of professional groups, to encourage reflection about professional and unprofessional behaviours and attitudes and to provoke discussion about how context may influence behaviour. This initiative was encouraged by the HCPC, following discussions as to how this research might begin to have an impact on practice.

Questionnaire items were reviewed in consultation with the HCPC to identify paramedic-specific terms and activities. These were edited to apply to a range of professions (e.g. 'patient' was edited to 'service-user/patient') and a new version of the questionnaire was prepared.

We tested the face validity of this generic version of the professionalism questionnaire using focus groups and telephone interviews. Eight focus groups and ten telephone interviews were conducted with HCPC registrants in the North East of England. Overall 50 registrants (aged 18 to 55 or over) participated and were from a range of occupations (including social work, occupational therapy, biomedical science, clinical psychology, podiatry, physiotherapy, speech and language therapy, dietetics), the majority were female and worked in hospital settings (sample summary provided in Table 21).

Table 21: Demographic information of focus group and interviews participants (n=50)

Gender	Profession	Setting
F	Social Work	Voluntary
F	Social Work	Voluntary
F	Occupational Therapy	Academic
F	Occupational Therapy	Hospital
F	Podiatry	Academic/private
F	Social Work	Voluntary
F	Social Work	Voluntary
F	Social Work	Voluntary
F	Occupational Therapy	Community
M	Biomedical Science	Hospital
F	Biomedical Science	Hospital
F	Biomedical Science	Hospital
F	Biomedical Science	Hospital
F	Biomedical Science	Hospital
F	Biomedical Science	Hospital
F	Biomedical Science	Hospital
F	Biomedical Science	Hospital
F	Biomedical Science	Hospital

F	Dietitian	NHS Trust, community
M	Podiatry	Community
F	Clinical Psychology	Children & Young people's services, community
F	Physiotherapy	Hospital
F	Occupational Therapy	community
F	Occupational Therapy	Hospital
F	Occupational Therapy	Hospital
F	Occupational Therapy (paediatrics)	Hospital
F	Occupational Therapy (paediatrics)	Hospital
F	Occupational Therapy (paediatrics)	Hospital
F	Podiatry	Community
F	Podiatry	Hospital
F	Occupational Therapy	Hospital
M	Podiatry	Hospital
F	Clinical Psychology	Hospital
F	Occupational Therapy	Hospital
F	Occupational Therapy	Hospital
F	Physiotherapy (paediatric)	Hospital
F	Podiatry	Hospital
M	Physiotherapy	Hospital
M	Occupational Therapy	Hospital
F	Podiatry	Hospital
F	Screening (diabetic eye)	Hospital
F	Physiotherapy	Hospital
F	Occupational Therapy	Hospital
F	Occupational Therapy	Hospital
F	Occupational Therapy	Hospital
F	Speech and Language Therapy	Hospital
F	Dietitian	Hospital
F	Speech and Language Therapy	Hospital
F	Occupational Therapy	Hospital
F	Speech and Language Therapy	Hospital

Focus groups and telephone interviews discussed the relevance and suitability of the generic questionnaire items. The new version was used as a draft for discussion, critique, and amendment. For each item, participants were asked to comment on whether the item:

1. Was easy to understand
2. Was relevant
3. Had a range of possible answers
4. Would be answered honestly

During the focus groups and telephone interviews, participants were asked to read through the questionnaire quickly for initial familiarisation. Following this, they were asked to 'walk through' the questionnaire aloud, highlighting and discussing items that caused hesitation. Participants were encouraged to write feedback on their own copies of the questionnaire, which were collected at the end of the session.

The questionnaire was edited and feedback was sought using an iterative process, in which edits from the previous focus group and interviews were tested with the subsequent focus group(s).

Key issues highlighted in the focus groups include: the word 'superior' in question 2. The majority of participants reported feeling uncomfortable with rating themselves as 'superior'. It was decided to replace the word superior with outstanding. There were slight word changes to some questions, four questions were removed from the questionnaire these were:

- Those in my profession are as valued by the general public as fire fighters
- Those in my profession are as valued by the general public as police officers
- Those in my profession are as valued by the general public as nurses
- Those in my profession are as valued by the general public as doctors

The majority of participants reported that the four questions were not relevant to them and that the general public did not know what they did as a profession - for example occupational therapists. These questions formed the factor analysis 'feeling valued by the public' so there was much discussion as to take them out or not. However, it was decided that whilst the questions were valid for the paramedics questionnaire on face validity they were not relevant for the generic questionnaire. Two additional questions were added to the questionnaire, question Q56 Engage in reflective practice and Q61 Seek help if poor health is affecting my performance.

Generally the participants found the questionnaire relevant, that it included a good range of relevant questions for both student and senior practitioner. There was consensus that it would be a helpful tool to facilitate discussion on professionalism as an educational tool and also to use as a tool to raise professional issues that were otherwise difficult to mention.

Please see Appendix F for summary notes taken during the focus groups and the telephone interviews which show the process of the question changes in the questionnaire.

The final version of the generic questionnaire is presented in Appendix G.

7 Discussion

The aim of the study was to develop a meaningful quantitative approach to assess professionalism in paramedics, and to investigate links with the Conscientiousness Index (CI) and the ABIM measure of global professionalism. The questionnaire was developed following a review of the literature and qualitative research with paramedics and it was revised following workshops with student paramedics. The constructs identified represent the range of professionalism domains used by paramedics and other healthcare professionals. The questionnaire reflects a definition of professionalism that is meaningful to paramedics.

The new professionalism measure, developed specifically for paramedics, consists of six factors: feeling valued by the public, appropriate behaviours, organisational and professional care, positive/proactive professional behaviours, professional identity and pride, and learning orientation.

These factors represent the broad construct of professionalism and include dimensions measuring attitudes, behaviours and identity, which are reflected in the professionalism literature. The questionnaire presented here contributes to this field by collecting these different facets of professionalism into a single measure, which has been submitted to a rigorous analytical process and shows good evidence of validity and reliability.

7.1 Professionalism factors, global measures and the CI

The professionalism factors demonstrated good internal consistency reliability as well as some important associations with other measures of professionalism. Firstly, all professionalism factors correlated positively with self-rated ABIM and with each other. This indicated that these factors are relevant to self-rated global professionalism, and offered evidence of construct validity.

Five of the professionalism factors were identified as particularly important for the prediction of self-rated global scores of professionalism in logistic regression analyses. Factors measuring feeling valued by the public, appropriate behaviours, positive/proactive professional behaviours, professional identity and pride, and learning orientation predicted both low and high levels of self-rated professionalism. The factors measuring positive/proactive professional behaviours and professional identity and pride were particularly important for the prediction of high self-rated global professionalism.

Results from participants who completed the questionnaire on two occasions indicated that scores on five of the professionalism factors declined over time, suggesting a reduction in professional attitudes and behaviours. However, global self-ratings of overall professionalism tended to increase over time. It may be that, as students are exposed to more paramedics and spend more time in practice settings during their training, they witness a greater range of behaviours being role-modelled and may adopt some of them (including some less professional behaviours), but still think of themselves as professional, perhaps especially compared to others they see in practice.

The self-rated and trainer-rated ABIM measures were correlated, although the relationship was fairly weak. However, the self-rated ABIM scores were able to differentiate between students who were rated as low vs high on the trainer ABIM, offering some evidence of concurrent validity.

Of concern were the 6.1% of participants who rated themselves as high on professionalism, whereas trainers rated them as low. This may reflect the well-established finding that under performers are often unable to self-assess accurately and tend to over inflate their ability (Kruger & Dunning, 1999).

These discrepancies could be used in a formative capacity with their trainer, alongside scores on the professionalism factors, to highlight student misperceptions of professional attitudes and behaviours.

An examination of group differences on the professionalism measures revealed that students tended to have higher scores than qualified paramedics on factors measuring appropriate behaviours, organisational and professional care, and learning orientation, although there was no difference in overall self-rated professionalism. It is possible that students engaged in fewer 'borderline' behaviours which may be perceived as unprofessional by some as they would have received recent training on best practice and professional expectations, although it may be that they had fewer opportunities to engage in borderline behaviours. Students also tended to be more positive about their organisation and regard all patients and calls as important, which may reflect less cynicism regarding (or less exposure to) regular callers. Given their position in a training role, it is understandable that they would possess a greater commitment to ongoing learning. The results also found that females tended to have higher scores on the factor measuring appropriate behaviours.

There were ongoing issues with the collection of appropriate data to build a Conscientiousness Index (CI), and data quality was limited by changes in systems to record attendance, unreliability of measures, staff workload, and availability of data with sufficient range. However, CI data from Ambulance Trust A indicated that CI scores were associated with a trainer rating of overall professionalism.

Higher levels of academic performance were associated with higher trainer ratings of professionalism and to higher levels self-rated professionalism relative to others in University B. In a University context, academic performance is one key way for students to demonstrate their professionalism (assuming that it is associated with class attendance, studying, completing assignments, etc), particularly if trainers do not witness students' behaviour on placements.

There were 20 'cases for concern' which identified individuals who have experienced difficulties which may be related to professionalism. These provided useful insights into the types of professional problems and concerns encountered in training (including poor attendance, practice concerns, fitness to practise investigations, unprofessional attitude issues, and poor academic abilities).

Across the other factors, means were generally in line with the whole sample average. Key exceptions were higher scores among those who have experienced course or placement difficulties on factor 6 (learning orientation), and lower scores among students with unprofessional attitudes also tended to score lower than most on factor 1 (feeling valued by the public) and factor 2 (appropriate behaviours). Scores on the professionalism factors, global self- and trainer-ratings, indicate that the trainer ratings are the most consistent source of indication of professionalism issues. Scores on the professionalism factors, global self- and trainer-ratings, indicate that the trainer ratings are the most consistent source of indication of professionalism issues.

7.2 Challenges in the development of a professionalism measure

Several challenges have emerged during the development of the questionnaire and the CI, some pertaining to the construct of professionalism and its measurement, others to feasibility issues.

This study has attempted to develop a valid and reliable measure of professionalism for paramedics that captures the breadth of professionalism as a construct, including attitudinal, behavioural, and identity facets. However, developing a tool that adequately represents all forms of professionalism,

as well as the nuances of professional behaviour such as situational judgement, can be challenging. Professionalism itself is not a static construct; it relies on appraisal of circumstances and adaptability to the needs of the situation. Therefore, even if self-ratings were 'true', they may only be so in certain circumstances, as issue particularly apparent in the focus groups with other healthcare professionals. Using multiple measures, including the questionnaire presented here, as well as objective measures and ratings from multiple sources, may achieve a more comprehensive understanding of professionalism in paramedics.

The questionnaire is a self-report measure and it will be subject to concerns about the accuracy of self-assessment. Unsurprisingly, no paramedics or other healthcare professionals rated themselves in the unsatisfactory range on the self-rated ABIM global scale, whereas the trainers used the full range of the scale. It is well known that under performers are often not able to self-assess accurately and tend to over inflate their ability. In support of this, there was evidence of a group of questionnaire respondents who self-rated as high on professionalism, but were rated as low by trainers.

Trainer ratings (and others) were used to test for concurrent validity, however trainer ratings are also an imperfect measure of professionalism. Trainer ratings typically identify extremes (high/low professionalism) but are poorer at discriminating in the mid-range. Also, when rating large groups (as in University B), trainers may be less familiar with levels of professionalism among ratees. It is also likely that some facets of professionalism may be more observable than others to trainers.

The questionnaire includes items which represent 'borderline behaviours' which may be perceived as unprofessional by some (e.g. "It is not always possible to follow codes of conduct to the letter"). In workshops, these items generated debate and are perhaps one of the most important areas for investigation. Such items must be carefully worded to minimise socially desirable responses in which paramedics provide the socially acceptable answer rather than an honest response. Related to this point and the issue of utility is the context in which the questionnaires were completed. Given the research context, respondents were assured of anonymity. If the questionnaire is used in practice, it will be important to consider whether paramedics will answer honestly if the questionnaire is not anonymous. In an educational context, paramedics could complete the questionnaire themselves (without submitting their responses) and the items could be used as the basis for discussion and debate.

One of the global professionalism items used in the study is the published ABIM tool, adapted for self-ratings and trainer ratings. This measure has 'compound anchors' – each end of the scale has a number of descriptors. This approach is often avoided in questionnaire design because it may conflate different constructs and beliefs, and contains assumptions that each descriptor varies in the same way. There is consequently a risk of misrepresenting a respondent's views. Two additional measures of professionalism were included to address this problem.

Another objective was to adapt the CI for use with paramedics. CI data was collected at both Ambulance Trust A and University B, but the quality of the CI data varied. At Ambulance Trust A, the CI data was based on numerous behavioural episodes (the CI contained between 64 and 216 data points, depending on the cohort) and the correlation between CI and trainer global ratings was stronger. At University B, the availability of data was limited and inconsistent and the CI was based on few data points. In previous studies, the CI has involved the collation of routinely-collected data and has had minimal workload implications for staff. However, the data for the CI was not readily available at either organisation: it was collected as part of a training attendance register at Ambulance Trust A, and was collated across multiple sources with considerable staff time

implications at University B. This contrasts with previous studies involving medical students where CI data has been successfully collected using routine data (McLachlan et al. 2009; Kelly et al. 2012).

7.3 Practical Implications

This research has highlighted several important practical implications associated with measuring professionalism using a self-rated tool, alongside global ratings and CI data. Firstly, the measure of professionalism developed by this research demonstrates potential to identify over-confident individuals, when concurrent trainer ratings are also captured. This could be used to provide specific feedback for improvement and to target additional training where individuals may not be aware of poor professional practice.

During development, the questionnaire has been used to prompt discussion and reflection on professionalism in educational workshops with paramedics. The validated form of the self-report professionalism questionnaire is designed for use with paramedics. However, one potential practical application of the generic tool is in educational settings as a means of self-reflection to highlight key issues relating to professionalism. This type of education would have particular value in small group learning or CPD, perhaps in combination with vignettes or case studies during which the factors may elicit discussion of professional behaviours, situational judgement and organisational support for professionalism. This was also borne out in the workshops in the development of the tool.

Finally, the collection of CI data has been challenging. The feasibility issues reported by participating organisations undermine its current potential for use as a measure of professionalism among students. To explore whether CI could reach potential as an objective measure of professionalism, higher quality data may be required (i.e., a greater number of reliable 'data points' for each student) and data collection systems would need to be established for efficient and reliable collation of relevant data.

8 Future research

Professionalism in health and social care professionals remains an important area for research and practice. Potential avenues for future research include:

- Investigation into the validity (beyond face validity) of the generic professionalism questionnaire for the range of professions regulated by the HCPC.
- Evaluation of the efficacy of the professionalism questionnaire (paramedic and/or generic versions) for educational purposes.
- Development and evaluation of interventions to improve professional behaviours and attitudes, and understanding of professional issues (including remedial interventions where issues have been identified).
- Investigation into the organisational and local cultures that shape professionalism among qualified practitioners and students.

9 Conclusion

This study reports on the development of a valid and reliable questionnaire for measuring professionalism in paramedics. The tool measures different attitudinal and behavioural dimensions of professionalism, reflecting the breadth of the construct. The tool presented here demonstrates construct validity, especially in its strong associations with self-rated professionalism using a global measure. However, interpretation of self-rated scores on this measure must take account of the anonymous research context, the role of situational judgement, and possible inaccuracies in self-assessment.

Relationships between the questionnaire tool, trainer-rated professionalism and the conscientiousness index were investigated. Although there were a few significant findings, the questionnaire factors were not consistently related to trainer ratings of professionalism or to CI scores. The nature and quality of CI data and trainer assessment of professionalism in practice require improvement in order to fulfil the potential of a valid concurrent measurement against which to identify low or high levels of professionalism.

This study also explored changes in professionalism scores over time, relationships with academic performance, cases for concern, and group differences in the professionalism measures. The research identified scope for the professionalism questionnaire to be used for educational purposes, and tested the face validity of a generic version of the tool, which has the potential to generate reflection and discussion of professionalism across the professions regulated by the HCPC.

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How much do you agree with the following statements?	Strongly disagree ¹	Disagree ²	Neither agree nor disagree ³	Agree ⁴	Strongly agree ⁵	N/A ⁶
5. The organisation I work for is professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Patients are more important than targets to my organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I think of being a paramedic as 'a career', not just a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I think paramedics should have to regularly update their skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Paramedics have special qualities which mark them out from other professions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. The paramedic profession is vital to society	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Becoming a paramedic requires a high degree of expertise and knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. It is important that paramedics have their own professional organisations (such as the College of Paramedics)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. It is important that paramedics are a regulated profession with a protected register	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Paramedics are as valued by the general public as fire fighters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Paramedics are as valued by the general public as police officers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Paramedics are as valued by the general public as nurses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Paramedics are as valued by the general public as doctors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I feel I represent the ambulance service when I am wearing the uniform in public	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I try to always act in a manner that brings credit to the profession	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Members of the public expect paramedics to be professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. It is not always possible to follow codes of conduct to the letter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. It is not always possible to follow procedures exactly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I have occasionally realised after the event that I did not follow the rules regarding informed consent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. It is a waste of time to report a minor collision in an ambulance, if there was no damage and no one else was involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. It is a waste of time reporting a near miss if no one was aware of it and there were no adverse consequences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Sometimes there are good reasons to delay making myself available for the next job after taking a patient to hospital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If I witnessed a paramedic delivering substandard care...	Strongly disagree ¹	Disagree ²	Neither agree nor disagree ³	Agree ⁴	Strongly agree ⁵
27. ...I would intervene directly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. ...I would report them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate how often you do the following:	Never¹	Rarely²	Sometimes³	Often⁴	Always⁵	N/A⁶
61. Get bored in training about non-clinical elements of practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62. Seek help when I need it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63. Take the initiative to improve or correct my behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64. Accept constructive criticism in a positive manner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65. Make sure my uniform is well presented (ironed, shoes polished)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
66. Make sure I look clean, tidy and well-groomed at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67. Adjust how I speak to different patients (e.g. how formal to be, vocabulary to use)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
68. Adjust how I speak to different colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
69. Tailor information to a patient's or relative's needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70. Post comments about work on the internet (e.g. Facebook, other social media)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
71. Discuss a bad job with family or friends outside work as a way of coping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How much do you agree with the following statements?	Strongly disagree¹	Disagree²	Neither agree nor disagree³	Agree⁴	Strongly agree⁵	N/A⁶
72. I have a good work/life balance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73. Being a paramedic is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. Being a paramedic makes me feel good about myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Indicate how much you define yourself as a member of each of these groups...	Not at all¹	Slightly²	To some extent³	Very Much⁴	Completely⁵
75. ... a paramedic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76. ... a healthcare professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. a) ... a member of an emergency service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. b) ... a member of an essential service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78. ... a university student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79. ... a student paramedic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions will allow us to compare the responses of different groups.

<p>80. What is your job? Qualified Paramedic <input type="checkbox"/>¹ Student Paramedic <input type="checkbox"/>² EMT <input type="checkbox"/>³ Other <input type="checkbox"/>⁴ (please specify)</p>	<p>81. How long have you been in your current job? </p>
<p>If you are a QUALIFIED paramedic...</p> <p>82. ...what year did you qualify? </p>	<p>83. What course did you complete? BSc/Honours Degree <input type="checkbox"/>¹ Foundation Degree <input type="checkbox"/>² Institute of Healthcare Development (IHCD) course <input type="checkbox"/>³ Other <input type="checkbox"/>⁴ (please specify)</p>

If you are a STUDENT paramedic.....

84. ...what course are you on?

- BSc/Honours Degree ¹ Foundation Degree ²
Institute of Healthcare Development (IHCD) course ³
Other ⁴ (please specify)

85. What year of the course are you on?

- 1st Year ¹ 2nd Year ²
3rd Year ³ 4th Year ⁴

86. Are you...?

- Male ¹ Female ²
Do not wish to disclose ³

87. What is your age?

- 18-24 ¹ 25-34 ² 35-44 ³ 45-54 ⁴
55 or over ⁵ Do not wish to disclose ⁶

88. Have you worked in the ambulance service before your current job/studies?

- Yes ¹ (go to q.89) No ² (go to q.91)

89. If yes, what was your job?

- EMT ¹ ECSW ² Dispatcher ³
Other ⁴ (please specify)

90. In total, how long have you worked for the ambulance service, in any role?

.....

91. Have you worked in any of the following sectors before working/training for the ambulance service?

- Health service (apart from ambulance service) ¹ Social care ²
Police service ³ Fire service ⁴ Armed forces ⁵

92. Do you have any other comments about the issues covered in the questionnaire that you think would be helpful to us?

Thank you for your participation

REMEMBER TO DETACH THE COVER SHEET BEFORE RETURNING THE QUESTIONNAIRE.

Return to Madeline Carter, Research Fellow, Centre for Medical Education Research, Durham University, Burdon House, Leazes Road, Durham, DH1 1TA.

Appendix B: Description of Measurement Model Development (Factor Analysis)

Parallel Analysis

The purpose of parallel analysis is to identify the maximum number of dimensions (or factors) in a dataset, to guide factor analysis.

The dataset was split in order to generate a dataset for identifying provisional concepts, and a second, 'independent' dataset, following conventions on factor analysis. Following consultation with a psychometrician, parallel analysis was conducted using polychoric analysis in Factor version 9.2 (statistical software). Attitudinal and behavioural scales, such as those used in the questionnaire, are typically analysed as continuous scales. In polychoric analysis, the data are treated as ordinal rather than interval. With ordinal data, the order of values is meaningful, but the difference between values is not. This means that the analysis recognised that, for example, an 'agree' response is between a 'strongly agree' response and a 'neither agree nor disagree' response; but it did not assume that there was an equal difference between individuals who gave a 'strongly agree' and 'agree' response and between individuals who gave an 'agree' and 'neither agree nor disagree' response. This approach reduced the probability of identifying artefactual dimensions in the exploratory factor analysis (EFA).

The parallel analysis found that we should identify no more than seven factors in the EFA, although we can use fewer than seven factors based on theoretical judgement.

Exploratory Factor Analysis

Factor analysis is a statistical method used to describe variability among observed, correlated variables. It identifies underlying factors by correlating homogenous items to create new, unobserved variables called factors. It also allows a reduction in the number of items contributing to the identification of a factor, therefore reducing the number of redundant items.

Exploratory factor analysis (EFA) is used to identify complex relationships among items that are part of unified concepts. The researcher makes no *a priori* assumptions about relationships among factors. Following the results of the parallel analysis, an EFA was conducted in MPlus to identify the underlying factor structure of dataset A. Fit refers to how well the hypothesised model reproduces the actual data. A seven-factor solution was identified with adequate fit (CFI = 0.905, TLI = 0.885). Six- and five-factor solutions were also tested but they demonstrated inferior fit. Items with factor loadings of >0.4 were examined and items which did not meet this criteria were excluded. Crossloadings of items onto multiple factors were examined and the questionnaire was refined further. Factors were checked for theoretical coherence and to ensure coverage of the construct of professionalism.

What does this tell us?

Based on the relationships between the items, EFA found that there were seven professionalism factors.

Confirmatory Factor Analysis on a provisional dataset (Dataset A)

Confirmatory factor analysis (CFA) is a theoretically-driven statistical procedure designed to develop and test measurement models. A CFA tests hypothetical associations between items and factors, as suggested by the outcome of an EFA. During the CFA process, it was important to ensure coverage of the construct of professionalism while still refining the model to maximise fit. Modification indices show the potential improvement in model fit if a particular item is removed or is allowed to correlate with other factors, and therefore may direct the researcher to refine the model.

To further refine and test the factor structure underlying the questionnaire, a CFA was conducted on the original dataset. This process tests the interpretation of the EFA using the same dataset (Hurley et al., 1997).

Models tested contained no double-loading indicators and all measurement error was presumed to be uncorrelated. Goodness of fit was assessed using the comparative fit index (CFI), the Tucker-Lewis index (TLI) and the root mean square error of approximation (RMSEA). Following guidance from (Brown, 2006), satisfactory fit was defined by the following criteria: CFI (≥ 0.9), TLI (≥ 0.9), RMSEA (close to ≤ 0.06). Confidence intervals (90%) around RMSEA, in which the upper limit is close to ≤ 0.06 are also an indicator of fit.

The original seven factor solution was submitted to CFA. Model fit statistics fell below the satisfactory standards for model fit as defined by CFI (CFI = 0.66). The comparative fit index (CFI) analyzes the model fit by examining the discrepancy between the data and the hypothesized model, while adjusting for the issues of sample size. CFI values range from 0 to 1, with larger values indicating better fit; a CFI value of .90 or larger is generally considered to indicate acceptable model fit.

An iterative process of refining the model on conceptual and statistical grounds and testing for fit was conducted. Firstly, all items with factor loadings of less than 0.45 in the EFA were deleted. This eliminated items with relatively low loadings on their respective factors. In addition, one 3-item factor was dropped for both statistical and conceptual reasons: two of the item loadings were below 0.45 and the third was borderline at 0.451; and these items did not share a discernable theoretical connection. This resulted in a refined six-factor model which demonstrated some improvements on model fit indices, but still fell short of adequate standards.

Secondly, modification indices were examined to improve model fit. After checking for theoretical importance, three items which had high crossloadings (loadings on more than one factor) were deleted sequentially. The model was tested after each deletion and satisfactory fit was achieved. The possibility of a second-order 'g factor' representing an overall construct of professionalism was also tested, but this did not improve model fit. Model fit statistics with this six-factor structure with 37 items was satisfactory: CFI = 0.913, TLI = 0.906, RMSEA = 0.059.

This model was tested on the new, independent data and satisfactory fit was achieved. However, on examination of the standardized factor loadings for this model, the loading of one item onto the relevant factor fell below desirable levels (< 0.3). This item was deleted and re-tested on the original dataset and model fit remained satisfactory.

The final CFA model, original EFA loadings and standardized CFA are presented in Table 1. Model fit for this six-factor structure with 36 items was satisfactory: CFI = 0.913, TLI = 0.905, RMSEA = 0.060 (90% CI: 0.056-0.065).

With a model structure with many factors, it is important to strike a balance between over-specifying a model to fit a particular dataset (which would improve model fit) and ensuring that the final factor structure will be generalizable to new datasets. Therefore, adequate model fit was accepted.

What does this tell us?

Further testing identified the items that best explained professionalism as well as redundant items. By dropping those items that did not contribute significantly, these analyses refined the structure into a six-factor model with 36 items.

Confirmatory Factor Analysis on the 'prediction' dataset (Dataset B)

The final stage of structure validation involves testing the factor structure on an independent dataset. This is to ensure that the structure generalizes beyond the dataset on which it was developed. Following this protocol, a CFA was conducted on the new dataset (n=195). Any repeat respondents (i.e. individuals who had completed questionnaires for both the original and new datasets) were excluded from this analysis.

Given the large number of factors, it can be challenging to achieve conventional levels of model fit (Marsh, Hau & Wen, 2004). However, the six-factor model presented in Table 1 was tested on the new dataset and demonstrated satisfactory model fit: CFI = 0.916, TLI = 0.909, RMSEA = 0.049 (90% CI: 0.042-0.056). Therefore, the proposed six-factor structure generalized to an independent dataset with satisfactory fit and was accepted as the final model.

Excluded items

Following model testing and refinement, 36 items were excluded from the questionnaire. Items were initially deleted based on the magnitude of their factor loadings from the EFA, then based on the magnitude of their cross-loading with other factors in the CFA (as identified in the modification indices). The final adjustment to the factor structure was in response to the standardized beta coefficients of the model when tested on independent data.

Each deletion was considered according to conceptual criteria as well as statistical criteria. Specifically, the item was examined to assess its theoretical importance, whether it was theoretically related to other items loading on a given factor, whether removal of the item would limit the conceptual breadth of coverage of the questionnaire (e.g. would it eliminate coverage of one of Wilkinson's five clusters of professionalism), and whether the item was redundant and the concept was represented by other items. This process ensured that key dimensions of professionalism were still represented, to maintain construct validity.

Table B1: Items excluded from the questionnaire

Deleted from EFA for loading <0.4

- Q8. I think paramedics should have to regularly update their skills
- Q11. Becoming a paramedic requires a high degree of expertise and knowledge
- Q13. It is important that paramedics are a regulated profession with a protected register
- Q20. Members of the public expect paramedics to be professional
- Q24. It is a waste of time to report a minor collision in an ambulance, if there was no damage and no one else was involved
- Q25. It is a waste of time reporting a near miss if no one was aware of it and there were no adverse consequences
- Q26. Sometimes there are good reasons to delay making myself available for the next job after taking a patient to hospital
- Q28. If I witnessed a paramedic delivering substandard care, I would report them
- Q31. Think patients may be responsible for their problems (through alcohol, drug misuse, obesity)
- Q33. Allow my liking or dislike for patients to affect the way I approach them
- Q36. Enjoy talking to patients
- Q38. Disclose personal information about myself to patients
- Q43. Work well with other healthcare professions, in general
- Q44. Talk or don't pay attention during lectures or training courses
- Q46. Leave station duties for other people
- Q47. Arrive late for work
- Q48. Check equipment at the start of a shift
- Q49. Complete the appropriate paperwork as soon as I am able to, after each job
- Q52. Think about my next break or end of shift when I am working
- Q53. Think doing a job 'well enough' is acceptable
- Q54. Feel able to justify my actions/clinical decisions
- Q61. Get bored in training about non-clinical elements of practice
- Q70. Post comments about work on the internet (e.g. Facebook, other social media)
- Q71. Discuss a bad job with family or friends outside work as a way of coping

Deleted from CFA for high cross-loadings

- Q50. Take responsibility for my own work
- Q60. Feel enthusiastic about going to work
- Q67. Adjust how I speak to different patients (e.g. how formal to be, vocabulary to use)

Deleted for loading on EFA <0.45

- Q9. Paramedics have special qualities which mark them out from other professions
- Q23. I have occasionally realised after the event that I did not follow the rules regarding informed consent
- Q27. If I witnessed a paramedic delivering substandard care.....I would intervene directly
- Q32. Treat all patients with respect and sensitivity
- Q35. Listen carefully to patients' concerns
- Q45. Arrive late for training/classes
- Q55. Act decisively in critical situations
- Q62. Seek help when I need it

Deleted for loading on CFA <0.4

- Q10. The paramedic profession is vital to society

Appendix C: Professionalism Questionnaire (short version for measurement)

Professionalism at Work Questionnaire for Qualified Paramedics, Student Paramedics and EMTs

This survey aims to improve our understanding of what constitutes 'professionalism', which is a subject of great interest in all areas of healthcare.

Responses will only be seen by researchers at Durham University, and are completely anonymous. Please answer as honestly as you can to make sure our data is meaningful.

The questionnaire is designed to be completed by different groups including qualified and student paramedics and EMTs. If a question does not apply to you, please tick the 'N/A' box.

The survey should take no more than 20 minutes to complete. There is the opportunity at the end for you to make any comments about any of the issues raised in the questionnaire.


1. Overall, I think my standard of professionalism is...(please circle a number)

1	2	3	4	5	6	7	8	9
-----Unsatisfactory-----			-----Satisfactory-----			-----Superior-----		

Where unsatisfactory includes: Lacks respect, compassion, integrity, honesty; disregards need for self-assessment; fails to acknowledge errors; does not consider needs of patients, families, or colleagues; does not display responsible behaviour

Superior includes: Always demonstrates respect, compassion, integrity, honesty; teaches/role models responsible behaviour; total commitment to self-assessment; willingly acknowledges errors; consistently considers needs of patients, families, or colleagues

2. Mark the line to indicate where you think your professionalism lies compared to other paramedics you know:



Much lower	About the same	Much higher
------------	----------------	-------------

2a. I behave professionally at all times (please tick)

Strongly disagree <input type="checkbox"/> ¹	Disagree <input type="checkbox"/> ²	Neither agree nor disagree <input type="checkbox"/> ³	Agree <input type="checkbox"/> ⁴	Strongly agree <input type="checkbox"/> ⁵
--	---	---	--	---

Please indicate how often you do the following:	Never¹	Rarely²	Sometimes³	Often⁴	Always⁵	N/A⁶
25. Approach work in an organised way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Read books and articles on paramedic practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Attend training which is not mandatory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Keep my CPD portfolio up to date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Regularly refresh my skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Take the initiative to improve or correct my behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Accept constructive criticism in a positive manner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Make sure my uniform is well presented (ironed, shoes polished)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Make sure I look clean, tidy and well-groomed at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Adjust how I speak to different colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Tailor information to a patient's or relative's needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How much do you agree with the following statements?	Strongly disagree¹	Disagree²	Neither agree nor disagree³	Agree⁴	Strongly agree⁵	N/A⁶
36. I have a good work/life balance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Being a paramedic is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Being a paramedic makes me feel good about myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Indicate how much you define yourself as a member of each of these groups...	Not at all¹	Slightly²	To some extent³	Very Much⁴	Completely⁵
39. ... a paramedic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. ... a healthcare professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. a) ... a member of an emergency service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. b) ... a member of an essential service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. ... a university student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. ... a student paramedic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions will allow us to compare the responses of different groups.

44. What is your job? Qualified Paramedic <input type="checkbox"/> ¹ Student Paramedic <input type="checkbox"/> ² EMT <input type="checkbox"/> ³ Other <input type="checkbox"/> ⁴ (please specify)	45. How long have you been in your current job?
If you are a QUALIFIED paramedic... 46. ...what year did you qualify?	47. What course did you complete? BSc/Honours Degree <input type="checkbox"/> ¹ Foundation Degree <input type="checkbox"/> ²

.....
Institute of Healthcare Development (IHCD) course ³

Other ⁴ (please specify)

If you are a STUDENT paramedic.....

48. ...what course are you on?

BSc/Honours Degree ¹ Foundation Degree ²

Institute of Healthcare Development (IHCD) course ³

Other ⁴ (please specify)

49. What year of the course are you on?

1st Year ¹ 2nd Year ²

3rd Year ³ 4th Year ⁴

50. Are you...?

Male ¹ Female ²

Do not wish to disclose ³

51. What is your age?

18-24 ¹ 25-34 ² 35-44 ³ 45-54 ⁴

55 or over ⁵ Do not wish to disclose ⁶

52. Have you worked in the ambulance service before your current job/studies?

Yes ¹ (go to q.89) No ² (go to q.91)

53. If yes, what was your job?

EMT ¹ ECSW ² Dispatcher ³

Other ⁴ (please specify)

54. In total, how long have you worked for the ambulance service, in any role?

.....

55. Have you worked in any of the following sectors before working/training for the ambulance service?

Health service (apart from ambulance service) ¹ Social care ²

Police service ³ Fire service ⁴ Armed forces ⁵

56. Do you have any other comments about the issues covered in the questionnaire that you think would be helpful to us?

Thank you for your participation

**REMEMBER TO DETACH THE COVER SHEET BEFORE
RETURNING THE QUESTIONNAIRE.**

**Return to Madeline Carter, Research Fellow, Centre for Medical Education Research,
Durham University, Burdon House, Leazes Road, Durham, DH1 1TA**

Appendix D: Repeated measures analyses

Table D1 shows the results for the 48 students who completed a questionnaire in year 1 and in year 2. This indicates that scores on organisational and professional care, positive/proactive professional behaviours, and professional identity and pride declined between year 1 and year 2. There was no statistically significant change between year 1 and year 2 scores on the remaining three factors. There was an increase in self-rated overall professionalism on the ABIM measure, but no difference on the self-rated relative measure or the trainer ratings.

Table D1: Change in professionalism factor scores and ratings (self, trainer) between Year 1 and Year 2

Variable	Time 1 Mean	Time 2 Mean	t	df	p
Professionalism Factors					
F1: Feeling valued by the public	3.49	3.47	0.14	47	.892
F2: Appropriate behaviours	3.24	3.09	1.85	47	.070
F3: Organisational and professional care	3.78	3.52	3.72	47	.001
F4: Positive/proactive professional behaviours	4.65	4.52	2.83	46	.007
F5: Professional identity and pride	4.79	4.67	3.00	47	.004
F6: Learning orientation	3.88	3.79	1.58	47	.122
Professionalism Ratings					
Self-rated ABIM	7.00	7.36	2.07	44	.044
Self-rated relative	6.03	6.17	0.72	45	.478
Trainer-rated ABIM	4.83	4.79	0.26	47	.796

Table D2 presents the results for the 19 students who completed a questionnaire in year 1 and again in year 3. The results suggest that professionalism scores on five of the six factors deteriorated over time (appropriate behaviours, organisational and professional care, positive/proactive professional behaviours, professional identity and pride, learning orientation), but there was no change on feeling valued by the public. However, there was an increase in self-rated overall professionalism on the ABIM measure, but no difference on the self-rated relative measure or the trainer ratings.

Table D2: Change in professionalism factor scores and ratings (self, trainer) between Year 1 and Year 3

Variable	Time 1 Mean	Time 2 Mean	t	df	p
Professionalism Factors					
F1: Feeling valued by the public	3.01	2.99	0.16	17	.873
F2: Appropriate behaviours	3.55	3.06	5.04	18	<.001
F3: Organisational and professional care	4.23	2.98	10.87	18	<.001
F4: Positive/proactive professional behaviours	4.68	4.40	2.97	18	.008
F5: Professional identity and pride	4.82	4.24	5.78	18	<.001
F6: Learning orientation	4.14	3.53	6.07	18	<.001
Professionalism Ratings					
Self-rated ABIM	6.59	7.41	2.75	16	.014
Self-rated relative	5.07	5.47	4.57	14	.138
Trainer-rated ABIM	6.16	5.89	1.32	18	.205

Table D3 presents the results for the 15 students who completed a questionnaire in year 1 and again in year 4. Again, the results indicated that scores on four of the professionalism factors declined between year 1 and year 4: organisational and professional care, positive/proactive professional behaviours, professional identity and pride, and learning orientation. No statistically significant change was observed on feeling valued by the public or appropriate behaviours. There was an increase in self-rated relative professionalism, but no change on the self-rated ABIM or trainer-rated ABIM measures.

Table D3: Change in professionalism factor scores and ratings (self, trainer) between Year 1 and Year 4

Variable	Time 1 Mean	Time 2 Mean	t	df	p
Professionalism Factors					
F1: Feeling valued by the public	3.22	3.13	0.31	14	.760
F2: Appropriate behaviours	2.79	2.66	0.74	14	.470
F3: Organisational and professional care	4.01	2.69	6.66	14	<.001
F4: Positive/proactive professional behaviours	4.59	4.35	2.40	14	.031
F5: Professional identity and pride	4.72	4.19	3.43	14	.004
F6: Learning orientation	4.00	3.61	3.98	14	.001
Professionalism Ratings					
Self-rated ABIM	6.62	6.77	0.56	12	.584
Self-rated relative	5.60	6.27	2.32	14	.036
Trainer-rated ABIM	5.50	5.00	2.19	13	.047

Table D4 presents the results for the 20 students who first completed a questionnaire in year 2 and again in year 3. Of the professionalism factors, there was a reduction on appropriate behaviours between years 2 and 3, but no significant changes was observed on the other five factors. Of the overall measures of professionalism, there was an increase in self-rated relative professionalism, but no change on the self-rated ABIM. However, there was a significant decrease in trainer-rated ABIM measures.

Table D4: Change in professionalism factor scores and ratings (self, trainer) between Year 2 and Year 3

Variable	Time 1 Mean	Time 2 Mean	t	df	p
Professionalism Factors					
F1: Feeling valued by the public	2.89	2.90	0.05	19	.965
F2: Appropriate behaviours	2.98	2.68	2.89	19	.009
F3: Organisational and professional care	3.44	3.25	1.83	19	.083
F4: Positive/proactive professional behaviours	4.41	4.40	0.26	19	.796
F5: Professional identity and pride	4.41	4.40	0.10	19	.922
F6: Learning orientation	3.73	3.68	0.53	19	.605
Professionalism Ratings					
Self-rated ABIM	6.95	7.05	0.44	19	.666
Self-rated relative	5.66	6.21	4.19	18	.001
Trainer-rated ABIM	5.90	5.35	2.77	19	.012

Table D5 presents the results for the 17 students who first completed a questionnaire in year 2 and again in year 4. There were statistically significant reductions in scores on three of the six professionalism factors (feeling valued by the public, organisational and professional care, and professional identity and pride), but an increase in self-rated relative professionalism and trainer-rated professionalism (ABIM). No changes were detected on the self-rated ABIM measure.

Table D5: Change in professionalism factor scores and ratings (self, trainer) between Year 2 and Year 4

Variable	Time 1 Mean	Time 2 Mean	t	df	p
Professionalism Factors					
F1: Feeling valued by the public	3.53	2.91	3.02	16	.008
F2: Appropriate behaviours	2.75	2.73	0.17	16	.864
F3: Organisational and professional care	3.53	3.14	3.60	16	.003
F4: Positive/proactive professional behaviours	4.51	4.45	0.88	16	.390
F5: Professional identity and pride	4.62	4.32	2.89	16	.011
F6: Learning orientation	3.93	3.75	1.67	16	.114
Professionalism Ratings					
Self-rated ABIM	7.19	6.94	1.73	15	.104
Self-rated relative	5.88	6.75	2.30	15	.036
Trainer-rated ABIM	5.00	5.41	2.38	16	.030

Appendix E: Prediction of global measures of professionalism (self-rated and trainer-rated ABIM)

Linear and logistic regression analyses were conducted to test whether the professionalism factors predicted the self-rated and trainer-rated ABIM global measures of professionalism.

Prediction of Self-rated ABIM

The six professionalism factors were regressed onto the global ABIM self-rating. Results indicated that, taken together, the six factors accounted for 13% of the variance in the ABIM self-rating ($R^2=0.131$, $p<.001$). Therefore, the professionalism factors predicted a significant amount of the variance in ABIM self-ratings, but there remains a considerable portion of unexplained variance, suggesting that there are other influences on the ABIM measure that are not captured in this model.

Table E1 presents the coefficients from separate regression analyses, along with the results of significance tests. Larger standardized beta coefficients indicate which variables have a greater influence on the ABIM measure. Results indicate that all factors have a significant influence on ABIM self-ratings, and the largest betas were for positive/proactive professional behaviours, and professional identity and pride.

Table E1: Coefficients for ABIM self-rating regressed onto professionalism factors

Predictor variables	Standardized Beta Coefficient	t	Significance
F1: Feeling valued by the public	.111	2.79	.005
F2: Appropriate behaviours	.192	4.92	<.001
F3: Organisational and professional care	.112	2.83	.005
F4: Positive/proactive professional behaviours	.300	7.90	<.001
F5: Professional identity and pride	.249	6.47	<.001
F6: Learning orientation	.166	4.23	<.001

Logistic Regression

Although conducting linear regression is a conventional approach to exploring the concurrent validity of scales for the prediction of related measures (e.g. global ABIM), this approach has some issues in relation to these criterion measures. Global items (particularly trainer ratings) often do not discriminate well in the middle range of the distribution, although they tend to identify individuals at the extremes. This was evident in the global self-ratings, which tended to cluster together, and the majority rated themselves as 7 or 8 on the 9-point ABIM measure (see Figure 3). This may be problematic for linear regression, which uses the range of scores on the global measures.

To address some of these concerns, logistic regression was conducted to test whether the professionalism factors could predict whether an individual was rated as low or high on global professionalism, by themselves (ABIM self-rating) and by trainers (trainer ABIM, reported in the 'Prediction of Trainer ABIM section below).

For the prediction of low or high self-rated ABIM, the sample was split into two groups. Examination of the frequency graph (see Figure 3) showed that the majority rated themselves as 7 on a 9-point scale, and the lowest self-rating was 4. Therefore, 'low self-rated ABIM' was defined as self-rating as 6 or lower, and 'high self-rated ABIM' was defined as self-rating as 8 or 9 on the self-rated ABIM. These categories excluded individuals who self-rated as 7.

The predictor variables included all six professionalism factors. Due to the correlation between predictors, they were tested separately in univariate logistic regression analyses and odds ratios were calculated.

Predicting low self-rated professionalism

Table E2 presents the odds ratios for the factors predicting self-rated low professionalism.

Table E2: Odds ratios for factors predicting self-rated low professionalism

Factor	Odds Ratio	Sig
F1: Feeling valued by the public	.784	.023
F2: Appropriate behaviours	.462	<.001
F3: Organisational and professional care	.736	.070
F4: Positive/proactive professional behaviours	.094	<.001
F5: Professional identity and pride	.289	<.001
F6: Learning orientation	.518	.001

The results indicate that all of the factors, except organisational and professional care, significantly predict global self-ratings of low professionalism.

The odds ratios show that, on average:

- For every one point increase in the factor score on feeling valued by the public, the odds of being self-rated as low on global professionalism decrease by 22%.
- For every one point increase in the factor score on appropriate behaviours, the odds of being self-rated as low on global professionalism decrease by 54%.
- For every one point increase in the factor score on positive/proactive professional behaviours, the odds of being self-rated as low on global professionalism decrease by 91%.
- For every one point increase in the factor score on professional identity and pride, the odds of being self-rated as low on global professionalism decrease by 71%.
- For every one point increase in the factor score on learning orientation, the odds of being self-rated as low on global professionalism decrease by 48% (i.e, the odds are roughly halved for every point on the factor).

Predicting high self-rated professionalism

These analyses were repeated to predict high levels of self-rated global professionalism. Results are presented in Table E3.

Table E3: Odds ratios for factors predicting self-rated high professionalism

Factor	Odds Ratio	Sig
F1: Feeling valued by the public	1.275	.023
F2: Appropriate behaviours	2.165	<.001
F3: Organisational and professional care	1.359	.070
F4: Positive/proactive professional behaviours	10.640	<.001
F5: Professional identity and pride	3.462	<.001
F6: Learning orientation	1.929	.001

The results indicated that all of the factors, except organisational and professional care, significantly predicted global self-ratings of high professionalism.

The odds ratios show that, on average:

- For every one point increase in the factor score on feeling valued by the public, the odds of being self-rated as high on global professionalism increase by 28%.
- For every one point increase in the factor score on appropriate behaviours, the odds of being self-rated as high on global professionalism increase by 117%.
- For every one point increase in the factor score on positive/proactive professional behaviours, the odds of being self-rated as high on global professionalism increase by 10 times.
- For every one point increase in the factor score on professional identity and pride, the odds of being self-rated as high on global professionalism increase by 246%.
- For every one point increase in the factor score on learning orientation, the odds of being self-rated as high on global professionalism increase by 93%.

What does this tell us?

Taken together, these results demonstrate the importance of five of the professionalism factors for the prediction of both low and high self-rated ABIM, specifically: feeling valued by the public, appropriate behaviours, positive/proactive professional behaviours, professional identity and pride, and learning orientation.

Prediction of Trainer ABIM

The six professionalism factors were regressed onto the global trainer ABIM. Results indicated that, taken together, the six factors accounted for only 7.7% of the variance in the trainer ABIM ($R^2=0.077$, $p=0.004$). As with the ABIM self-rating, the professionalism factors predicted a statistically significant amount of the variance in trainer ABIM ratings, but there remains a considerable portion of unexplained variance, suggesting that the trainer ABIM measure is influenced by other factors that are not captured in this model.

Table E4 presents the coefficients from separate regression analyses, along with the results of significance tests. Results indicate that scores on positive/proactive professional behaviours and learning orientation have a significant influence on trainer ABIM.

Table E4: Coefficients for trainer ABIM regressed onto professionalism factors

Predictor variables	Standardized Beta Coefficient	t	Significance
F1: Feeling valued by the public	.014	.22	.827
F2: Appropriate behaviours	-.063	-.98	.327
F3: Organisational and professional care	-.108	-1.69	.093
F4: Positive/proactive professional behaviours	.147	2.31	.022
F5: Professional identity and pride	.104	1.62	.108
F6: Learning orientation	.175	2.76	.006

Logistic Regression

As described above, using multiple linear regression for the prediction of trainer global ratings can be problematic. Trainer global ratings in particular may be useful for identifying extremes of high or low professionalism, but they do not typically differentiate well in the middle of the range. This was

supported by feedback from trainers, who indicated that most students were assigned a middle range rating, unless the trainers were aware of them being particularly low or high on professionalism (e.g. the student had been brought to their attention because they were performing poorly). Examination of the frequency graph (see Figure 5) also shows that the majority of students received a trainer rating of 5 or 6 (on a 9-point scale).

For the prediction of low or high trainer ABIM, the sample was split into two groups. The trainers rated most students as 5 on a 9-point scale, and they used the full range of the scale. Therefore, 'low trainer ABIM' was defined as a rating of 4 or lower, and 'high trainer ABIM' was defined as rating of 6 or higher on the trainer ABIM measure. These categories excluded individuals who were rated as 5.

Predicting low trainer-rated professionalism

Logistic regression was conducted to predict the probability that the trainer rated a student as low on the global professionalism measure (trainer ABIM). As before, the predictor variables included all six professionalism factors, tested in univariate logistic regression analyses. Table E5 presents the odds ratios for the factors predicting low trainer ABIM scores.

Table E5: Odds ratios for factors predicting low trainer ABIM

Factor	Odds Ratio	Sig
F1: Feeling valued by the public	1.015	.928
F2: Appropriate behaviours	1.161	.595
F3: Organisational and professional care	1.292	.402
F4: Positive/proactive professional behaviours	0.367	.049
F5: Professional identity and pride	0.720	.394
F6: Learning orientation	0.581	.094

The results indicated that the factor measuring positive/proactive professional behaviours predicted trainer ratings of low professionalism. The odds ratios show that, on average, for every one point increase in the factor score on positive/proactive professional behaviours, the odds of being rated by trainers as low on global professionalism decrease by 63%. None of the remaining five factors significantly predicted trainer ratings of low professionalism.

Predicting high trainer-rated professionalism

These analyses were repeated to predict high levels of trainer-rated global professionalism (ABIM scores). Results are presented in Table E6.

Table E6: Odds ratios for factors predicting high trainer-rated ABIM

Factor	Odds Ratio	Sig
F1: Feeling valued by the public	0.985	.928
F2: Appropriate behaviours	0.861	.595
F3: Organisational and professional care	0.774	.402
F4: Positive/proactive professional behaviours	2.725	.049
F5: Professional identity and pride	1.389	.394
F6: Learning orientation	1.722	.094

The odds ratios indicate that, on average, for every one point increase in the factor score on positive/proactive professional behaviours, the odds of being rated by trainers as high on global

professionalism increase by 173%. The other factors do not significantly predict the odds of trainers rating an individual as high on global professionalism.

What does this tell us?

These results demonstrate the importance of measuring 'positive/proactive professional behaviours' for the prediction of trainer ratings of professionalism.

Appendix F: Summary notes from the focus groups and Interviews

ITEM		COMMENTS
1.	What is your profession?	
2.	Overall, I think my standard of professionalism is	<ul style="list-style-type: none"> • Put text first as text explains coding? change superior to superior/high (FG1) • Consider wording change to: how would your line manager rate you on the following Qn? (FG2) • Questions works well as it is, descriptions useful (FG3) • Unsure about use of word “superior” (do we want to encourage people to think they’re superior to their colleagues?) (Int2) • Happy with item but mentioned the emphasis lately on “candor” which is absent (Int3) • Not very sure about word “superior” (made them think of better than somebody else, a bit of an arrogant term). (Int4; FG5). Suggested “advanced” (FG5). • The examples were helpful (Int4) • Very subjective question. One may under sell themselves e.g. lack confidence, self-perception. (FG5) • Preferred the numbers to the labels(FG6) • Felt this was a bit of a value judgement. Uncomfortable with word ‘superior’, it sounds a bit cocky (FG6) • Lot of text – not helpful (FG7) • Numbers not helpful – subjective. E.g what’s the difference between a 7 & 8? (FG7) • Maybe better to have Q2 at end of questionnaire (FG7 only said this) because all the other questions follow what you’ve answered here. E.g. if you have scored yourself superior then you may feel that you have to score yourself high on all of the other questions (FG5; FG7)
3.	Mark the line to indicate where you think your professionalism lies compared to other colleagues in your profession	<ul style="list-style-type: none"> • A bit tricky – colleagues as a whole? What different levels of colleagues? Colleagues are very broad in this service (Int4) • Very subjective question. One may under sell themselves e.g. lack confidence, self-perception. (FG5) • Uncomfortable comparing themselves with others, especially taking into account different levels of experience (FG6) • Suggest putting same scale as Q2 (FG7)
4.	The organisation I work for allows me to be professional	<ul style="list-style-type: none"> • Change “allows” to “supports” (FG1) • Keep allow (FG2; FG4; FG7; Int4) • Happy with “allows” or “facilitates”, when asked (FG6)

		<ul style="list-style-type: none"> • Given how different these are, keep allow (FG3) • Keep allow (important for NHS post-Francis report) (Int 2) • Change “allows” to “supports” or “encourages” (FG5) • The “organisation” may need to be made distinct to the “department” (FG5) • Fine with ‘allows’ (FG6) • Are we talking about organisation, department or self? Department and organisation are not the same consider separating out(FG7) • Not good question for individual practitioners (FG7)
5.	The organisation I work for looks after my welfare	<ul style="list-style-type: none"> • Same as above (FG7) • Qs 5-7 should give a good range of answers (FG6)
6.	The organisation I work for is professional	<ul style="list-style-type: none"> • Consider a glossary at the beginning to define “professional”/”professionalism” (Int 3) • A bit of a funny question because thought of it as NHS as a whole, very broad, a bit hard to answer, but ok to keep (Int4)
7.	Service users are more important than targets to my organisation	<ul style="list-style-type: none"> • Thought wording was bit unclear (FG5)
8.	I think of working in my profession as ‘a career’, not just a job	<ul style="list-style-type: none"> • Change “career” for “vocation” (felt that ‘career’ implies getting as high as I can be (FG2) • Stick to “career”, better understood than vocation (FG3) • Keep “career” (FG4; Int2; Int3; FG6) • Didn’t really understand - think of career as job, but ok to keep (Int4)
9.	I think those in the health and care professions, including mine, should have to regularly update their skills	<ul style="list-style-type: none"> • This is a requirement from HCPC (FG6)
10.	Those in my profession have special qualities which mark them out from other professions	<ul style="list-style-type: none"> • Suggest remove “special” (FG3) • Remove “special”, it sounds a bit superior (FG3) • Remove “special” (FG4) • Not clear about “special” (me personally, or my profession?) Delete “special” (Int 2) • Suggest change “special” to “unique” (Int3) • Not sure about use of word “special” (makes you think “do you mean my profession is superior to others?”). Prefer “unique” (Int4) • Replace “special” with “core” happy with “unique” when asked (FG5) • Replace “special qualities” with “knowledge and skills” (FG6)

		<ul style="list-style-type: none"> • Remove “special” and just keep “qualities” (FG7)
11.	My profession is vital to society	<ul style="list-style-type: none"> • Change “vital” to “important” (FG1, FG6 FG7) • Social workers liked “vital” (FG2) • Keep vital (FG3; FG4; Int 2; Int 3) • Keep vital, but consider moving this question to just before question 15, it seems to fit better there (Int4) • Liked as a question (FG5)
12.	Becoming a professional in my profession requires a high degree of expertise and knowledge	<ul style="list-style-type: none"> • Add in “practitioner” after “professional” (FG1; FG2; FG5) • Not sure about this question/may need further work/what are we getting at here? (FG1) • Like the addition of practitioner (FG3) • Like the addition of practitioner (FG4) • Addition of practitioner possibly makes it stronger, but question is understandable either way (Int 2) • Think the item is worded clumsily. Consider “Becoming registerable in my profession requires a high degree of expertise and knowledge”. This focuses on the registrant part as opposed to definition of “profession”, and takes away the alliteration (Int3) • Inserting “practitioner” would make the question read better (Int4) • Insert “becoming a qualified practitioner” (FG6) • Fine without “practitioner” (FG7) • Term “degree” clear(FG7)
13.	It is important that my profession has its own professional organisation or body	
14.	It is important that my profession is a regulated profession with a protected register	<ul style="list-style-type: none"> • Not clear what protected register is (FG2) • FG3 fine with wording • FG4 fine with wording • Int 2 fine with wording • Unsure about this question – some feel the register is not protective. In absence of alternative wording, keep as is (Int 3)
15.	Those in my profession are as valued by the general public as fire fighters	<ul style="list-style-type: none"> • Change to teachers (FG1) • Happy with both (FG2) • Keep as original (FG3) but consider reducing number of items relating to professional comparisons • Hard to answer because they are not in public view, wouldn’t make any difference if the comparator

		<p>profession was changed (FG4; FG5)</p> <ul style="list-style-type: none"> • Tiny profession, general public don't understand what we do, changing the comparator profession wouldn't make any difference, but fine with the questions being kept in (Int2) • The first 2 comparators are both authoritative, and the last 2 are healthcare. Consider mixing them up to include "teachers" in place of "firefighters" (Int3) • Consider combining "fire fighters" and "police officers" into one question, replacing these with "the emergency services" (Int4) • Also consider additional questions: "as those in educational services e.g. teacher" and: "as those in public services e.g. solicitors" (Int4) • A more suitable question would be if the occupation is known by the public, comparators not appropriate (FG5) • Happy with comparison questions. Issues were around their profession not being a recognised profession by the public (FG6) • Delete Q15-18 as not relevant (FG7)
16.	Those in my profession are as valued by the general public as police officers	<ul style="list-style-type: none"> • Change "police" to "solicitors" • Social workers preferred "police" to "solicitors" but would accept "solicitors"(FG2) • Keep as original (FG3) but consider reducing number of items relating to professional comparisons • FG4 – hard to answer because they are not in public view, wouldn't make any difference if the comparator profession was changed • Int 2: tiny profession, general public don't understand what we do, changing the comparator profession wouldn't make any difference, but fine with the questions being kept in • Int4 – see Q15 above. • Delete Q15-18 as not relevant (FG7; FG8)
17.	Those in my profession are as valued by the general public as nurses	<ul style="list-style-type: none"> • FG4, FG5 – hard to answer because they are not in public view, wouldn't make any difference if the comparator profession was changed • Int 2: tiny profession, general public don't understand what we do, changing the comparator profession wouldn't make any difference, but fine with the questions being kept in • Nurses fine (Int4) • Delete Q15-18 as not relevant (FG7)
18.	Those in my profession are as valued by the general public as doctors	<ul style="list-style-type: none"> • FG4 , FG5– hard to answer because they are not in public view, wouldn't make any difference if the comparator profession was changed • Int 2: tiny profession, general public don't understand what we do, changing the comparator

		<p>profession wouldn't make any difference, but fine with the questions being kept in</p> <ul style="list-style-type: none"> • Doctors fine (Int4) • Delete Q15-18 as not relevant (FG7)
19.	I feel I represent my profession when I am wearing the uniform in public	<ul style="list-style-type: none"> • Not all have a uniform, delete item (FG1) • Delete item (FG2) • Fine with this item (discussion around where is "in public") and happy to answer N/A (FG3) • Biomed scientists discussed changing "profession" to "organisation" • Only got a uniform last year, no national uniform, not a problem keeping the question in (Int 2) • Surprised that this item as implies it is ok to wear a uniform in public – considered a big "no-no" because of cross infection. Perhaps define "in public" more – does it mean public facing but in the workplace? (Int3) • Don't wear a uniform but happy to answer N/A (Int4) • Not allowed to wear a uniform in public (FG5) Is it in public e.g. out of work going to shops or walking around hospital or patients - maybe be more specific e.g. "...in public at work" (FG5) • Need to add context i.e. outside hospital, home visits, in work (saw it as home visits, not allowed to wear uniform in public or to and from work because of cross infection) (FG6) • Would have to put N/A as can't wear uniform in public (FG7)
20.	I try to always act in a manner that brings credit to the profession	
21.	Members of the public expect me to be professional	<ul style="list-style-type: none"> • Context is needed e.g. expect me to be professional while interacting with others • Bit confused with wording "members of the public" maybe make it "within work environment" (FG5) • Could insert "with regard to work issues" at the end of the sentence (FG6)
22.	It is not always possible to follow codes of conduct to the letter	<ul style="list-style-type: none"> • This and item 22 – a hierarchy of guidelines – consider glossary? (Int3) • Change "to the letter" to "100% of the time" (FG5) • Question is a double negative so unclear/misinterpretation (FG5) • Fine with question (FG6) • Word "code of conduct" unclear what is meant by that change to "codes of conduct for your professional body" (FG7)
23.	It is not always possible to follow procedures exactly	<ul style="list-style-type: none"> • As above (Int 3) • Hard to answer because we don't have "procedures", not sure what is meant by procedures (Int4) • Use of double negatives is confusing, change to "it is always possible..." (FG5)

		<ul style="list-style-type: none"> • Fine with question (FG6)
24.	I have occasionally realised after the event that I did not follow the rules regarding informed consent	<ul style="list-style-type: none"> • Don't consent patients, but happy to keep the question in (Int2) • Unsure about use of the word "rules", question took some thinking about and hard to answer because we don't have rules. Changing to "did not fully assess informed consent" would be more meaningful to this profession (Int4) • Unsure about use of the word "occasionally". Sounds too casual and not in keeping with question format (FG5) • Fine with question (FG6) • Big discussion around informed consent – this means different things to different professions (FG7)
25.	It is a waste of time to report a minor incident at work, if there was no harm and no one else was involved	<ul style="list-style-type: none"> • Minor incident not very clear for social workers (FG2) • Fine with wording (including social worker)(FG3) • Fine with wording (FG4; Int 2; Int 3; FG6) • Not clear what this is asking, there can be so many types of "minor incident", it would depend what the incident was and whether it has a direct consequence for patient safety, or is a Health & Safety issue, or note keeping etc. "minor incident involving a client/patient" might be clearer if that is what the question is getting at (Int4)
26.	It is a waste of time reporting a near miss or mistake if no one was aware of it and there were no adverse consequences	<ul style="list-style-type: none"> • As above, not very clear, it could be quite serious or relatively minor (e.g. to do with paperwork). Would answer differently if it said "involving a client/patient" (Int4)
27.	Sometimes there are good reasons to delay making myself available to see the next patient/service user	<ul style="list-style-type: none"> • Suggested changing "patient/service user" to service user/patient (FG4) • Sounds like the professional has a choice about delaying, but the item may be trying to get at how professionals accept events beyond their control. Perhaps consider something in relation to "freedom to act, or alter work schedule to meet patient demands" (Int 3) • Fine with "patient/service user" and order (FG5; FG6; FG7) • Possibly put family/child (FG7)
28.	If I witnessed a colleague (in my profession) delivering substandard care I would intervene directly	<ul style="list-style-type: none"> • Change to "if I witnessed a colleague (in my profession) delivering substandard practice.... (FG2) • Agree with change (FG4) • Agree with change to delivering substandard practice (Int 2) • Both responses (28 and 29) are very harsh for "substandard" care – which could be provided for reasons beyond individual control. Would engage in a process of escalation, the first of which is not considered as a response option. The first point of intervention would be to discuss it with the

		<p>colleague in question. Item 28 suggests more harsh action. If the item is designed to red-flag individuals, consider changing “substandard” for “dangerous” (Int 3)</p> <ul style="list-style-type: none"> • Ok with substandard, saw it as “not doing the best they could” but also a bit unsure about both Qs 28&29 because it would depend whether people would come to harm, or their note keeping wasn’t as good as it should be, or they weren’t giving things their full time and attention. Also need to take circumstances into account e.g. service being very stretched. So, a bit hard to answer. Agreed with change from “care” to “practice” (Int4) • “Substandard care” or “substandard practice” makes sense (FG5) • There is a difference between “substandard” and “dangerous” which may affect responses (FG6) • Fine with stem wording (FG7)
29.	If I witnessed a colleague (in my profession) delivering substandard care I would report them	<ul style="list-style-type: none"> • Is this dependent on first intervening directly and if not successful then report? (FG1) • Didn’t see this as hierarchical (FG2) • This would depend on the rationale (e.g. if a very junior colleague didn’t know they could have had compassionate leave), suggested adding “unless there was a sound rationale for their change in practice” (Int2) • As above - consider changing “substandard” for “dangerous” (Int3) • Int4 as above Q28 • Unclear who this means they would report to (within organisation/dept or HCPC). Make specific i.e. “I would report them to HCPC/line manager/colleagues/formal v informal” etc. (FG5; FG6)
30.	Feel some service users waste the service’s time	<ul style="list-style-type: none"> • The stem “you do” didn’t fit with “feel”. Maybe move questions around so that some that do fit come first (e.g. “Treat”)(Int4) • People may not answer this question honestly (FG6) • Add word patient to read patient/service user (FG7)
31.	See some referrals from other healthcare providers as a waste of time	<ul style="list-style-type: none"> • Delete “from other healthcare providers” (FG1) • Delete “from other healthcare providers” (Int 3; FG2; FG6) <p>(as referrals come from other providers)</p> <ul style="list-style-type: none"> • Change “healthcare providers” for “service providers” (FG3) • Delete “from other healthcare providers” (FG4) • Agree Delete “from other healthcare providers” (some professions will have self-referrals) (Int2) • Change to “from other services” or delete “from other healthcare providers” (Int4) • Fine with healthcare providers (FG7)
32.	Think service users may be	<ul style="list-style-type: none"> • Insert “and/or their carers” (Int4)

	responsible for their problems	<ul style="list-style-type: none"> • Insert “service users and/or primary care givers” (FG5) • Some people might be nervous about answering this (FG6) • Add word patient to read patient/service user (FG7)
33.	Treat all service users with respect and sensitivity	
34.	Allow my liking or dislike for service users to affect the way I approach them	<ul style="list-style-type: none"> • Good question, but might not be answered honestly (FG1) • Hard to answer, soul searching, but ok as a question (FG2) • Vital question, good discussion point (Int 2) • Add word patient to read patient/service user (FG7)
35.	Make sure service users understand what is happening	<ul style="list-style-type: none"> • Sometimes service users with learning difficulties, for example, may struggle to understand. Consider the addition of “or carer” (Int 3) • Insert “and/or their carers”. Suggest change to “what is happening with their care” (Int4) • Insert “service users and/or primary care givers” (FG5) • Add word patient to read patient/service user/family (FG7)
36.	Listen carefully to service users’ concerns	<ul style="list-style-type: none"> • Consider the addition of “or carer” (Int 3) • Insert “and/or their carers” (Int4) • Insert “service users and/or primary care givers” (FG5) • Add word patient to read patient/service user/family (FG7)
37.	Enjoy talking to service users	<ul style="list-style-type: none"> • Insert “and/or their carers” (Int4) • Insert “service users and/or primary care givers” (FG5) • Add word patient to read patient/service user (FG7)
38.	Try to take time to reassure service users/their families	<ul style="list-style-type: none"> • Change to “service users (and/or their families)” • Happy with either (would read “/ “as and/or anyway) (Int 2) • “their families” is another variation of “service users, patients, carers” that may require a glossary explanation (Int 3) • Change to “service users (and/or their families/carers)” (Int 4) • Add word patient to read patient/service user (FG7)
39.	Disclose personal information about myself to service users	<ul style="list-style-type: none"> • A gradient exists regarding personal information. A healthcare provider may tell a patient they live in Huddersfield, but not the street name. This question may unnecessarily red-flag people it doesn’t need to (Int 3)

		<ul style="list-style-type: none"> • Insert “and/or their carers”. Good discussion point (Int4) • Discussed the meaning of “personal information”. People have different ideas about how much information to disclose (FG5; FG6). • Add word patient to read patient/service user (FG7) • What is personal information and is it a way of building rapport? (FG7)
40.	Making a joke/banter with colleagues while they are there present	<ul style="list-style-type: none"> • Makes context stronger to add in “in front of a patient/service user” (FG2) • Leave as it was, otherwise it is changing the question (FG3) • Ok with original question (Int 2) • Ok with original question (Int 3) • Tricky question as it could be in a jokey way or in a negative, derogatory or bullying way; struggled with meaning; hard to answer, answers would be very different depending on interpretation. Would have been easier to answer if it read “light-hearted joke” (Int4) • Might not be answered honestly. Maybe specify “light hearted joke” for clarity (FG6)
41.	Making a joke/banter about a colleague when they are not there	<ul style="list-style-type: none"> • Suggest additional question – make negative comments about other colleagues (FG1) • FG2 not sure what this additional question is trying to establish, but would be ok with the addition and suggested adding “either personal or professional” • Makes context stronger to add in “in front of a patient/service user” (FG2) • Leave as it was, otherwise it is changing the question (FG3) • Ok as it was (Int 2) • Ok as it was (Int 3) • Int4 as above Q40 • Might not be answered honestly (FG6)
42.	Use humour about service users as a way of letting off steam after a job	<ul style="list-style-type: none"> • Good question but would it be answered honestly (FG1) • Add “with colleagues” (FG2) • Leave as it was, otherwise it is changing the question (FG3) • Fine as it was in original question (Int 2) • Ok as it was (Int 3) • Int4 as Q 40 & 41. “Light-hearted humour” would be easier to answer. Derogatory humour would be Never; would give a different answer to light-hearted (Int4) • Context is needed e.g. “in the office”, “in front of students”, “on the bus”, “with professional team”, “in public setting”. (FG5) • Might not be answered honestly (FG6)

		<ul style="list-style-type: none"> • Add word patient to read patient/service user (FG7) • Change the word “job” to seeing a client (FG7) as it is very paramedic
43.	Swear around colleagues	<ul style="list-style-type: none"> • Participants were unsure how truthfully people would answer this question. May depend on who sees the survey and its purpose (FG5) • Might not be answered honestly (FG6) • More context may be needed, e.g. “in the office” or “away from patients” (FG6)
44.	Work well with other healthcare professions, in general	<ul style="list-style-type: none"> • Delete “healthcare” (FG2) • Delete “healthcare” (FG3) • Not bothered either way but happy to delete “healthcare” (FG4) • Agree delete “healthcare” (Int 2) • What does “work well” mean? Consider “co-ordinate care well with other professionals”, deleting “healthcare” (Int 3) • Delete “healthcare” unless we only want to know about healthcare and not other professions? Ok with “work well” (Int4) • Remove “in general” doesn’t fit in with the anchors e.g. asking generally then asking them to use sometimes, often etc (FG5) • Ok with this (FG7)
45.	Talk or fail to pay attention during lectures or training courses	<ul style="list-style-type: none"> • “activities” is a funny word, we don’t do training “activities”. Maybe “sessions”? (Int4)
46.	Arrive late for training activities	<ul style="list-style-type: none"> • A bit confusing for the reason above, maybe delete “activities” and just have “training”? (Int4)
47.	Leave duties for other people	<ul style="list-style-type: none"> • Change “duties” to “shared tasks” (FG2) • Keep “duties” (Int 2) • Fine as it was (Int 3) • Fine with “duties” (Int4) • Fine with “duties” but answer might depend on context e.g. whether you see it as “handover” (e.g. for holidays) or slacking • Change from other people to other colleagues (FG7)
48.	Arrive late for work	
49.	Check that I have all appropriate	<ul style="list-style-type: none"> • Change to “check that I am in the right frame of mind before seeing a patient/service user” (FG1)

	equipment/paperwork before seeing a patient/service user	<ul style="list-style-type: none"> • No change, ok as it was (FG2) • Suggested changing “patient/service user” to service user/patient (FG4) • Happy with it as it is, no need to change order (Int 2) • No change, fine as it was (Int 3) • Prefer to change order, more applicable to this profession (actually use term “client” but happy with service user) (Int4)
50.	Complete the appropriate paperwork as soon as I am able to, after each job	<ul style="list-style-type: none"> • Change to “complete the appropriate paperwork within the allocated timescales” (FG2) • FG3 preferred original • Ok as it is (Int 2) • Ok as it is (Int 3) • The word “job” is not applicable, not used. Maybe “session” or “task” (Int4) • Change “job” to “seeing a client” (FG7)
51.	Take responsibility for my own work	
52.	Approach work in an organised way	
53.	Think about my next break or end of shift when I am working	<ul style="list-style-type: none"> • Change “shift” to “working day” (FG2) • FG3 were not offended by the use of ‘shift’ and felt it was more inclusive than ‘working day’, however also suggested working day/shift would be fine. • FG4 happy with “shift” • Int 2 happy with “shift” • Happy with “shift” (Int 3) • Not very easy to answer because don’t have scheduled breaks or shifts, but ok to leave question as it is (Int4) • Don’t have shifts or set breaks – would put N/A (FG7)
54.	Think doing a job ‘well enough’ is acceptable	<ul style="list-style-type: none"> • As in Q50, the word “job” is not used and would prefer “task” (Int4) • Commented that this will get a variety of answers because people will have different concepts of ‘well enough’ and it will vary according to individual patients (FG6) • Replace “job” with “providing care” (FG7)
55.	Feel able to justify my actions/decisions	<ul style="list-style-type: none"> • “justify” seems very defensive. Consider “Evidence” my own actions (Int 3) • Like the wording “justify” (FG7)

56.	Act decisively in high stake situations	<ul style="list-style-type: none"> • Int 3 very unhappy with “high stake”. The gambling term trivialises high risk or emergency situations, because of the gaming reference. Consider change to “high risk” or “emergency” (Int 3) • Ok with “high stake”; not a term they would use but happy to keep as is (Int4) • Replace “stake” with “risk” (FG7)
57.	Read books and articles on practice in my profession	<ul style="list-style-type: none"> • Very restrictive with reference to books and articles. Consider “accessing professional practice information” or “engage with updates in my profession” (Int 3) • The word “on” doesn’t sound quite right? Change to “about”? (Int4)
58.	Attend training which is not mandatory	<ul style="list-style-type: none"> • Other factors aside from professionalism e.g. money, may stop attendance at training (FG6)
59.	Keep my CPD portfolio up to date	<ul style="list-style-type: none"> • Add question “engage in reflective practice” (FG1) • FG2 and FG6 agreed • FG3 not bothered about addition of reflective practice question, as reflection represents daily practice and normal educational activities • Add question about rating the importance of reflective practice (FG4) • Liked addition of new question “engage in reflective practice”. Also would like to see an extra question: “engage in regular supervision” (Int 2). • CPD is task orientated. Reflective practice question would be a good addition (Int 3) • Definitely agree with addition of “engage in reflective practice” (Int4) • Suggest adding a question about “supervision” (would be more pertinent to ask) which would incorporate reflective practice. (FG5) • As HCPC are interested in reflective practice and CPD is all about this then add an additional question about reflective practice (FG7)
60.	Regularly refresh my skills	<ul style="list-style-type: none"> • Int 2 didn’t like word “refresh” and would prefer “consolidate” (refresh sounded like almost going back to BSc, and very broad, whereas consolidate sounds more like keeping up to date) • Int 3 didn’t like this item, especially “refresh”. Consider a suite of 3 items relating to 59 and 60: (1) “regularly maintain my core skills” (2) reflect on my needs for training” (3) “keep my CPD portfolio up to date” (Int 3) • Ok with “refresh” (Int4; FG6) • Replace “refresh” with “update” possibly but ok with “refresh” (FG7)
61.	Feel enthusiastic about going to work	
62.	Get bored in training about non-	<ul style="list-style-type: none"> • Change “non-frontline” to “non-service user” (FG1)

	frontline elements of practice	<ul style="list-style-type: none"> • happy with frontline (FG2; FG4; FG5) • Int 2 happy with frontline • Change frontline to “business, rather than patient elements of practice”. Didn’t like non-frontline but wanted to make name the alternative elements” (Int 3) • Don’t use the term “frontline” but understand what it means and happy to keep as is (Int4) • Don’t use front-line” very paramedic. Replace with “face-to-face” (FG7)
63.	Seek help when I need it	<ul style="list-style-type: none"> • Add “to support me doing my job” (FG1) • Add question “limit my work or stop practising if my performance or judgement is affected by my health” (FG1) • Change above to “take responsibility to limit my practice if poor health is affecting my performance (or my ability to work effectively)” (FG2) • Happy for item to remain as it is but discussed its relevance to health AND general limitations to perform work – perhaps indicate these avenues for educational discussion but leave item general (FG3) • No problem with interpretation of the question – all members read it as job-related help. Keep as it is. (FG4) • Question needs clarification. Suggest changing this to “seek help with my job” and adding extra question “seek help if my health is affecting my performance” (Int 2) • Happy with wording as it is (Int 3) • Read this as e.g. if stuck with a client or feel out of depth with a client, i.e. work-related. If this is what we’re getting at, maybe change to “seek help in my work”. Interpretation may depend on a person’s experiences e.g. if they had recently sought personal help they might read it that way (Int4) • Insert more about context i.e. job tasks, unwell, physical unable. They interpreted it as both job and health but not everyone may interpret it in this way (FG5) • Insert “seek any assistance” when I need it. Saw this question as being in the context of work because the questionnaire is about work (FG6) • All completed with job role/tasks in mind so have an additional question about health and make it clearer about the two questions what asking (FG7)
64.	Take the initiative to improve or correct my behaviour	<ul style="list-style-type: none"> • Suggest add in “poor” or “unprofessional” behaviour to give a benchmark. Uncomfortable with the “improve or correct” wording (Int3) • Unsure what we mean by “behaviour”. In terms of what? Behaviour towards what, or in what situation? Do we mean professional behaviour? If so, maybe insert that (Int4)

65.	Accept constructive criticism in a positive manner	
66.	Make sure my uniform/dress is well presented when seeing patients/service users	<ul style="list-style-type: none"> • Suggested changing “patient/service user” to service user/patient (FG4) • Happy with it as it is, no need to change order (Int 2) • Suggest change to “make sure my work attire is appropriate....” (Int3) • Fine with “uniform/dress” (Int4) • Fine (FG7)
67.	Make sure I look clean, tidy and well-groomed at work	
68.	Adjust how I speak to different service users (e.g. how formal to be, vocabulary to use)	
69.	Adjust how I speak to different colleagues	
70.	Tailor information to a service user’s or relative’s needs	<ul style="list-style-type: none"> • Change to “service users (and/or their families)” (FG4) • Change to “service user’s or relative’s/carer’s needs” (Int4) • Fine (FG7)
71.	Post comments about work on the internet (e.g. Facebook, other social media)	
72.	Discuss a bad job with family or friends outside work as a way of coping	<ul style="list-style-type: none"> • Change “bad to “difficult” (FG1; FG5) • Change “bad” to “difficult”, “complex” or “serious” (FG2) • Change “bad” to “challenging” (FG6) • Change “bad” to “challenging” or “difficult”(FG3) • Change “bad to “difficult” (FG4) • Liked “bad” but ok to change to either challenging or difficult (Int 2) • Change to “reflect on a challenging case....” to make this item sound as though it is appropriate and right to do this for own reflection and coping in some instances. “discuss” is a bit accusing (Int 3) • Unsure whether this meant divulging confidential information or a general problem, which means the question could be answered in different ways. Prefer either challenging or difficult to “bad” (Int4) • Replace “bad job” with “complex case” (FG7)
73.	I have a good work/life balance	

74.	Being in my profession is important to me	
75.	Being in my profession makes me feel good about myself	
	Overall comments	<p>Make clearer –is it asking role you are in now or the profession? (FG7)</p> <p>Good questionnaire, applicable across newly qualified and experienced, and all areas of work (Int 2)</p> <p>Questionnaire will bring up some very useful discussion points (Int 4)</p> <p>Very interesting to use with students (FG6)</p> <p>How the organisation would impact on the individuals or professions professionalism (FG7)</p> <p>Didn't think people would complete the questionnaire in honesty (1 person FG7)</p>

Appendix G: Professionalism Questionnaire (generic version)

Professionalism at Work

Questionnaire for HCPC registrants and trainee health and care professions



This questionnaire is intended to be used as an educational tool to provoke discussion about what is professional in your line of work.

We suggest it is completed individually to start with and then responses are discussed as a team to help identify areas of practice which are less black and white and instead may need to be considered in context.

The questionnaire is designed to be completed by different groups. If a question does not apply to you, please tick the 'N/A' box.

The survey should take no more than 20 minutes to complete. Please answer as honestly as you can. There is the opportunity at the end for you to make any comments about any of the issues raised in the questionnaire.

1 **What is your profession?** _____

2 **Overall, I think my standard of professionalism is...**(please circle a number)

Where unsatisfactory includes: Lacks respect, compassion, integrity, honesty; disregards need for self-assessment; fails to acknowledge errors; does not consider needs of patients, families, or colleagues; does not display responsible behaviour

Outstanding includes: Always demonstrates respect, compassion, integrity, honesty; teaches/role models responsible behaviour; total commitment to self-assessment; willingly acknowledges errors; consistently considers needs of patients, families, or colleagues

1	2	3	4	5	6	7	8	9
-----Unsatisfactory-----			-----Satisfactory-----			-----Outstanding-----		

3 **Mark the line to indicate where you think your professionalism lies compared to other colleagues in your profession:**

Much
lower

About the
same

Much
higher

How much do you agree with the following statements?	Strongly disagree ¹	Disagree ²	Neither agree nor disagree ³	Agree ⁴	Strongly agree ⁵	N/A ⁶
4 The organisation I work for allows me to be professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 The organisation I work for looks after my welfare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 The organisation I work for is professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Patients/service users are more important than targets to my organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 I think of working in my profession as 'a career', not just a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 I think those in the health and care professions, including mine, should have to regularly update their skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Those in my profession have qualities which mark them out from other professions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 My profession is vital to society	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Becoming a professional practitioner in my profession requires specific expertise and knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 It is important that my profession has its own professional organisation or body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 It is important that my profession is a regulated profession with a protected register	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15 I feel I represent my profession when I am wearing my uniform	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 I try to always act in a manner that brings credit to the profession	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17 Members of the public expect me to be professional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18 It is not always possible to follow codes of conduct to the letter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19 It is not always possible to follow procedures exactly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20 I have occasionally realised after the event that I did not follow the rules regarding informed consent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21 It is a waste of time to report a minor incident at work, if there was no harm and no one else was involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22 It is a waste of time reporting a near miss or mistake if no one was aware of it and there were no adverse consequences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23 Sometimes there are good reasons to delay making myself available to see the next patient/service user	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions will allow us to compare the responses of different groups.

74 How long have you been in your current post?

.....

If you are a QUALIFIED practitioner...

75 ...what year did you qualify?

.....

76 Are you...?

Male ¹ Female ²

Do not wish to disclose ³

77 What is your age?

18-24 ¹ 25-34 ² 35-44 ³ 45-54 ⁴

55 or over ⁵ Do not wish to disclose ⁶

78 Have you worked in the profession or service before your current post?

Yes ¹ No ²

79 Do you have any other comments about the issues covered in the questionnaire that you would like to discuss?