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REVIEW

WHITE COAT AND OTHER SYMBOLISMS IN MEDICINE: A HISTORICAL, SOCIOLOGICAL, AND SEMIOTIC APPROACH

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Abstract

Introduction. Symbolism has long been intertwined with medicine, conveying values related to healing, knowledge, trust, and professional identity. Medical symbols and attire function as communicative elements that influence healthcare interactions.
The objective of the study was to explore the concept of symbolism in medicine, with particular emphasis on medical attire and the white coat, and to examine its influence on the physician–patient relationship, professional identity, and potential adverse effects.
Material and methods. A literature review was conducted using scientific papers and theoretical articles published during the past three decades. Sources were identified through databases including PubMed, Wiley Online Library and BMC.
Results. The review showed that medical symbols and attire possess significant semiotic and cultural value. The Rod of Asclepius remains the most authentic medical emblem, while the Red Cross and Green Cross symbolize humanitarian and pharmaceutical care, respectively. Medical clothing, particularly the white coat, serves as a marker of professional identity, purity,

Résumé

La blouse blanche et les autres symboles de la médecine: une approche historique, sociologique et sémiotique

Introduction. Le symbolisme est étroitement lié à la médecine depuis des siècles, transmettant des valeurs de guérison, de savoir, de confiance et d'identité professionnelle. Les symboles médicaux et la tenue vestimentaire influencent les interactions de soins.
L'objectif de l'étude a été d'explorer le concept de symbolisme en médecine, en mettant l'accent sur la tenue médicale et la blouse blanche, ainsi que son influence sur la relation médecin–patient, l'identité professionnelle et ses éventuels effets indésirables.
Materiel et méthodes. Une revue de la littérature a été réalisée à partir d'articles scientifiques et théoriques publiés au cours des trois dernières décennies. Les données ont été recueillies dans des bases telles que PubMed, Wiley Online Library et BMC.
Résultats. L'analyse a montré que les symboles et les vêtements médicaux possèdent une importante valeur sémiotique et culturelle. Le bâton d'Asclépios demeure

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competence, and trust, influencing both physician and patient behavior. However, excessive reliance on the white coat may contribute to microorganism transmission and has been associated with white-coat hypertension, a phenomenon linked to increased cardiovascular risk, target-organ changes, and anxiety-related physiological responses.

Conclusions. Medicine functions not only as a scientific discipline but also as a system of social and cultural symbols. The white coat remains a global symbol of expertise, responsibility, and care, while also acting as a powerful communication tool. Its use should be balanced with awareness of its symbolic impact, potential health implications, and the evolving expectations of contemporary physician–patient relationships.

Keywords: white coat, symbolism in medicine, Rod of Asclepius, Red Cross, professional identity.

List of abbreviations:
BMC: BioMed Central
PubMed: Public/Publisher MEDLINE Database

l'emblème médical le plus authentique, tandis que la Croix-Rouge représentent respectivement l'aide humanitaire et les soins pharmaceutiques. La blouse blanche symbolise l'identité professionnelle, la pureté, la compétence et la confiance, influençant le comportement des médecins et des patients. Toutefois, son utilisation excessive peut favoriser la transmission de micro-organismes et est associée à l'hypertension de la blouse blanche, phénomène lié à un risque cardiovasculaire accru, à des modifications des organes cibles et à des réponses physiologiques liées à l'anxiété.

Conclusions. La médecine constitue à la fois une science et un système de symboles sociaux et culturels. La blouse blanche reste un symbole universel d'expertise, de responsabilité et de soin, tout en agissant comme un puissant outil de communication. Son utilisation doit être équilibrée par une compréhension de sa portée symbolique, de ses implications sanitaires potentielles et de l'évolution de la relation médecin–patient.

Mots-clés: blouse blanche, symbolisme en médecine, Bâton d'Asclépios, Croix-Rouge, identité professionnelle.

Introduction

Symbolism appears as a product of human intelligence, an attempt to understand the world around us and to convey, primarily, messages of immense significance. Abstract ideas find presence through symbols, and ideas and values get transferred from generation to generation. Medicine, one of the oldest professions, has necessarily borne along with it over centuries an immense range of symbols related to the interplay of science and ethics, knowledge, care, hope, supernatural agency, and rebirth[1].

A few of the symbols of the physician have been adopted by everyone everywhere. The Rod of Asclepius, for instance, traditionally accompanied physicians – particularly peripatetic ones – on their long treks as a signal that the physician was ready to take on any problem that would arise. Furthermore, staff budding is associated with the hope of the cure of disease[2,3].

The objective of the study

The objective of this study was to explore the symbolism concept in medicine, more specifically in attire, and even more specifically, the white coat. Through a concise examination of medical symbols and an analysis of the meaning attributed to the white coat, the study seeks to unravel the physician-patient relationship, how it is influenced by what the physician wears, the semantic function of the coat in clinical practice and the adverse effects that could arise from its overuse or simplistic implementation.

Material and methods

We performed a literature review of clothing and symbolism in medicine. The data were selected from scientific papers and theoretical articles of the past three decades. The study was conducted in the scientific databases PubMed, Wiley online Library, BMC, etc. The authors state that all procedures and experiments of this study were conducted in accordance with the ethical standards of the 1975 Declaration of Helsinki, as revised in 2008, as well as with national legislation.

Results

The research reveals that symbolism and attire in medicine are not just cosmetic or formal elements; indeed, they carry profound semiotic and cultural meaning that influences observation and doctor-patient interaction[4].

The Rod of Asclepius, the most enduring and authentic medical emblem, is a serpent-entwined rod that reflects the duality of healing – life and death, poison and antidote, danger and salvation[3]. The serpent, as a medical symbol, has strong historical roots in human existence, beginning with ancient cults, where the serpent was associated with chthonic

powers and deities of protection, and running through ancient Greece, where it became associated with Asclepius, the medicine god, as a connoisseur of regeneration and wisdom[2,3,5]. In the Judeo-Christian faith, the serpent has been used as a symbol of sin and a healing agent of salvation, but in the Renaissance, its equation with Hermes' caduceus instigated further allegories such as purification, alchemical transmutation, and religious redemption[3,6].

Although the ancient use of the double serpent as a symbol of medicine was in error, it had popular acceptance over the past two centuries primarily due to commercialization[6]. The serpent, after all, is a sign of endless contrasts – disease and treatment, sin and salvation, death and resurrection – so well suited as a symbol for medical science, where even after employing treatment, the outcome remains uncertain[3,6].

The red cross on a white background, emblem of the International Red Cross and Red Crescent Movement, was officially adopted by the Geneva Convention in 1864 as a protective symbol of neutrality for the wounded in battle and medical personnel[7]. It was modeled after the Swiss flag with the colors reversed, in homage to Henri Dunant, the Swiss founder of the Movement. The symbol soon gained global recognition and became synonymous with humanitarian aid, neutrality, impartiality, and medical care in times of armed conflict, as well as in times of peace through emergency services, blood donation, and healthcare services[7].

The green cross, however, not designed by an international agreement, has gained a strong cultural and functional identity, particularly in Europe since the mid-20th century[1,7]. Green was adopted as it is associated with health, nature, and healing. Both signs, despite their different origins and uses, signify a shared social purpose: the provision of care, access to health, and saving of human life[7].

Apart from print or visual format, the other key – if not more unique – marker of the medical profession is attire. The white coat, nurses' uniforms, and surgical scrubs are not only practical pieces of clothing but also communicative signs that signify professional identity, purity, and respect[4,8,9]. Particular attention is placed on the white coat in medicine that is widely viewed as a "transformation" garment, investing the doctor with the role of scientist, knowledge bearer, and guardian of therapeutic responsibility – roles to be dealt with caution[8,9].

At the same time, the coat also serves as a symbol of professional purity, competence, and trust. It is also psychologically significant: influencing the behavior of both physicians and patients, promoting professional behavior, and aiding the physician's credibility.

Conversely, too much use of it may play a role in the spread of microorganisms, and, in certain cases, students must learn that they do not always have to embody all the duty and symbolism associated with it[10]. Moreover, the white coat has also been accused of so-called "white-coat hypertension syndrome", which has been researched intensely over the past few years due to its remarkable clinical and diagnostic interest. Briefly, this is the observed elevation of both systolic and diastolic blood pressure levels in hospitals where physicians are dressed in their white coats. Although before it was considered less harmful compared to chronic hypertension, data today reveal that it is not entirely harmless[11]. This form of hypertension has further been associated with an increased risk of the development of long-term hypertension and chronic cardiovascular morbidity[11]. There is also a possibility of failing to take proper therapeutic decisions if one is solely relying on in-office measurement and not considering the value of home and 24-hour ambulatory monitoring[12].

More evidence has identified remnants of cardiac hypertrophy in patients with this phenomenon, which suggests that chronic stimulation of the sympathetic nervous system may lead to target organ damage[13]. Severe cardiovascular and autonomic nervous responses to stress have also been documented, revealing that the white coat response is not just transient elevation of blood pressure but is accompanied by systemic neural and cardiac changes[14]. Medical clothing as a symbol thus becomes a precipitant for increased patient anxiety, giving the phenomenon a socio-psychological connotation[15].

Discussion

The final symbol of the medical profession, and the one which dominates research laboratories and hospitals alike and follows the physician, is the white coat. The material is far more than a piece of fabric, as testified to by its longtime dominance of the medical profession and the seriousness of the profession it represents. It is, on a grand scale, a symbol of trust, purity, and scientific wisdom – a communicative code that accompanies each healthcare professional's presence[4,8].

Ancient physicians did not wear any standardized uniform. They were typically associated with priestly roles, and healing was blended with the divine and the occult[2]. The Middle Ages provided the first attempt at a medical uniform, one that was created primarily to protect physicians from the dreaded "Black Death". The physician's uniform then assumed a more supernatural quality. The black cloaks and the beaked masks with aromatic substances inserted – purportedly to "purify" evil and act as

disinfectants – were believed to protect the practitioner. Yet this particular appearance caused fear rather than confidence: fear not of the doctor as a person, but of the disasters he was called in to combat[16].

The contemporary white coat became standardized in the late 19th century, which was the time when medicine shifted toward rationalism and evidence-based practice. The white coat began to be adopted in hospitals in Europe and the United States, as they wished to distinguish the scientist from the empirical healer. The whiteness of the coat symbolized the new age of asepsis and preventive medicine and the enlightenment of science[9,10].

Over time, the white coat became established and evolved into a hallmark of every medical student's and doctor's appearance, achieving exceedingly high levels of popularity throughout the 20th century – though in recent years these have gradually declined[8,10]. The «first coat» ceremony, today ritualized in the majority of medical schools, represents the transition from theory to practice – from dream to duty[10]. Aside from the material, however, the coat is not merely a work uniform but part of the doctor's "presence" before the patient.

Despite the white coat's good implication, its unfettered wear and the practice of going from contaminated to uncontaminated locations with the coat on are among the potential sources of microorganism transmission[10]. Furthermore, the very early bestowal of the coat on students can generate issues of trust, as it is worn by individuals not yet sufficiently trained to assume medical responsibility or participate usefully in the healing of patients. At least initially, then, it must be regarded as a symbol of initiation, and not as recognition of training completed – a declarative statement of intent[9].

But research indicates that even today, patients report more respect and trust if physicians wear a white coat, perceiving it as a professional sign[4]. Though outcomes also point to the fact that present times in medicine favor more "human" or relaxed forms of attire (for instance, scrubs or streetwear), most patients continue to associate the white coat with the professional status of the physician and feel more comforted by it[4].

At the same time, there are newer tendencies where physicians deliberately refrain from wearing the coat, trying to establish a more straightforward and friendly relationship with their patients, distancing themselves from a picture of "authoritativeness" and aloofness. In such conditions, the most polite step is held to be showing respect for the physician's personal dress choice[4,8].

In modern times, the medical coat also experiences modifications according to the demands of the current era. Lighter, recyclable materials and protective fabric technologies are merely a couple of samples of the way tradition must coexist with innovation. No matter how form evolves, however, the white color and its symbolic weight endure. The white coat remains a global symbol of care, expertise, and responsibility – a "uniform" which honors not only the profession but also the wearer, establishing a reciprocal bond of trust, since the doctor must earn the respect that the coat automatically commands.

Conclusions

Studies of medicine's symbolism and attire place in relief the close connection between visual portrayal, social meaning, and the relationship of healing. Medicine is not merely a science but also a system of social and cultural symbols – in which both the symbols (e.g., the serpent, the staff, or the cross) and attire serve as carriers of information related to the care experience. In particular, the white coat is not only a working uniform but a marker of significance which is commonly understood to convey medical experience and responsibility.

In an era where the doctor-patient relationship is being reconstituted in terms of values of equality, psychological support, and interpersonal engagement, it is necessary to learn about the semiotic properties of clothing and symbols so as to maximize interaction, dispel trust, and preserve therapeutic interaction. Evidence exists that medical dress cannot be treated as solely a practical and aesthetic concern but also as a communication device that has the potential to be effective in influencing patient attitudes and the nature of care. Its application, however, must remain balanced with an understanding of the weight it places. Finally, during the 21st century, the trend toward more direct and unmediated communication has created a certain disengagement of doctors from their classic attire – a trend to note.

Author Contributions:

A.K. conceived the original draft preparation. A.K., A.KO., K.G., and I.N. were responsible for conception and design of the review. K.G., I.N., and M.K. were responsible for the data acquisition. A.K, A.KO., were responsible for the collection and assembly of the articles/published data, and their inclusion and interpretation in this review. K.G., I.N., M.K., and A.K. contributed equally to the present work. All authors contributed to the critical revision of the manuscript for valuable intellectual content. All authors have read and agreed with the final version of the manuscript.

Compliance with Ethics Requirements:

"The authors declare no conflict of interest regarding this article"

"The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law."

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References

1. Shetty A, Shetty S, Dsouza O. Medical symbols in practice: myths vs reality. *Journal of Clinical and Diagnostic Research* 2014;8(8):PC12-PC14.
2. Poulakou-Roumbelakou E. Mythological and Asclepios' medicine, in History of Medicine, 3rd ed. Athens, Utopia Publications, 2023:35-48.
3. Antoniou SA, Antoniou GA, Learney R, Granderath FA, Antoniou AI. The rod and the serpent: history's ultimate healing symbol. *World Journal of Surgery* 2011;35(1):217-221.
4. Landry M, Dornelles AC, Hayek G, Deichmann RE. Patient preferences for doctor attire: the white coat's place in the medical profession. *Ochsner Journal* 2013;13(3):334-342.
5. Bailey JE. Asklepios: ancient hero of medical caring. *Annals of Internal Medicine* 1996;124(2):257-263.
6. Wilcox RA, Whitham EM. The symbol of modern medicine: why one snake is more than two. *Annals of Internal Medicine* 2003;138(8):673-677.
7. Stahel PF. Swiss flag or Red Cross emblem: why the confusion? *Patient Safety in Surgery* 2013;7(1):13-13.
8. Kazory A. Physicians, their appearance, and the white coat. *American Journal of Medicine* 2008;121(9):825-828.
9. Huber SJ. The white coat ceremony: a contemporary medical ritual. *Journal of Medical Ethics* 2003;29(6):364-366.
10. Mukhida S, Khan S, Kannuri S, et al. Wearing a white coat in theory class during medical school: is it justified? Reply to development and validation of the knowledge, attitude and practice questionnaire (LAUNDER-KAP) regarding white coat use among medical students during clinical practice. *American Journal of Infection Control* 2022;50(8):966-967.
11. Franklin SS, Thijs L, Hansen TW, O'Brien E, Staessen JA. White-coat hypertension: new insights from recent studies. *Hypertension* 2013;62(6):982-987.
12. Martin CA, McGrath BP. White-coat hypertension. *Clinical and Experimental Pharmacology and Physiology* 2014;41(1):1-8.
13. Cardillo C, De Felice F, Campia U, Folli G. Psychophysiological reactivity and cardiac end-organ changes in white coat hypertension. *Hypertension* 1993;21(6 Pt 1):836-844.
14. Lantelme P, Milon H, Gharib C, Gayet C, Fortrat J-O. White coat effect and reactivity to stress: cardiovascular and autonomic nervous system responses. *Hypertension* 1998;31(4):1021-1029.
15. Philip C. The white coat ceremony: turning trust into entitlement. *Teaching and Learning in Medicine* 2002;14(1):56-59.
16. Mussap CJ. The plague doctor of Venice. *Internal Medicine* Journal 2019;49(5):671-676.