Bare Below the Elbows: A comparative study of a tertiary and district general hospital.

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Citation
A `Bare Below the Elbows` (BBTE) dress code policy has been introduced by the majority of NHS trusts in the UK. The aim of this Irish study was to evaluate the impact of an educational intervention on perception of medical attire. The study was carried out in two centres: a tertiary referral centre (Beaumont Hospital) and a district hospital (MRH, Portlaoise). Two questionnaires, incorporating photographic evaluation of appropriate attire for consultants and junior doctors, were completed pre and post BBTE education. One hundred and five patients participated. Analysis pre BBTE education indicated patients considered formal attire and white coats most appropriate for consultants and junior doctors respectively. Post-intervention analysis revealed a significant reduction in the popularity of both (p <0.001), with scrubs and smart casual attire gaining significant support in both cohorts (p <0.001). Our findings demonstrated that patient opinion on medical attire is malleable. The support of such a policy may be achieved if patients are informed that the aim is to reduce the spread of healthcare-associated infections.

Methods
A cross-sectional study was carried out in two centres: Beaumont hospital, a University-affiliated, tertiary referral centre, and the Midland Regional hospital, a district general hospital in Portlaoise. Two centres were included to identify any discrepancies between urban (Beaumont) and rural (Portlaoise) opinion. The modus operandi of the study was approved by the research ethics committee. Consecutive samples of inpatients at specific time points were studied. Two bespoke study-specific questionnaires were designed, incorporating patient demographics in addition to photographic evaluation of appropriate attire for consultants and junior doctors. Although the BBTE guidelines apply to all healthcare workers, doctors were specifically selected as the study subjects. They are a highly visible sub-group of healthcare workers on the front line of the health service. Unlike other healthcare workers, doctors currently do not wear a uniform in either of the study centres. Furthermore, a single sub-group was preferable, as multiple subgroups may have overcomplicated the study unnecessarily. A series of five standardised headless photographs were produced, consisting of a male model dressed in...
differing attire. The options ranged from formal, semi-formal and smart casual, to the traditional doctor’s white coat and surgical scrubs (Figure 1).

Participants were asked to rank the appropriateness of the attire using a five-point Likert scale (Likert 1932), where a score of 1 was indicative of the most appropriate attire and 5 was indicative of the least appropriate choice. In order to reduce bias, the same model was used throughout the series. A female model was not included in the series to eliminate possible gender bias. The second component involved elucidating patient opinion on the appropriateness of a selection of items of jewellery. Following completion of the first questionnaire, participants were presented with a second questionnaire beginning with the statement: "In the UK, the Department of Health have made recommendations regarding a suitable dress code for hospital workers. The 'Bare Below the Elbows' policy advises against wearing white coats, long sleeves, ties, watches and jewellery, due to the risk of contamination by bacteria. The aim of this policy is to reduce the spread of hospital infections including MRSA. There is no definite proof that contaminated clothes are related to the spread of infection”.

The final sentence is derived from the departmental publication which states “There is no conclusive evidence that uniforms (or other work clothes) pose a significant hazard in terms of spreading infection”. Study participants were invited to clarify any details necessary to ensure a basic understanding of the policy. They were subsequently asked to re-evaluate the series of photographs and once again rate the appropriateness of the attire in the same manner as described previously. The appropriateness of the jewellery items was also re-assessed. Meticulous care was taken to ensure standardisation between the centres. The questionnaires were distributed in an identical manner and were completed unsupervised to reduce the risk of verbal and non-verbal queuing. No additional information was provided that could have influenced the decision-making process. In addition, none of the participants were aware of the existence of the policy prior to intervention. Data was tested for normality using Shapiro-Wilk tests. Non-parametric analysis was used. Wilcoxin-Signed Ranks (WSR) and Mann-Whitney U (MWU) tests were used to compare dress code ratings pre and post BBTE education. p values, where appropriate, were taken to be significant at 0.05. All statistics were calculated using the Statistical Package for Social Sciences (IBM SPSS Statistics version 21).

Results

Patient demographics

One hundred and five patients agreed to participate, 53 in the urban centre and 52 in the rural centre. The questionnaires of six participants were excluded from analysis due to incomplete information. No significant differences, in terms of gender distribution or age, were demonstrated between the centres.

Figure 1 Standardised series of five photographs featuring the white coat, semi-formal attire, formal attire, scrubs and smart casual attire
Patient attitudes pre BBTE education

Prior to intervention, consultant ratings indicated participants in the urban centre regarded formal attire as the most appropriate choice. Both scrubs and the smart casual look were deemed inappropriate. Concerning junior doctors, the median ratings for the white coat and for scrubs indicated both were considered appropriate (Table I). Regarding jewellery, patients deemed wedding rings, engagement rings and watches appropriate apparel for doctors in the workplace (Figure 2). In the rural centre, formal attire was considered most appropriate for consultants prior to BBTE education. The white coat was also deemed appropriate. The lowest median ratings were awarded to scrubs and the smart casual option respectively. With regard to junior doctors, the highest median ratings were awarded to the white coat and scrubs indicating both were considered appropriate (Table I). Analysis of jewellery scores revealed results comparable with those in the urban centre, with wedding rings, engagement rings and watches regarded as appropriate for the workplace (Figure 3).
Patient attitudes post BBTE education

Analysis of consultant scores in the urban centre revealed a significant reduction in the popularity of formal attire ($p < 0.001$, WSR, Table I). In contrast, significant increases were recorded in the median ratings for both scrubs and the smart casual option respectively ($p < 0.001$, < 0.001, WSR, Table I). Regarding junior doctors, the results demonstrated significant reductions in the popularity of the white coat and the semi-formal option ($p < 0.001$, 0.038, Table I). Conversely, an increase in the median rating for the smart casual option was noted ($p < 0.001$, Table I). Concerning jewellery, only wedding rings and watches were deemed appropriate following BBTE education (Figure 2). In the rural centre, consultant ratings indicated participants regarded formal attire as the least appropriate choice following intervention ($p < 0.001$, WSR, Table I). A significant reduction in the median rating for the white coat was also noted ($p < 0.001$, WSR, Table I).

In contrast, the increased median ratings for scrubs and the smart casual look indicated both were considered appropriate attire for consultants ($p < 0.001$, < 0.001, WSR, Table I). Regarding junior doctors, analysis revealed significant reductions in the median ratings for the white coat and semi-formal options ($p < 0.001$, < 0.001, WSR, Table I), thus neither were considered appropriate. In comparison, both scrubs and the smart casual look gained significant support ($p < 0.000$, < 0.000, WSR, Table I). Analysis of jewellery ratings indicated none of the items evaluated were deemed appropriate following BBTE education (Figure 3).

Combined Analysis: Urban and Rural Centres

Prior to intervention, combined analysis indicated participants regarded formal attire as the most appropriate choice for consultants. Both scrubs and the smart casual look were deemed inappropriate. Concerning junior doctors, the median ratings for the white coat and for scrubs indicated both were considered appropriate (Table I). Evaluation of consultant scores following BBTE education revealed a significant reduction in the popularity of formal attire ($p = 0.000$, MWU, Table I). In contrast, significant increases in the median ratings for both scrubs and the smart casual option were recorded ($p = 0.000$, MWU, Table I). With regard to junior doctors, the results demonstrated significant reductions in the popularity of the white coat and the semi-formal option respectively ($p = 0.000$, MWU, Table I). Conversely, an increase in the median rating for the smart casual option was noted ($p = 0.000$, MWU, Table I).

Discussion

A doctor's competence and professionalism is often judged on the basis of attire. Professional dress is significantly associated with trust and confidence-building during the patient encounter. The BBTE guidelines advocate adopting a casual dress code in the workplace. They also somewhat paradoxically suggest healthcare workers should 'dress in a manner likely to inspire public confidence'. Concerns have been raised, therefore, regarding the effects of adopting a casual dress code on patient confidence, and on confidence in the health service. Analysis of suitable attire for junior doctors prior to BBTE education revealed scrubs were considered appropriate in both centres. This perception may be influenced by contemporary television medical programming, such as Grey's Anatomy and Scrubs.

Following BBTE education, scrubs maintained their reputation as an appropriate choice for junior
doctors. Interestingly, analysis of consultant ratings revealed a significant increase in the popularity of scrubs in both centres. In the rural centre in particular, they were deemed appropriate attire for hospital consultants. The diminished popularity of the white coat in both centres following the educational intervention is interesting. The iconic white coat has epitomized the medical profession for over 100 years. In the hospital setting, white coat-wearing inspires confidence in patients, and improves all aspects of the doctor-patient interaction. Patients feel doctors are more professional when wearing white coats. On the other hand, when informed of the risk of contamination, patient preference may change in favour of a dress code which could potentially lower the infection risk. Our results support this finding.

It has previously been reported that patient opinion regarding the BBTE policy is malleable, and that patients are not averse to change. The support of such a policy may be achieved in Ireland and elsewhere, if patients are informed that the aim is to reduce the spread of HAIs. In order to achieve widespread support, our recommendations would include the delivery of a more comprehensive educational package and the consideration of patient preference, given differing regional informed opinions. Further study is warranted.

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