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Is the perception of physicians based on the type and colour of attire?

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Abstract

Introduction: Patients' confidence in a physician is influenced by many factors. Recent studies suggest that there's an association between doctor's attire and the way patients view physician's trustworthiness, competence and empathy in various specialties and contexts of care. Along with the development of medical attire market comes a need to understand how the choice of professional clothes influences patients' perceptions.

Purpose of the study: The aim of this study was to determine whether patients' perception of physician and the confidence in professional skills is determined by the type and colour of doctor's attire.

Materials and methods: We carried out literature search using English based databases (PubMed, Springer, Google Scholar) using key words: physician attire, professionalism, scrubs, patients' perception, psychology of colour. Most recent studies matching this criteria were analysed and those most relevant were picked for this review.

Results and conclusions: The association between physician's attire and patients' perceptions is complex and depends on numerous factors including age, gender, geographic location and culture, as well as physician's specialty and context of care. The white coat, despite latest research on its role in infections spread, remains an important attribute of a doctor. Physicians who wear white coats are viewed as more trustworthy, knowledgeable, competent and more caring. Colour of scrubs may serve as a valuable hospital personnel identification tool. Various colours evoke positive emotions in patients, navy blue, light blue and green remain the colours of scrubs that patients perceive as the most professional and appropriate.

Keywords: physician attire, professionalism, scrubs, patient perception, psychology of colour.

Introduction

Building a strong patient-physician relationship begins with the first impression. This relationship impacts patient's willingness to accept difficult news from the physician, forgive mistakes, and affects how trusting and compliant a patient is when the physician explains risks and benefits of specific treatment plans [2]. Several studies have demonstrated that such relationships positively impact patient outcomes, especially in chronic, sensitive and stigmatising problems such as diabetes mellitus, cancer or mental health disorders.[6]. In any healthcare setting unprofessional physicians' attire may incline patients not to follow physicians' advice, avoid follow-up visits and to feel dissatisfied with the care they received [3].

The meaning of physician's attire has been evoked 2400 years ago by Hippocrates, who stated that a physician 'must be clean in person, well dressed and anointed with sweet-smelling unguents'. In 19th-century white coat was considered a symbol of professionalism, knowledge and cleanliness. Despite its longstanding history, the white coat has come under some scrutiny, including its association with nosocomial transmission of pathogens and allergens.[1] In the last years, the alternatives to white coat, including scrubs, business attire, fleece and softshell jackets became increasingly popular. Often, practitioners may wear the casual attire as a more modern alternative in place of the white coat owing to comfort, ease of transition to and from work and practical reasons such as warmth or waterproof function.[1]

Attire has undeniable influence not only on wearer's confidence and their performance, but it plays a significant role in how they are viewed by others. Patients' perception of doctor's attire is multifactorial and subjective. The preference may be linked to patient's age, gender, geographic location and culture, as well as physician's specialty and context of care. The growing industry of commercial medical attire, including colourful scrubs, creates a need for research into the impact of colours on patients. A number of studies have suggested that physician's attire may be an important early determinant of patient confidence, trust and satisfaction. [6].

The aim of our study was to determine whether the type and colour of physician's attire influences patients' perception of doctor's traits and competences.

Methods:

We carried out literature search using English based databases (PubMed, Springer, Google Scholar) using key words: physician attire, professionalism, scrubs, patient perception, psychology of colour. Most recent studies (from 2001 to 2023) matching the criteria were analysed and those most relevant were picked for this review.

Results

Perceptions of the type of attire

The association between physician's attire and patients' perceptions has been a subject of numerous studies around the world, thus pointing out to the importance of the first impression during physician–patient interaction. The analysed studies consisted of surveys completed by patients and their families, Likert scales (presenting side to side images of medical professionals in different attires) were most commonly used to determine associations between attire and various traits of physicians.

In 2015 Petrilli et al. performed a systematic review of literature including 30 studies (with total number of 11533 participants) from 14 different countries investigating the role of physician's attire.[6] Although individual studies may have conflicting findings, a systematic review by Petrilli et al demonstrated, that physician's attire does influence patients' perceptions.

The results of this broad study state that formal attire with or without white coat or white coat with other attire not specified was preferred in 60% of the 30 included studies. Geography was found to influence perceptions of attire, possibly reflecting cultural, fashion or ethnic expectations. [6] European or Asian nations were more likely to prefer formal attire and white coats than those from the USA, however white coat remains the most popular choice throughout all examined countries. Additionally, age and context of care influenced responses of the participants. Older patients showed a tendency to choose white coats and formal attire as most trustworthy, demonstrating their attachment to tradition. The systematic review demonstrated that patients' perceptions of doctors' attire change depending on the specialty and place of treatment (Table 1). To begin with, 4 studies set in emergency room demonstrated that patients showed no preference regarding the attire of their physician. This result can be explained by the stress patients may experience in acute care. In the general practitioner's outpatient clinic 6 studies stated that patients' preferred formal attire with or without white coat, 3 studies pointed to white coats as the most appropriate and 2 studies showed no preference. In procedural disciplines, such as surgery, gynecology and obstetrics or gastroenterology patients chose scrubs in 2 studies, formal attire with or without white coat in 2 and white coat in 1. In surgical specialties scrubs become increasingly popular and are slowly replacing traditional white coats due to their practicality and sanitary reasons. Studies set in hospitals without dividing results based on specialty fit the common trend, where formal attire and white coats are the most appreciated by patients.

Table 1. Patients' preferences of physician's attire based on the context of care.

Context of care	Number of studies	Results - preference of patients	Study/ Year of publication
General medicine outpatient clinic	6	Formal attire +/- white coat	Petrilli et al. (2015)
	3	White coat	
	2	No preference	
Acute care (ER)	4	No preference	
	1	Formal attire +/- white coat	
Procedural disciplines (gynecology and obstetrics, surgery, gastroenterology)	2	Scrubs	
	2	Formal attire +/- white coat	
	2	No preference	
	1	White coat	
Mixed setting (entire hospital)	2	Formal attire +/- white coat	
	2	White coat	
	1	Scrubs	
	1	No preference	

More recent studies investigated new factors that play a role in the perception of physicians, including modern types of attire, misidentification of staff and gender bias.

In the survey study by Xun et al. (2021) participants were presented with photos of models (male and female) wearing 5 types of attire: white coat, scrubs, fleece-blended sweaters or vests, and softshell jackets. Then they were asked to rate the photographs based on experience, professionalism, and friendliness, as well as to identify healthcare roles of the models. The surveyed roles included nurse, technician, phlebotomist, family physician, dermatologist, and surgeon [1].

Models in casual attire were perceived as less professional and experienced than those wearing a white coat. A model in a white coat was seen as more friendly and significantly more experienced than a model in a softshell jacket [1], which can be explained by the fact that younger physicians use modern garments more often and they are considered less experienced. White coat outerwear with scrubs was preferred for surgeons, whereas white coat outerwear with business inner wear was voted the most appropriate for family physicians and dermatologists.

This study revealed gender bias in patients' perception of physicians. The roles of female physicians were misidentified as nurses or administrative workers more often than males, which is particularly visible in surgical disciplines. A male model wearing business inner wear with a white coat, fleece jacket, or softshell jacket was perceived as significantly more professional than a female model wearing the same attire [1]. Compared with male models, female models in a white coat with business inner wear were more likely to be identified as a medical technician or a physician assistant [1]. Both genders wearing hospital scrubs were most frequently perceived as surgeons, however 241 respondents (49.5%) identified the male model wearing scrubs as a surgeon compared with 198 (40.7%) for the female model. The female model in scrubs was more often perceived as a nurse (161 respondents [33.1%]) than was the male model (133 respondents [27.3%]) [1].

Additionally, a study by Ejigu et al. (2021) revealed similar gender bias. Men were identified as surgeons significantly more frequently than women in similar clothing for all attire types except a business attire without a white coat [3]. A man in a business attire with a white coat was identified as a surgeon 79.4% of the time, whereas a woman wearing a white coat with business pants or skirt was identified as a surgeon 59.7% or 61.4% of the time, respectively [3]. Patients perceived women in feminine attire significantly less likely to perform the physical parts of surgery than women wearing scrubs. It is worth mentioning that correspondingly to other studies patients ranked physicians wearing a white coat with any attire as more competent and more likely to give a good surgical outcome than those without [3]. Models in a business attire (including skirts) without white coat were most frequently misidentified as hospital administrators. Surprisingly, women in scrubs with a white coat were judged more likely to give a good surgical outcome and more trustworthy than men in the same attire (12.8% versus 3.9%, $P = 0.018$; 14.4% versus 3.1%, $P = 0.002$, respectively) [3].

Furthermore, Dayani et al. (2022) conducted a study with 316 participants regarding the perceptions of plastic surgeons. Among evaluated features of a physician were: professionalism, competency, trustworthiness, willingness to share information, confidence in the surgeon and confidence in positive surgical outcomes. In all categories, providers who wore formal attire with white coats or formal attire alone were ranked the highest among all age groups [2]. Models presenting attires that were accompanied by a white coat were also considered more professional and competent compared with their counterparts without white coats [2].

Perceptions of the colour of scrubs

Hribar et al. (2023) conducted a survey study at University of North Carolina to determine whether patients and families see a difference in doctors' qualities based on the colour of their scrubs [5]. The survey consisted of Likert-type scales presenting 4 images each of male and female physicians wearing scrubs in different colours: black, light blue, green and navy blue. Participants (113) were asked to identify a male and female model they most strongly identified with the profession of a surgeon, and then to rank the most to least knowledgeable, skilled, trustworthy and caring [5].

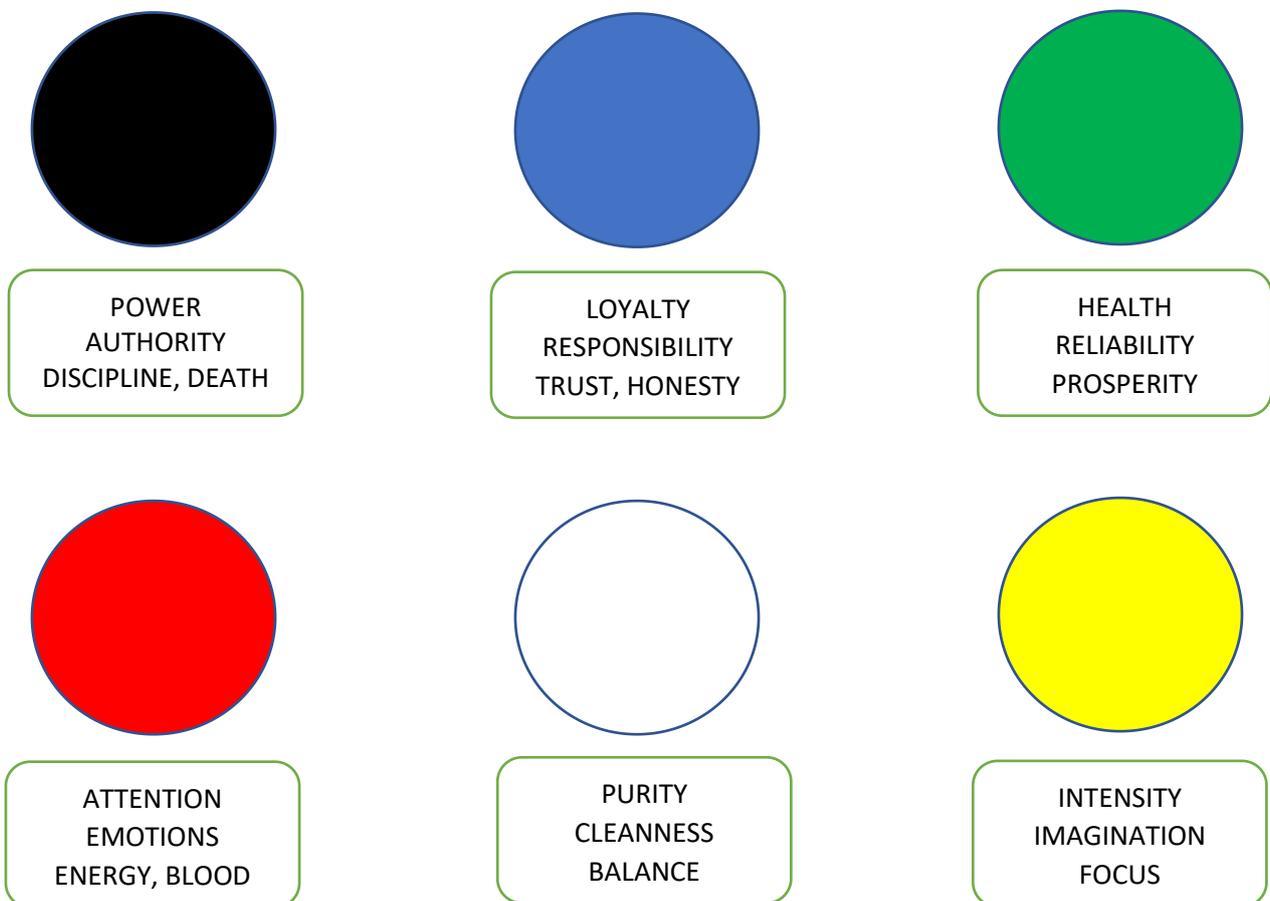
In this study green colour was most frequently associated with surgeon profession, which indicates that the colour might be a valuable identification tool. Black was most commonly chosen for negative traits (ranked least in all categories), while navy blue for positive character traits (Tab 2). Models wearing navy blue scrubs were considered the most knowledgeable, skilled and trustworthy and those in light blue scrubs were perceived as the most caring.

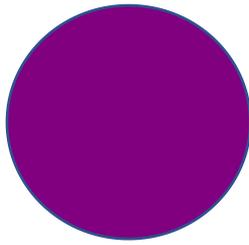
Table 2. Association between colour of scrubs and physician's traits. Based on Hribar et al. (2023)

Assesed trait of a physician	Colour of scrubs that received the most responses	
	Male	Female
Association with surgery department	Green	Green
Most knowledgable	Navy blue	Navy blue
Most skilled	Navy blue	Navy blue
Most trustworthy	Navy blue	Navy blue
Most caring	Light blue	Light blue
Least knowledgable	Black	Black
Least skilled	Black	Black
Least trustworthy	Black	Black
Least caring	Black	Black

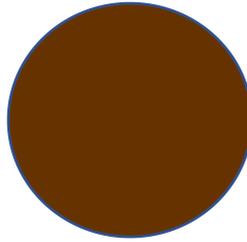
In marketing colour is described as the first thing we tend to notice about a product. Associations with colours remain universal across all cultures and are widely used to evoke adequate emotions in people. Dark blue is often associated with trust, responsibility, honesty and loyalty – that colour is often used in healthcare for hospital logs, interior design and medical scrubs. On the other hand black is consider a colour of power, control, discipline, many people see black scrubs in a negative way, as intimidating. Green equals prosperity, reliability and health - it's frequently used by banking, finance and real estate companies. According to psychology of colours pinki is often interpreter as compassion, but it can also be percieved as immature and unexperienced. [9] The most common associations between colours, emotions and personality traits are presented on the scheme (Fig.1).

Fig.1 Description of the psychological meaning of colours.

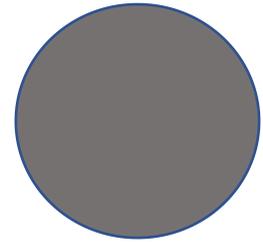




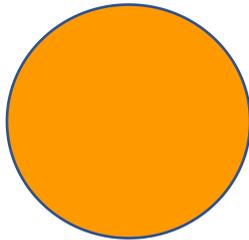
AMBITION
CREATIVITY
SENSITIVITY



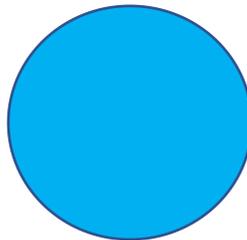
SECURITY
FOUNDATION
COMFORT



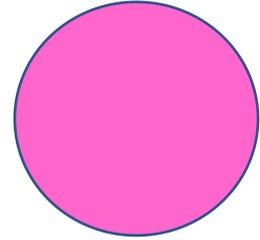
CONSERVATIVE
PRACTICAL
FORMAL



ENTHUSIASM
ADVENTURE
CONFIDENCE



BALANCE
CALMNESS
CARE



COMPASSION
IMMATURE
PLAYFUL

Conclusions

- 1) The association between physician's attire and patients' perceptions is complex and dependent on numerous factors including age, gender, geographic location and culture, as well as physician's specialty and context of care.
- 2) The white coat, despite latest research on its role in infections spread, remains an important attribute of a doctor. Physicians who wear white coats are viewed as more trustworthy, knowledgeable, competent and more caring.
- 3) Colour of scrubs may serve as a valuable hospital personnel identification tool. Various colours evoke positive emotions in patients, navy blue, light blue and green remain the colours of scrubs that patients perceive as the most professional and appropriate. More research is necessary to establish patients' preferences regarding larger range of scrubs colours.

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