



ORIGINAL RESEARCH ARTICLE

Medical student attire in the orthopaedic outpatient department

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Abstract

Introduction: Currently, medical students are not given specific guidance on how to dress. This allows them to wear what they interpret as appropriate, which may not always be optimal. Many studies have shown that a doctor's attire can greatly affect the consultation; however, no studies have been carried out investigating patient responses to medical student attire.

Methods: A two-phase patient questionnaire was conducted. Phase 1 surveyed 60 patients, who were given questionnaires based on pictures of medical students in various clothing styles: with a white coat, without a white coat but smartly dressed, and without a white coat dressed smart casual. This was followed by a second live phase where 50 patients were seen by medical students dressed with or without white coats and were asked to complete a survey assessing their response to the student and consultation based solely on their dress.

Results: Patients favour medical students wearing white coats. In our questionnaire based study (phase 1), white coats scored highest in trust and confidence ($p < 0.05$), cleanliness and professionalism ($p < 0.005$), and they were not more intimidating ($p < 0.05$). In our live study (phase 2), wearing a white coat scored highest in cleanliness and professionalism compared to no white coat ($p < 0.005$), but significance was lost in trust and confidence ($p > 0.05$), and comfort and intimidation ($p > 0.05$). 90% of participants responded that it was important how medical students dressed and 78% would like to be able to distinguish medical students from doctors.

Discussion: Medical students' attire is an important issue for patients. Our study shows that students dressed in white coats score more highly on cleanliness and professionalism than without a white coat.

Conclusion: Direction over medical student attire should be given based upon evidence based approaches and patient expectations. Furthermore, the opinions concerning white coats should be further explored and their reinstatement considered.

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ISSN: 2051-7580 (Online) ISSN: 0482-3206 (Print)

Res Medica is published by the Royal Medical Society, 5/5 Bristo Square, Edinburgh, EH8 9AL

Res Medica, 2013, 21(1):12-22

doi: 10.2218/resmedica.v21i1.186

Jabbal et al. Medical student attire in the orthopaedic outpatient department. Res Medica 2013, 21(1), pp.12-22
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Introduction

The introductory lecture of third year signifies the start of clinical medical teaching at the University of Edinburgh Medical School; here the students are told to “dress like you were visiting your grandparents”. This is open to the students’ own interpretation, perhaps more so than Hippocrates proclamation: “be clean in person, well-dressed, and anointed with sweet smelling unguents”.¹ The majority of students will adopt a smart casual approach, potentially based on how they would want their family to see them or even encounters with their own GP. It is the comfortable and safe option.

Patients are informed that they are in a teaching hospital, and there may be medical students in the room who will get involved in history taking and examination, however they are often undistinguishable from patients, and in some cases may even appear too casual to inspire trust and confidence in the patient. There are many studies on doctors’ attire that show that patients are what their doctor wears, and this can affect the patient-doctor relationship.² Medical students are encouraged to be part of the team and absorb the culture of working within the hospital, yet are left out such studies.

At the University of Edinburgh, orthopaedic teaching is comprised primarily of outpatient clinics and theatre sessions, with ward teaching playing a lesser role. The students will have the majority of patient contact in the outpatient clinics, and will learn to develop their clinical skills and professional demeanour. White coats for doctors and medical students were phased out in the first

decade of the 2000s due to reasons such as infection spread and negative associated stigma.³ However, this was based on wearing them in wards; wearing white coats in the outpatient department (OPD) would not encounter these supposed issues. It is in the OPD where the students learn to develop an image of professionalism and knowledge.

The aim of this study was to: 1) identify if patients prefer medical students to dress more formally, casually, or in white coats; 2) determine patients’ attitudes to medical students dressed in the traditional white coat.

Methods

Previous literature on medical student attire was searched for but none was found. Studies on patients’ views on the physician dress code have been carried out but no studies in orthopaedics exist.

The available papers on the physician dress code were analysed and recurring questions were noted. Papers showing the arguments for and against white coats were looked at and the key areas were noted. The questionnaire was then produced to bring together key issues from previous studies.

The picture element was produced with help of a male and female volunteer from 4th year of medicine at University of Edinburgh. They were each dressed in a smart casual outfit, a formal outfit and a third outfit which included a white coat. The smart casual outfits were picked as close representations of the average medical student at Edinburgh based on observation. The smart outfits were based on the usual

attire of orthopaedic surgeons at Edinburgh. The discussion of a previous study that used a similar method highlighted the need for continuity in the pictures in terms of pose and background, so external factors were reduced in patient analysis. A neutral background, stance and facial pose were used in all pictures, lighting was kept constant; the only variable changed was the clothing.⁴

For the first phase, a total of 50 patients in Orthopaedic OPD6 waiting area of the Royal Infirmary of Edinburgh were surveyed over the week 9 to 13 July 2012, in a variety of clinics, in both morning and afternoon. Patients were selected at random. Some patients declined to participate; however no record was kept on response rate. The survey was carried out by a 4th year medical student. 50 patients were decided to be a suitable sample size given the time constraints. Patients were given a clipboard with a laminated selection of pictures (Figure 1), the questionnaire and a pen. The patients were asked if they would: “participate in a survey on medical student dress code”. They were given no further information as the responses were intended to be as spontaneous as possible.

In the second phase of the study, 3rd year medical students in orthopaedics were addressed at a lecture. They were informed they would be participating in the study, were given the background of the study but not informed of any results from the first phase. 2 or 3 students were attached to each surgeon and were shadowing them in clinics. In each clinic room, one student would be given a white coat and one would not. Both would be given surveys to hand out to patients to complete after their consultation. When there was a group of 3, 2 students

were in white coats and one without, then alternated. The recipient of the white coats were chosen randomly. Students were told to alternate equally when handing out surveys and a total of 60 patients were surveyed, with an equal split for white coat and no white coat. The original intention was for 50 patients to be surveyed, however a photocopying error allowed 10 more surveys. Confounding factors such as hair styles, male/female and shaven/unshaven were considered but not thought significant as there is a basic standard of professional appearance observed in the students that included no extreme styles.

The survey was not piloted prior to the study, and patient characteristic data was considered but it was thought this could discourage participation due to increased time taken to complete the survey.

Short-sleeved coats were used for this study to comply with the ‘bare below the elbows’ policy, and a fresh coat was provided for each student each session. Their use was also restricted to within the outpatient department. The coats were supplied from the uniform department, and laundering was undertaken by normal hospital laundry services. Short-sleeved white coats are supplied to the theatre changing rooms for surgeons to wear on top of scrubs. After use they are placed in the same laundry bins as the scrubs and are washed to the same high standard.

Chi-squared analysis was performed on the results, with the null hypothesis signifying no correlation between attire and patient opinion. The distribution of scores relating to different dress styles would then be compared to this.



Figure 1. Pictures provided to participating patients regarding student dress code.

Results

Phase 1

In phase 1 of the study, of the 50 patients surveyed, 48% preferred the medical student dressed in white coat, 38% preferred the student dressed smartly and 14% preferred the student dressed smart casual. $\chi^2=9$ with 2 degrees of freedom, $p=0.01$ (Figure 2).

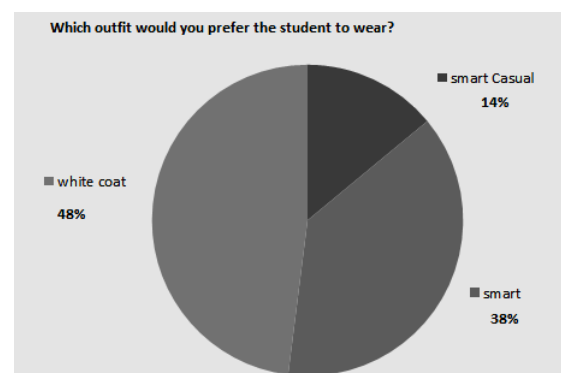


Figure 2. Data on outfit preference.

90% of patients think it is important how medical students dress and 78% would like to be able to distinguish medical students from senior staff.

In trust and confidence, smart casual had the lowest modal score (3) compared to smart dress and white coats modal score of 4. The white coat outfit had the highest proportion of responses gaining the highest score of 5 (26%), followed by smart dress (22%), then smart casual (12%). This provided a chi² value of 20 with 4 degrees of freedom, $p=0.0005$, which is significant (Figure 3).

In comfort and intimidation, all options had a modal of 2 (1 being the most comfortable, 5 being most intimidating). Chi²=4.5 with 4 degrees of freedom, $p=0.6$, which showed there was no significant distribution (Figure 4).

Regarding cleanliness and professionalism, the highest score of 5 was given to 74% of responses for white coats, 56% smart dress and 16% of smart casual. Responses for white coat were all in the two highest scores of 4 and 5, for smart and smart casual there were responses in all scores except the lowest of 1. Chi²=44.5 with 6 degrees of freedom, $p=<0.0005$ showing significance (Figure 5).

The final question asked was “What do you think medical students should wear?” It was often left blank, or restated the original choice from the first question. Other notable answers were: “blazers with special braiding” and “same as doctors”.

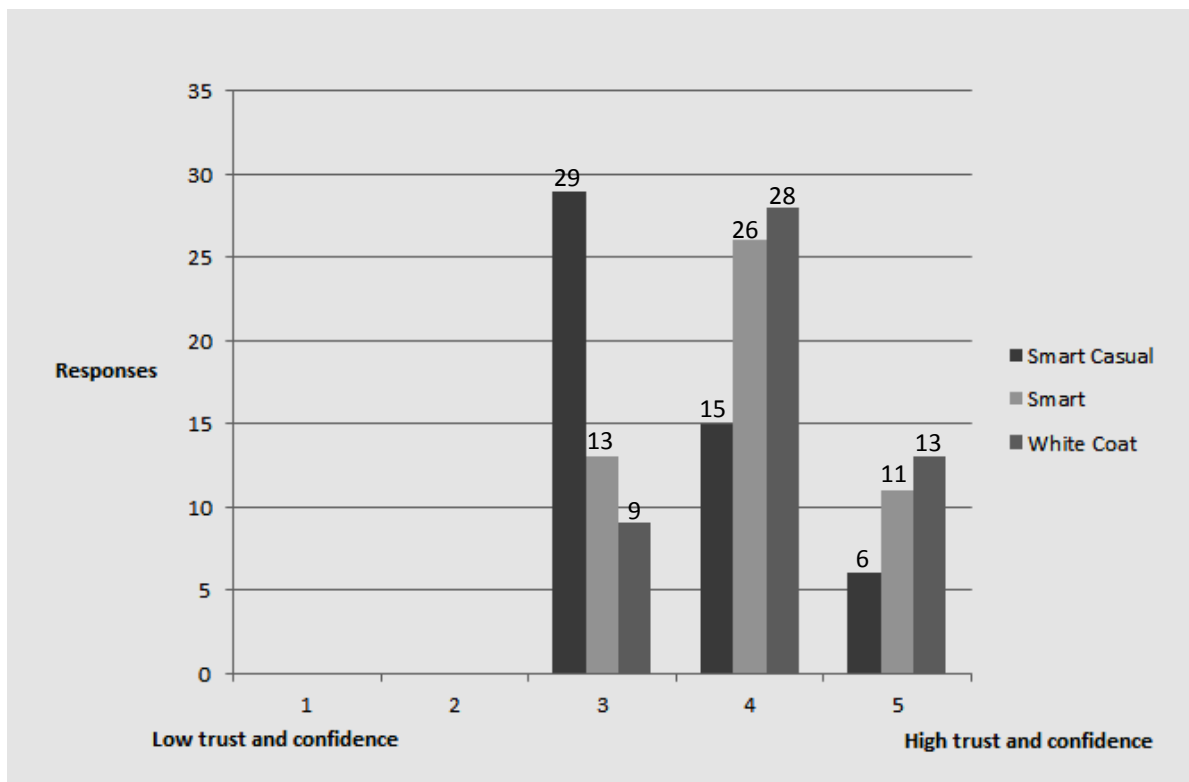


Figure 3. Trust and confidence; phase 1.

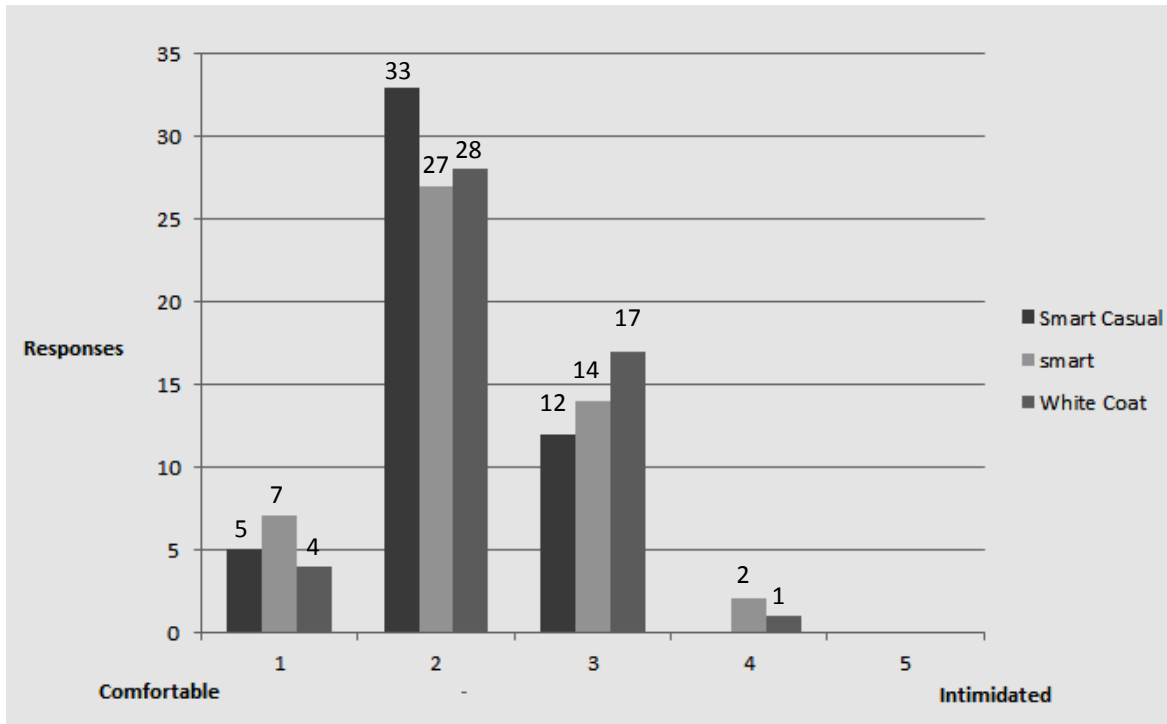


Figure 4. Comfort and intimidation; phase 1.

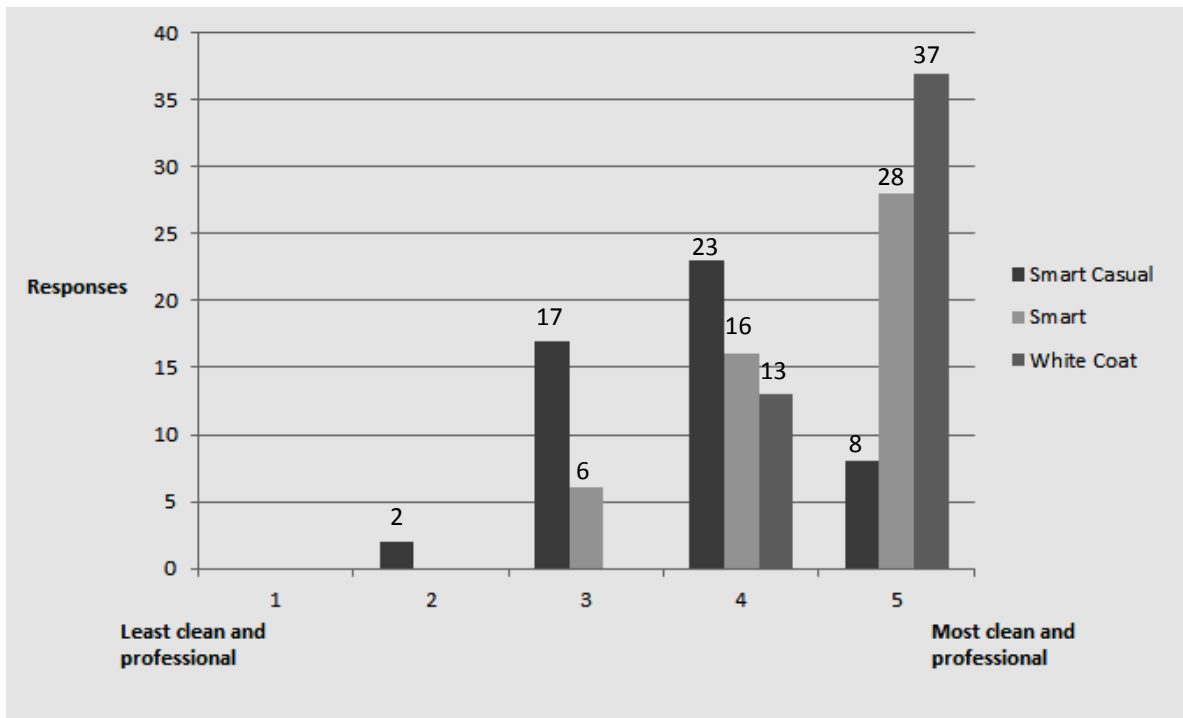


Figure 5. Cleanliness and professionalism; phase 1.

Phase 2

In phase 2 of the study, of the 60 patients that were surveyed, 85% thought it was important how medical students dressed and 82% would like to tell the difference between medical students and more senior staff (Figure 6).

For trust and confidence, the modal score for white coats was 4 (5 being highest and 1 being lowest possible), for no white coat the modal score was 3. White coats had 67% of responses scoring 4 and 5, no white coat had 50% of responses in this range. $\chi^2=2.8$ with 3 degrees of freedom, $p=0.42$, which is not significant (Figure 7).

For comfort and intimidation, both white coat and no white coat shared a modal score of 2. $\chi^2 =2.6$ with 3 degrees of freedom, $p=0.46$, which showed no significant distribution (Figure 8).

In cleanliness and professionalism 40% of responses for white coats scored 5 (highest), with 23% of no white coat scoring the same. The modal score for both options was 4. All responses for white coat scored 4 or 5, 30% of no white coat responses scored 3. $\chi^2=10.8$ with 2 degrees of freedom, $p=0.004$, which is significant (Figure 9).

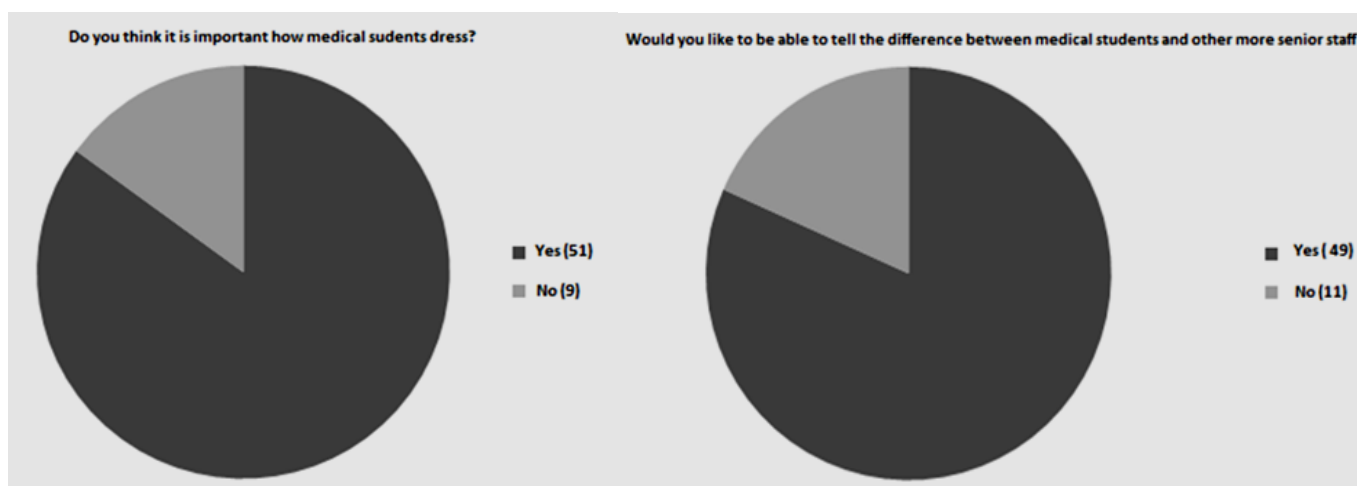


Figure 6. Data on importance on how medical students dress (left) and telling the difference between medical students and other more senior staff (right).

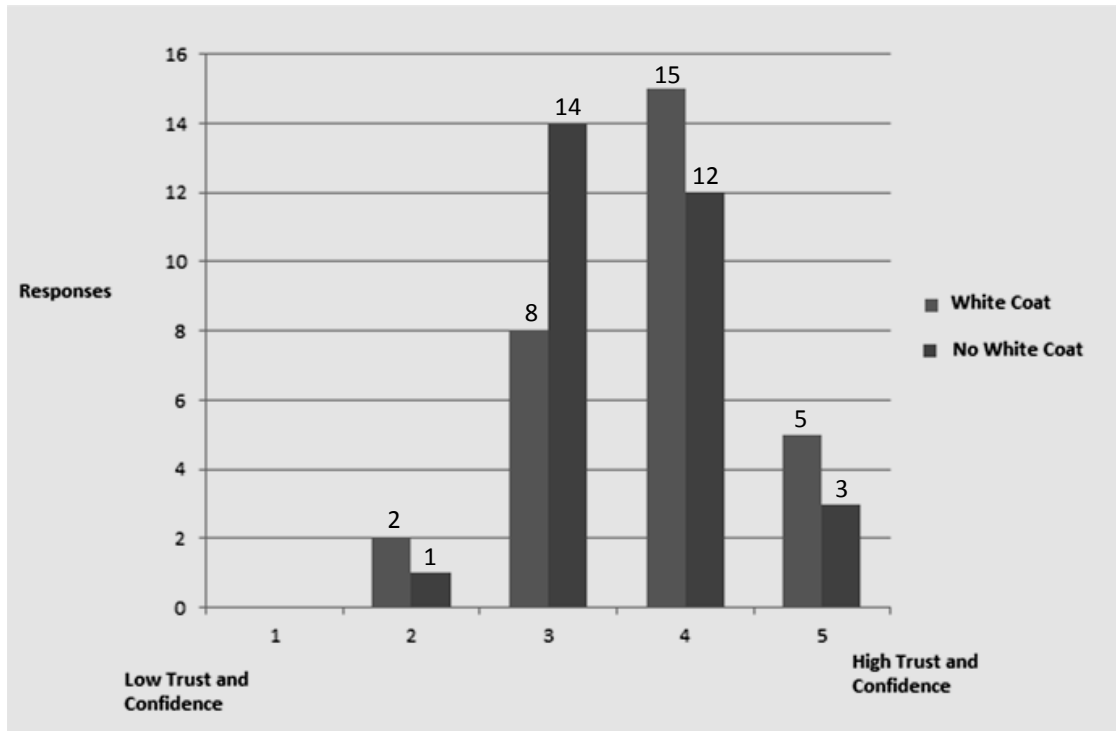


Figure 7. Trust and confidence; phase 2.

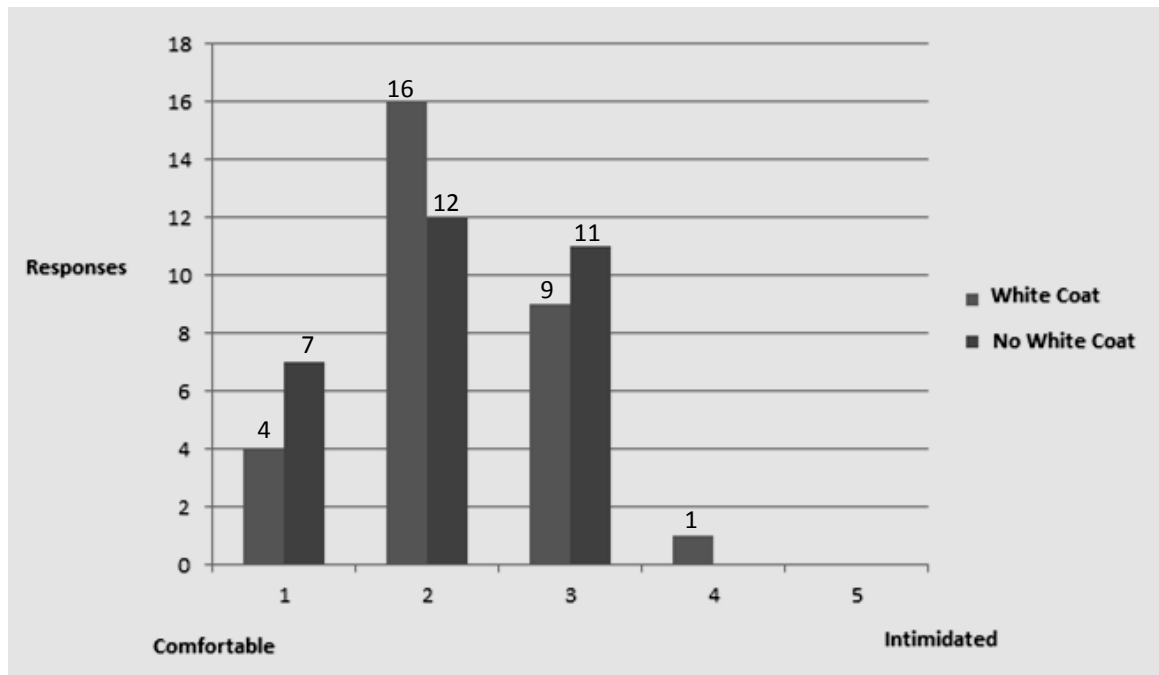


Figure 8. Comfort and intimidation; phase 2.

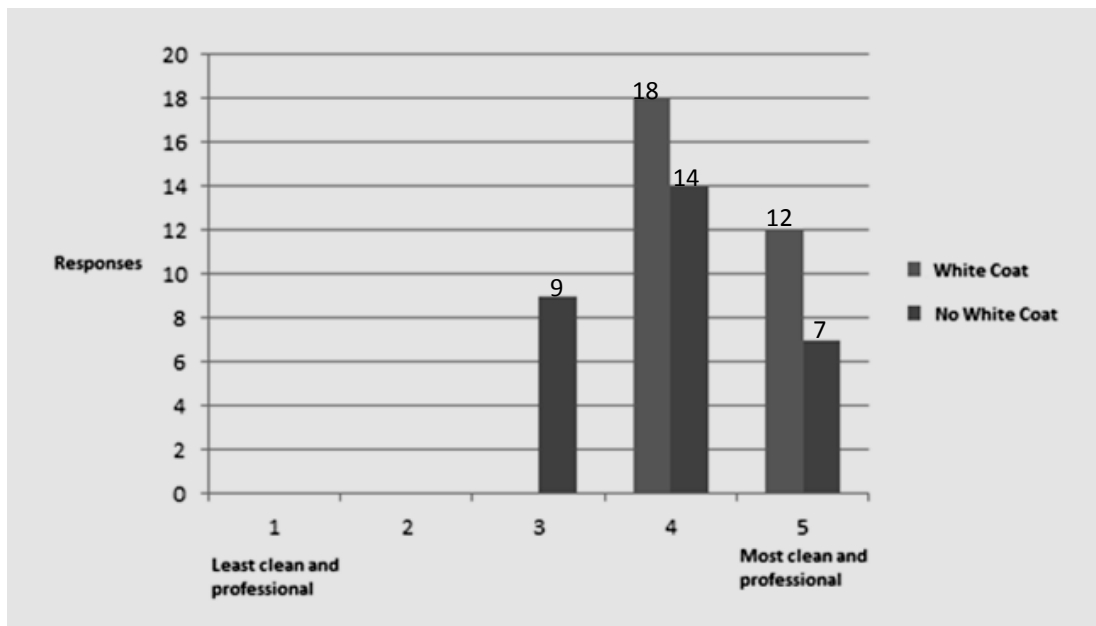


Figure 9. Cleanliness and professionalism; phase 2.

Discussion

The results show that: 1) patients think it is important how medical students dress; 2) patients prefer white coat to no white coat; and 3) white coats elicit higher trust and confidence, are seen as cleaner, and not more intimidating than other dress styles.

This agrees with previous work in Edinburgh showing that patients think it is important how their doctor dresses, but there have been no previous studies on medical students to compare with.⁵ Results differ from an Australian study showing the majority of patients are indifferent about what their doctor wears, which reflects that opinions differ depending on region.⁶

When asked to choose between the pictured options of dress, white coats were the preferred option, with smart dress next and smart casual the least popular, coinciding with a study by Gallagher *et al.*⁷ The first phase of the study showed that medical students in white coats elicited higher trust and confidence in patients than the smart or smart casual forms of dress; the findings are similar to a Glasgow study on doctors by Dover S.⁸

White coats were shown not to be seen as intimidating or make patients feel uncomfortable compared to other form of dress. This shows the idea that white coats are intimidating, such as that in white coat hypertension,⁹ is not a significant factor in the context of the Orthopaedic OPD.

Throughout both phases of the study, white coats were shown to receive significantly higher ratings for appearing clean and professional. This has been the crux of many previous studies, and shows that the opinions extend to medical students in addition to doctors.^{10,11}

The findings of this study show that patients prefer medical students to wear white coats, as they make students appear more professional. The findings also show patients are not intimidated by white coats and do not stigmatize them negatively. This raises the question: should white coats be reintroduced? There have been pieces in the news¹² and the BMA¹³ calling for their reintroduction, criticizing bureaucrats for using their removal as a means to disempower doctors. They argue that the white coat is worldwide symbol of respect and purity that is synonymous with the medical profession. The BMA has said the reintroduction of white coats is a matter for “local discussion and negotiation”.¹⁴ Some hospitals in London have gone forward with this and have not reported any issues that may give rise to concern.¹⁵

The driving force behind the phasing out of white coats was infection risk to patients.¹⁶ It was said that bacteria would be carried on the cuffs and pockets of the white coats and be transmitted between patients. A study in the *Journal of Hospital Medicine* has since shown that there is no difference between the levels of bacteria found at the end of an 8 hour shift on a white coat compared to a short sleeved scrubs top.¹⁷ The infection argument was based on long sleeved white coats, which were seldom laundered, in a ward setting.

As the survey was carried out in the waiting room of an outpatient department it was designed not to be overly personal and time consuming, so patients did not feel discouraged to take part. Previous studies were carried out in wards and collected information about the patient such as sex and age, while the nature of this study created a limitation that prevented these questions to be asked. Such information could have given greater insight into the demographics of patients and their views on white coats.

In the first phase of the study, the pictures were taken with care to ensure a consistent pose and facial expression to reduce sources of bias when answering the survey questions. In the second phase, the patients’ opinion may have varied based on the personal characteristics of the medical student rather than the clothes they were wearing.

The study was carried out in the orthopaedic outpatient department of the Royal Infirmary of Edinburgh; further work could be to conduct the survey in other specialty outpatient clinics, and in other locations. Another study could then be carried out investigating medical student dress code on wards. A similar style of survey would be suitable; however, sample sizes could be increased. From an infection control perspective, studies could be performed on bacterial contamination of students’ normal clothing compared to that on a white coat.

Conclusion

In conclusion, patients prefer medical students to wear white coats, rather than smart or smart casual dress. Patients are also not intimidated by students wearing white coats. It would be not be logistically impossible to reintroduce white coats. Infection control arguments remain controversial and white coats now comply with 'bare below elbows' policies. There can be further research into the attitudes of white coats in other settings such as wards, and larger scale trials would strengthen the data. This study recommends that hospitals reconsider their views on the white coat and medical student dress, and consider their reintroduction.

Key Learning Points

What is already known:

- Medical students are not given direction on how to dress
- Patients' attitudes to medical student dress are not known

What this study adds:

- Patients think it is important how medical students dress
- Patients prefer medical students in white coats, followed by sharply dressed
- Medical students should be given more guidance on dress

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