

What dress code do we teach students and residents?: A survey of patients' and their families' preferences regarding physicians' appearance

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Research Article

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Abstract

Background: From the late 1960s, physician's appearance has been actively studied in the West, and until the early twenty-first century, patients tended to prefer "formal dress" attire along with white coats for physicians. However, people's attitudes today toward dress code has not been clarified while it may have changed.

Objective: This study aimed to investigate the acceptability of dress codes from the patient's perspective to suggest the future of dress codes.

Methods: Outpatients and their families in a university hospital and small-to medium-sized hospital were surveyed. We inquired which of the different styles of white coats and different colors of scrubs were most desirable for male and female physicians. We used Scheffé's pair-comparison method to show the rankings.

Results: Patients and their families expected their physicians to wear white coats rather than scrubs. Furthermore, the more traditional and formal dress code was preferred. The least preferred color of scrubs was yellow.

Conclusion: The study found that patient's preference for a traditional, conservative appearance has not changed over time. It did not match today's perspective on infection prevention. Although, both perspectives, patient preferences and infection prevention are important for education and gaining patient trust.

Introduction

Hippocrates stated that physicians should 'be-clean in person, well dressed, and anointed with sweet smelling unguents' [1]. However, it has not been proven that physicians' appearance determines their competence or patients' satisfaction [2–4]. Nevertheless, people believe that a physician's appearance is 'important' [5] because it is surrogate for proof of a physicians' competence to uncertain patients, [6] and others give credence to it [7]. While the white coat is a symbol of power and authority [8], it is also a sign of trust and credibility [5.9–11], and an unkempt appearance has been considered unskilled and uncaring [12].

However, as lifestyles change with new materials being developed so do people's attitudes toward clothing. Since the end of the 'formal dress: shirt and tie' era, the viewpoint of the patient has not been evaluated [13]. Therefore, dress code surveys need to be conducted to accurately update the consequences of change. From the late 1960s to the present, dress codes have been actively studied in the West [14–16], but until the beginning of the twenty-first century, patients tended to prefer wearing white coats over formal attire [9.17]. In Japan, there have been very few dress codes studies [18. 19]. However, in a survey of more than 2,000 patients, Yamada et al. reported that male physicians wearing white coat and tie and female physicians wearing knee-length skirt and white coat were the most acceptable to patients.

In recent years, with the outbreak of severe acute respiratory syndrome (SARS), Corona Disease 2019 (COVID-19) and similar contagious diseases, the environment surrounding the medical field has changed dramatically, and so has the dress code for physicians [20]. The so-called "scrub," a surgical garment that can be easily worn in medical settings, has been used by many healthcare professionals as daily medical clothing, and its use has continued to increase even after the SARS epidemic has ended, thus making scrubs an essential part of the dress code research [11]. With the establishment of the Bare Below the Elbows (BBE) policy, sleeves were rolled up to avoid infection [8. 21], and research has also been conducted to determine the extent to which patients are willing to accept this attire. In 2005, Japan's Ministry of the Environment promoted the Cool Biz (an initiative to set appropriate room temperature settings and encourage employees to wear light clothing appropriate to those temperatures during the summer months) [22]. Just as these efforts began to spread to the general public, the Great East Japan Earthquake (2011) occurred, resulting in the Fukushima power plant meltdown. Emergency national energy-saving measures were performed, which accelerated the Cool Biz trend. Following this trend, the number of physicians who dress formally was reduced. Moreover, the number of physicians wearing scrubs has also increased due to the influence of American TV dramas and medical movies. We found physicians who prefer wearing red or black scrubs. Reflecting the trends of the times, medical Crocs have been introduced and used by many physicians.

As a result, this change in the medical practice environment has led to confusion in the field, including increased complaints from patients about physician attire and scrub color and the inability of supervisors to provide a rationale for the attire of residents and medical students.

There is still no dress code that is appropriate for this era, despite the fact that the ways of wearing white coats and scrub colors are becoming more and more diverse. Furthermore, patient and societal perspectives are still unclear. This study aimed to investigate the acceptability of dress codes from the patient's perspective to examine the future of dress codes.

Methods

A questionnaire was administered to outpatients and their family awaiting treatment at a university hospital in a regional city and a small, medium-sized hospital in a suburban area. The study period was 3 years, from April 2012 to August 2015. The subjects were asked about their sex, age, and department in which they stayed. The surveyed items included many styles mentioned in previous studies (formal, casual, and scrubs) and variations in observed wearing practices that were studied in the field (open-front white coats, masks, slippers, rolled-up sleeves, Casey short sleeves, and open-front scrubs), which ultimately resulted in nine different styles for men and seven for women (excluding ties and Casey short sleeves). Moreover, 15 different scrub colors were selected to cover most colors available in the market.

Survey

Question 1; Compare the pictures of the two doctors and choose one of the four levels (completely A, more like A, or more like B, completely B). Even if it is difficult to decide, please choose one of them.

Nine different types for male physicians and seven different types of female physicians were prepared in mature and younger versions, respectively. The nine types of attire for men were as follows: tie + white coat with front closed, tie + white coat with front open, white coat with no tie, slippers, mask, Casey, rolled-up sleeves, scrubs + white coat, and scrubs. The seven types for women were as follows: white coat with front closed, white coat with front open, rolled-up sleeves, sandals, mask, scrubs + white coat, and scrubs.

Nine different photos of men, one adult version and one young version, in pairs, were combined in a round-robin fashion on an iPad. For women, one adult version and one young version, seven different photos were shown in the same way. Patients and their families were asked to compare the two photos and select the one who was more appropriate for their physician's appearance on four levels. We also asked them to choose all "unacceptable appearance."

Statistical analysis

We used Scheffé's paired comparison method (Nakaya's variant) to rank data as completely A +2, more like A +1; unanswered/invalid 0, more like B -1; and completely B -2, as fitted. A one-way analysis of variance was performed within subjects.

Question 2; If there is a color that is not desirable for a doctor to wear, please choose it.

The commercially available colors used were a mix of cold and warm colors. Fifteen scrubs (black, gray, light blue, light purple, navy blue, blue-green, dark blue-green, dark green, yellow, orange, brown, pink, dark pink, red, and purple) were shown on an iPad to the subjects, who were then asked to indicate the unacceptable colors (Figure 1).

Results

We received 869 responses on the appearance of young men and women, 824 responses on the appearance of mature men and women, and 867 responses on unacceptable scrub colors.

Question1

Young man

The descending order of preference for young men was as follows: tie + white coat, Casey, rolled-up sleeves, no tie + white coat, tie + open-front white coat, slippers, scrubs + white coat, mask, and scrubs (Fig. 2). Clearly, slippers and below constituted the subgroups, and there was no significant difference between mask and scrubs.

A total of 300 individuals reported that they had 427 unacceptable appearances, of which 42% were scrubs (Table 1).

Mature man

The descending order of preference for mature men was as follows: tie + white coat, Casey, tie + white coat with front opening, no tie + white coat, rolled-up sleeves, slippers, mask, scrubs, and scrubs + white coat (Fig. 2). As in the case of the young men, slippers and below constituted a lower group, and there was no significant difference between scrubs and scrubs + white coat.

A total of 264 individuals reported 354 unacceptable appearances, of which 40% were scrubs (Table 1).

Young woman

The descending order of preference for young women was as follows: white coat, sandals, open-front white coat, mask, rolled-up sleeves, scrubs + white coat, and scrubs (Fig. 3). Moreover, white coat and sandals form the top group; open-front white coat and mask form the middle group; and rolled-up sleeves, scrubs + white coat and scrubs form the lower group. There were no significant differences between the groups.

A total of 403 individuals reported having 535 unacceptable appearances, of which 57% were rolled-up sleeves and 33% were scrubs (Table 1).

Mature woman

The descending order of preference for mature women was as follows: white coat, sandals, mask, open-front white coat, scrubs, rolled-up sleeves, and scrubs + white coat (Fig. 3). There was no significant difference between components of the white coat and sandals of the top group. Moreover, white coat and sandals were components of the top group, similar to that in young women, and there was no significant difference between them.

A total of 172 individuals had 222 unacceptable appearances, of which 48% were scrubs (Table 1).

Question 2

Scrub color; The colors and percentages of scrubs that responded as unacceptable were, in descending order, as follows: 52%, yellow; 46%, red; 42%, dark pink; 33%, pink; 27%, black; 23%, orange; 20%, blue-green; 16%, grey; 17%, red-purple; 14% brown; 11%, dark blue-green; 8%, light blue; 7%, dark green; 6%, light purple; and 4%, dark blue (Figure 4).

Discussion

Patients and their families expected their physicians to wear white coats rather than scrubs. The traditional and formal dress style was most preferred (buttoned white coat and tie for men, leather shoes, and buttoned white coat for women). In a 2010 study by Yamada et al., Pronchik, who investigated the benefits of neckties prior to the BBE policy [23], concluded that, even in the emergency room, patients preferred their physicians to wear ties, and patient satisfaction was high [24].

The results suggest that the appearance that patients most want from their physicians has not changed significantly. Patients felt physicians would look more professional that way [13].

The next most preferred garment was the Casey for men, followed by the white coat with rolled-up sleeves for younger men. However, it did not rank high in women or mature men. This indicates that patients perceived Casey as the traditional dress of men and not necessarily based on the prevalence or cleanliness of the BBE concept. The pros and cons of rolling up the sleeves of white coats are often discussed in the student dress guidance; even in a study by Bond [8], the rolled-up sleeves were not supported by patients. However, it is known that the sleeves of white coats can become contaminated [25] and Wong et al. pointed out that the risk of contamination may be increased by pathogens in ties, cuffs, and pockets [26]. The results suggest that the patient's concepts of professionalism and infection prevention are not well connected. When instructing students on the dress code, they should be told that patients may not approve of rolling up their sleeves.

Men wearing masks were less favorable, while women wearing masks were not less favorable. For women, there may be something to compensate for the facial expressions hidden by masks. While wearing a mask and other preventive devices has come to essential for physicians in the COVID-19 pandemic, the impression of patients and families should be studied.

Although scrubs are often rated as hygienic [8.27], this survey revealed that it is a physician's attire that is not preferred by patients and their families. However, in the aforementioned survey by Aitkin et al., scrubs also scored the lowest. However, previous studies have found no difference in the impact of scrubs and other appearances on patient satisfaction and professionalism [28.29]. Additionally, a recent UK survey showed a clear downward trend in resistance to scrubs, with Palazzo's survey reporting that white coats and ties are no longer expected of patients [30] and that patients undergoing surgery report that scrubs are most favored in outpatient settings [31]. From that point of view, it is possible that the resistance to scrubs in Japan may disappear in the near future.

Scrubs with bright colors (yellow, red, and pink), and black were less acceptable, while those with pale and cold colors, such as blue and light blue, were preferred. This may be because red and black are associated with negative emotions such as anger, anxiety and fear, while

cold colors are associated with calm and quiet emotions [32]. Some patients commented that black reminded them of death and red reminded them of blood. Bright colors may be irritating to patients. We have not found any previous study that mentions the color preference of scrubs among patients, so these findings are novel.

The twentieth century undoubtedly required physicians to wear white coats [33,34]. However, it is not surprising that people's preferences toward physicians' appearance have changed in the twenty-first century as many people have started to become more familiar with the threat of infection and changes in the global environment. However, the concept of BBE was not pervasive, and the appearance most required of physicians did not change significantly. These results are consistent with the findings of the largest UK study [6], "if there is deemed to be no significant infection risk from any given variation of workwear, our patients would like us to wear a shirt and tie." Patients' awareness of infection needs to be investigated, but they will accept our suggestions if they understand the need for them [35].

In fact, Shelton et al. who conducted an experiment to reduce cross-infection between doctors and patients, reported that there was no significant difference in patient preference before explaining the importance of clothing to patients, but after the explanation, scrubs and short-sleeved shirts were most preferred [36]. When considering a physician's dress code, we need to understand both the patient's preference and infection control. We would propose a dress code that does not compromise patients' trust and confidence but also takes safety into consideration.

Limitations

The large number of subjects across multiple institutions is one of the strengths of this survey. However, since this survey was conducted in only one prefecture, it would be desirable to conduct the further survey in places with different cultural and social conditions. Although the type of clothing in the photos was based on a prior survey, it may not have been comprehensive. Moreover, different models of the pictures could change the results and measurement bias cannot be denied.

Conclusion

This study showed that the patient's preference for the traditional appearance of their physicians did not change. Even though times have changed, people still find trust, credibility, and respect in the formal appearance of their physicians. It was also found that patients were not aware of the BBE policy. We suggest that the results of this study can provide basis on the teaching of appearance of students and residents.

Abbreviations

BBE
Bare Below the Elbows

Declarations

Availability of data and materials

All data generated or analysed during this study are included in this published article and its supplementary information files.

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contributions

MG had the original research idea, and it was refined with the help of YT. MG carried out the study. She performed the interpretations of the data and wrote this article. RS conducted data analysis. HW was a contribution in writing the manuscript. All authors read and approved the final manuscript.

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Ethics declarations

Ethical approval and consent to participate

Verbal Informed consent was obtained from all participants for publication and this procedure was approved by the Mie University Ethics Committee. The Ethical Review Committee of Mie University committee approved this study (No. 1237). All methods were performed in accordance with the relevant guidelines and regulations.

Consent for publication

Consent was obtained from the models to publish the photos of the figure.

Competing interests

No conflict of interest, financial or otherwise, exists.

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Tables

Table 1. Unacceptable physician's appearance selected by patients and their families and the percentage.

Physician's Appearances	Young man n = 300	Mature man n = 403	Young woman n = 264	Mature woman n = 172
Tie + white coat	0%	2%		
No tie + white coat	5%	7%		
White coat			2%	1%
Tie + open-front white coat	18%	17%		
Open-front white coat			8%	16%
Slippers	20%	9%	18%	23%
Mask	28%	20%	2%	2%
Casey	3%	4%		
Rolled up sleeves	5%	9%	57%	15%
Scrub + white coat	21%	26%	12%	25%
Scrub	42%	40%	33%	48%

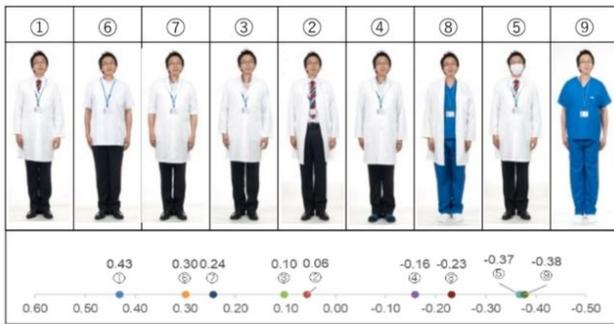
Figures



Figure 1

Scrubs in 15 different colors

White Coat / Scrubs Young Man



White Coat / Scrubs Mature Man

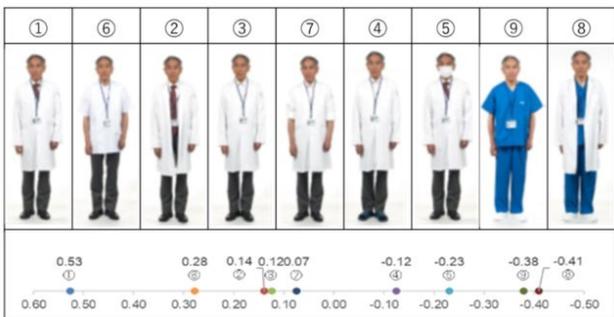


Figure 2. Nine types of attire for mature and young male physicians, each in order of patient preference with scale chart of average degree of preference.

*The yard stick values are

$Y_{0.05} = 0.052$ for a young man = 0.054 for a mature man

Figure 2

See image above for figure legend.

White Coat / Scrubs Young Woman



White Coat / Scrubs Mature Woman



Figure 3. Seven types of attire for mature and young female physicians, each in order of patient preference with scale chart of average preference.
 *The yard stick values are
 $Y_{0.05} = 0.054$ for a young woman = 0.061 for a mature woman.

Figure 3

See image above for figure legend.

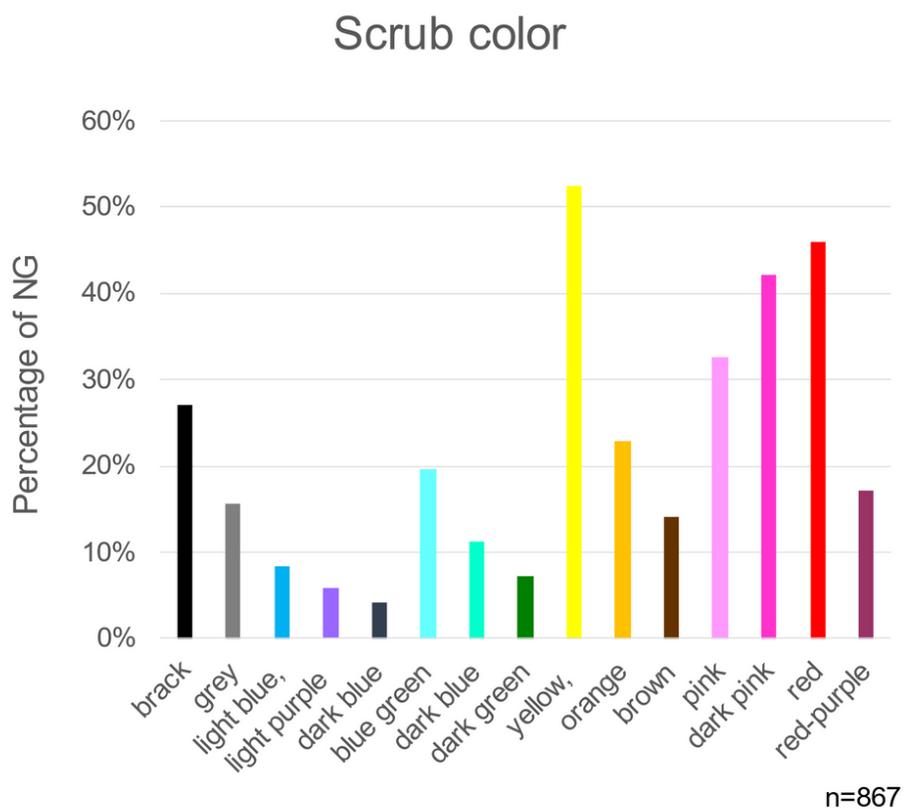


Figure 4

Percentage of scrub colors not preferred by patients and their families

Supplementary Files

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- [QuestionnaireRqwData.xlsx](#)