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Does the white coat influence satisfaction, trust and empathy in the doctor–patient relationship in the General and Family Medicine consultation? Interventional study

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ABSTRACT

Objectives To understand the influence of the white coat on patient satisfaction, opinions about medical clothing, perception about confidence, empathy and medical knowledge and the satisfaction and comfort level of physicians in consultation.

Setting An interventional study was conducted with a representative sample of the population attending primary care in central Portugal.

Participants The sample was composed by 286 patients divided into two groups exposed or not to a doctor wearing a white coat. The first and last patients in consultation every day for 10 consecutive days were included.

Interventions Every other day the volunteer physicians consulted with or without the use of a white coat. At the end of the consultation, a questionnaire was distributed to the patient with simple questions with a Likert scale response, the Portuguese version of the 'Trust in physician' scale and the Jefferson Scale of Patient Perceptions of Physician Empathy - Portuguese Version (JSPPPE-VP scale). A questionnaire was also distributed to the physician.

Outcomes Planned and measured primary outcomes were patient satisfaction, trust and perception about empathy and secondary outcomes were opinion about medical clothing, satisfaction and comfort level of physicians in consultation.

Results The sample was homogeneous in terms of sociodemographic variables. There were no statistically significant differences between the groups in terms of satisfaction, trust, empathy and knowledge perceived by the patients. There were differences in the opinion of the patients about the white coat, and when the physician was wearing the white coat this group of patients tended to think that this was the only acceptable attire for the physician (p<0.001). But when the family physician was in consultation without the white coat, this group of patients tended to agree that communication was easier (p=0.001).

Conclusions There was no significant impact of the white coat in patient satisfaction, empathy and confidence in the family physician.

Trial registration number ClinicalTrials.gov ID number: NCT03965416.

Strengths and limitations of this study

► The methodology used in this research allowed us a more valid and real perspective of patients' opinions compared with the studies in which photographs were presented, since it referred to the physician they had before them and not to physicians unknown to them. Furthermore, another point that favours this research was its execution in several health units, allowing us a greater sociocultural diversity and moreover, our sample had a higher number than that calculated as necessary and a distribution of users similar to those attending consultations in the central region of the country.

► This being a study carried out only after one consultation, does not allow us to evaluate whether this preference may vary over time or what the patients' perception was before the consultation was carried out and also it was only carried out in primary care and in one region, which does not allow us to draw conclusions about the reality in our country or in hospital care. The duration of the consultation also should have been taken into account. This aspect may have a positive influence in patients' satisfaction, trust and empathy, as well as medical knowledge perceived by the user and doctor's satisfaction.

► The lack of knowledge about how frequently each patient visited his family doctor or how well they knew each other is another limitation of this study. We do not know if the appointment was a first or a subsequent one.

► The personalities of both the physician and the patient may influence the interaction in the physician–patient relationship and consecutively the results of this study. Since it was not possible to take them into account, these may have acted as confounding factors.

Strengths and limitations of this study

► The amount of 20 questionnaires per physician, 10 with and 10 without white coat, may be insufficient to assess all the studied variables. The absence of significant differences in terms of medical empathy between the 2two groups of patients may be due to the reduced number of questionnaires. The calculated sample is representative of the population but, in fact, when the calculation was done we did n'ot know what to expect, we should have used a more specific formula for this interventional study.

INTRODUCTION

The use of the white coat was introduced in the late Middle Ages to protect European physicians from the Black Plague and was accompanied by gloves, a hat and a mask that also protected the nose. In the 19th century, it was concluded that many diseases derived from the lack of aseptic care and, for hygienic reasons, the white coat became a norm.[1]

Due to some controversy about how a physician should be dressed, in recent years, a number of studies have been carried out in different countries regarding medical clothing in various areas of medicine, from Family Medicine to medical and surgical specialties and acute care, and how this is perceived by the patients. These studies concluded that, in about 60% of the cases, the garments of choice are the white coat and the use of formal clothes. However, in a significant part of these researches, no preference was demonstrated, as shown in the systematic review of Petrilli *et al.*[2] In addition, it was possible to conclude that the choices of each patient were conditioned by factors such as age, healthcare context, geographical location and by the population in which the patient fell into.[2]

In Portugal, there are 2 studies about medical clothing: one in the context of an emergency department which concluded that patients do not define medical clothing as the most important item for their satisfaction and, of those who did, informal clothing was preferred.[3] In the other study, in a primary healthcare setting, most of the sample defined the ideal family doctor as having a clean appearance and using a white coat.[4] With this study, as three main goals, we intend to evaluate more precisely what the influence of the white coat in primary healthcare consultations, namely in the patient's satisfaction, confidence, empathy in physician–patient relationship. In addition to these, we want to understand the opinions about medical clothing and whether they differ according to the age and educational level of the patients, or according to the gender of the physician who consults them and the impact that the way of dressing may have on patients' perception of the doctor's medical knowledge. Finally, we aim to assess the satisfaction and comfort of the physicians themselves with or without the use of the white coat.

METHODOLOGY
Research characterisation

An interventional study has been conducted evaluating the use or not of the white coat, in a quasi-random sample in the patient population attending healthcare centres in the central region of Portugal.

Population, sample and exclusion criteria

The questionnaire was applied to a population sample (286 patients) calculated to represent, with a CI of 90% and a margin of error of 5%, the population attending the consultations: a total of 1 774 608 users according to Central Administration of the Health System 2016 data. The minimum number of patients for the sample to be representative of the population was 271 users. The formula used is accessible at wwwraosoftcom/samplesizehtml.

Multiple volunteer physicians were invited to participate in the investigation, via email or in person, resulting in 16 participating in the investigation. These included both genders and different age ranges, from 10 primary healthcare units belonging to the *ARS Centro* (Regional Health Administration), from rural and urban areas.

Patients were selected semirandomly: the first and the last in consultation each day, for 10 consecutive days (in order to avoid the bias of always having the same type of people), and every other day the physician consulted with or without the white coat.

Exclusion criteria were considered as follows: under 18 years of age (in which case the questionnaire could be answered by the person accompanying him/her), illiterate patients and also patients whose general condition did not allow them to respond to the presented questionnaire. In the cases mentioned above, or in case of refusal, the physician could pass the questionnaire to the next patient (in case it was the first of the day) or to the first of the following day (if it was the last day), keeping the conditions aforementioned.

Data collection instrument

The questionnaire addressed to the patient contained 2 scales duly translated and validated for the Portuguese language, whose authors gave the proper authorisation for use in this study.

Each patient was asked about their age, gender, regular medication, literacy, level of education and professional activity. In the second part, they were asked about their satisfaction and the medical knowledge perceived during the consultation, using a 0 to 4-point Likert scale. The 'Trust in physician' scale—Portuguese version[5] was applied, in which 11 items were presented, again using a 0–4 point Likert scale. This allows us to evaluate confidence in 3 aspects: the total trust of the physician, to which the 11 items correspond, trust in the relationship with the physician, to which only 6 items correspond (1, 4, 5, 7, 10 and 11) and finally the trust in the competence of the physician corresponding to 5 items (2, 3, 6, 8 and 9). The JSPPPE-VP[6] scale was applied in order to evaluate medical empathy, through 5 items to rank from 1 to 7 on a Likert scale. Finally, the patient's opinion on medical clothing was evaluated through three phrases: '1. Regular clothes worn by the physician make the environment

more relaxed relative to the white coat.', '2. It would be easier to communicate with a physician dressed in regular clothes.' and '3. The white coat is the only attire acceptable for a physician.', with a scale equal to the previous one.

Regarding the questionnaire addressed to the physician, it was based on two simple yes/no questions with regard to having worn the white coat on a regular basis and on that consultation and two items related to his/her satisfaction and comfort during the consultation on a 0–4 point Likert scale.

Data collection

The data collection took place from November 2018 to February 2019, in a period of 10 consecutive days, chosen by the physician. The questionnaire was delivered by the physician at the end of the consultation, after the patient signed the informed consent and filled out the self-completion questionnaire with the physician's help in case of doubts or difficulties.

Procedures prior to data collection

The study was authorised by the head of each health unit and the ethics committee of the *ARS do Centro* (Regional Health Administration), authorisation no. 77/2018 on 22 November 2018.

Variables

The outcomes under study in this research, defined in protocol and unchanged after the field study, were as follows: patient satisfaction, total trust perceived by the patient, confidence in the physician–patient relationship, confidence in the physician's competences and empathy perceived by the patient (main outcomes) and knowledge perceived by the patient, physician satisfaction and physician comfort (secondary outcomes).

Statistical analysis

After a descriptive analysis, the normal distribution of numerical variables was tested using the Kolmogorov-Smirnov test. As the distribution of most variables was not normal, non-parametric Mann-Whitney U tests were used to compare the numerical variables between the groups. The χ^2 test was used to compare the nominal variables. Statistical significance was defined as a $p<0.05$.

Patient and public involvement statement

The patient population of this clinical trial only played a role as a participant and was not additionally involved in this article.

RESULTS

A total of 286 questionnaires were obtained, 50.7% with the use of white coat (n=145) and 49.3% without the white coat (n=141), all of which were included, since none presented exclusion criteria or filled out the form as incomplete.

The average age of the patients was 49.92±16.24 years, with a minimum age of 18 and a maximum age of 85. The majority of the participants were women (63.6%, n=182) and took medication regularly (66.4%, n=190). Regarding schooling, in most cases they had the 12th grade or higher education (21.7%, n=62 and 21.3%, n=61, respectively), followed by the 4th grade (19, 2%, n=55) (table 1).

Between the two groups, there was no significant difference between the averages of the ages, genders, schooling and professional activity. Regarding the normal intake of medications, the group of patients with whom consultations were carried out with the white coat had a higher percentage of regular medications (72.4%) compared with those without a white coat (60.3%) (p=0.04) (table 1).

As for the 16 participating physicians, all of them wore a white coat normally in their consultations and most were women (n=9, 56.6%). Their degree of satisfaction with the consultations had an average value of 3.68±0.53 points (on a 0–4 points scale). Regarding comfort, the average was 3.60±0.62 points (on a 0–4 points scale) (table 2).

Analysing the response to the main objectives of this study (satisfaction with consultation, confidence and empathy with the physician) in the two patient groups, in consultations with and without white coat, there was no significant difference between the two, and there was, in the three objectives, a tendency towards higher values when the consultation was performed without a white coat, when compared with wearing the white coat (table 2). Regarding total confidence in the physician, the average of the results was 36.98±6.58 points (44 being the maximum possible) and in the scale used to evaluate medical empathy, an average value of 30.76±4.72 was obtained (on a maximum of 35 points). Patients' satisfaction level, in general, presented positive levels, as did perceived medical knowledge (table 2).

Concerning the secondary objectives, there were no significant differences between the groups with or without the white coat, in relation to the variables of the physician's knowledge perceived by the patient, nor in the satisfaction and comfort of physicians with or without a white coat, who generally tended to have a higher satisfaction in the consultations when they did not wear a white coat. Nevertheless, comfort turned out to be higher when they performed consultations with a white coat.

The opinions about the use of a white coat generally agreed with the phrase 'The physician wearing his/her regular clothing makes the environment more relaxed compared to using a white coat'. There were no differences between groups, tending towards more positive opinions in the group of patients who attended consultations without a white coat. In the sentences It would be easier to communicate with a physician dressed in regular clothes. and 'The white coat is the only garment acceptable for a physician.' most patients tended to disagree with them. The agreement with the phrase: It would be easier to communicate with a physician dressed in regular

Table 1 Sociodemographic characterisation of the samples, comparing the distributions of variables such as age, gender of the patient, level of schooling, regular medication intake and professional activity of the samples with and without white coat

		Consultations with white coat		Consultations without white coat			Total of consultations	
		n	Percentage (%)	n	Percentage (%)	P value	n	Percentage (%)
Age of patient	18–40 years old	44	30.3	47	33.3	0.556	91	31.8
	41–65 years old	66	45.5	66	46.8		132	46.2
	Over 65 years old	29	20.0	24	17.0		53	18.5
Gender of patient	Feminine	88	60.7	94	66.7	0.325	182	63.6
	Masculine	55	37.9	46	32.6		101	35.3
Regular medication intake	Yes	105	72.4	85	60.3	0.040	190	66.4
	No	37	25.5	51	36.2		88	30.8
Level of schooling	Inferior to 4th grade	12	8.3	10	7.1	0.335	22	7.7
	4th grade	31	21.4	24	17.0		55	19.2
	6th grade	15	10.3	13	9.2		28	9.8
	9th grade	21	14.5	30	21.3		51	17.8
	12th grade	36	24.8	26	18.4		62	21.7
	Higher education	26	17.9	35	24.8		61	21.3
Professional activity	Agriculture	2	1.4	4	2.8	0.194	6	2.1
	Commerce	10	6.9	8	5.7		18	6.3
	Unemployed	14	9.7	10	7.1		24	8.4
	Housewife	10	6.9	6	4.3		16	5.6
	Student	4	2.8	7	5.0		11	3.8
	Industry	16	11.0	15	10.6		31	10.8
	Retired	31	21.4	20	14.2		51	17.8
	Services	21	14.5	26	18.4		47	16.4
	Other	30	20.7	41	29.1		71	24.8
	Various	7	4.8	1	0.7		8	2.8

clothes was higher in consultations without a white coat (p=0.001) and the agreement with the sentence: 'The white coat is the only garment acceptable to a physician.' was higher in consultations with the white coat (p<0.001) (table 2).

Opinions on the phrase 'The white coat is the only clothing acceptable for a physician.' vary with age (p=0.018), and if you were up to 65 the tendency was to disagree, whereas people aged 65 or over tended to agree with the statement. If we compare the opinions of the same sentence, but in people with different levels of schooling, we also notice that the disagreement is higher when we talk about people with more than the 12th grade (p=0.011). Finally, when comparing patients who had consultations with physicians of genders other than their own, we realised that there was no significant variation between the groups (table 3).

DISCUSSION
Although there have been multiple previous studies, in various fields of medicine and in other countries, that show that medical clothing influences what patients perceive about their healthcare[2], in this study we found that patient satisfaction did not differ significantly among patients who had consultations with or without the use of a white coat, as verified in the study by Kersnik et al[7] and others.[8–11] Empathy and perceived trust in the provided care seem to be more relevant to patients than what the doctor wears. The same thing happened with confidence: it was found that the white coat did not affect it, as a whole, and specifically, in terms of medical competence and physician–patient relationship, something that had already been reported by American patients in a study by Cha et al[12] as in other studies.[13 14] In this case, as in satisfaction, the results lead us to believe that appearance is not the most important factor and that trust is something that will depend more on the people involved in the relationship, the physician and the patient, than the way the physician presents him/herself. However, there are studies that indicate that the white coat leads to higher levels of confidence,[15–27] which can be attributed to the fact that they have been carried out in other fields of medicine, namely: intensive care,[19] dermatology,[25] internal medicine,[26] paediatrics[16] or even in several areas simultaneously.[20 21 24] These fields may lead to different contexts and a completely different type of physician–patient

Table 2 Comparison of patient's responses to satisfaction with medical care, overall confidence, trust in physician–patient relationship, trust in physician's competences, perception of medical knowledge and opinion about medical clothing, and physician's answers about their satisfaction and their comfort with the consultation

	Consultation with white coat			Consultation without white coat				Total consultations		
	n	Average	SD	n	Mean	SD	P value	n	Total average	SD
Patient satisfaction	143	3.85	±0.37	141	3.,86	±0.35	0.981	284	3.86	±0.36
Total confidence in physician	132	36.46	±7.01	125	37.54	±6.08	0.321	257	36.98	±6.58
Confidence in relationship with physician	136	18.24	±5.64	130	19.02	±5.01	0.365	266	18.62	±5.35
Confidence in physician's competences	137	18.23	±2.64	132	18.33	±2.40	0.882	269	18.28	±2.52
Medical empathy	138	30.60	±5.06	136	30.92	±4.35	0.997	274	30.76	±4.72
Perceived medical knowledge	143	3.88	±0.37	140	3.84	±0.37	0.213	283	3.86	±0.37
'The regular clothes worn by the physician make the environment more relaxed compared with the white coat.'	142	2.80	±1.34	141	2.98	±1.31	0.241	283	2.89	±1.33
'It would be easier to communicate with a physician dressed in regular clothing.'	141	1.65	±1.37	141	2.23	±1.44	0.001	282	1,.94	±1.43
'The white coat is the only clothing acceptable to a physician.'	142	2.37	±1.58	141	1.58	±1.57	<0001	283	1.98	±1.62
Physician's satisfaction	144	3.63	±0.54	141	3.72	±0.52	0.084	285	3.68	±0.53
Physician's comfort	144	3.65	±0.55	140	3.54	±0.69	0.244	284	3.60	±0.62

relationship from the usual one with the family physician, observed in Portugal. The longitudinal follow-up of the person and their family promotes a closer and more trusting relationship. The different conclusions could also be justified because there is no physician–patient meeting in some of these other studies,[16–19 21–27] which differs from the methodology of our research that ends up focusing on the opinion of the family physician, specifically.

At the level of medical empathy, the result was different from that obtained by Chung *et al* in a study carried out in 2012, which concluded that the use of white coat led to higher scores on the 'CARE (Consultation and Relational Empathy)' scale, when compared with the use of casual clothing.[15] In our study there was no significant difference between the scores of the JSPPPE-VP questionnaire of the groups in consultations with and without the white coat. This difference of conclusions may be due not only

to the different cultural contexts mentioned above, but also to the fact that different scales were used and, in the study by Chung *et al* only participants who were in a first consultation with that physician were selected, contrary to the context of continuity in primary care.

Medical clothing did not seem to affect the perception of medical knowledge by the participating patients, contrary to that reported in 2013 by Au *et al*[19] in which patients considered that the white coat was a sign of a more experienced physician. Once again, this difference may be due to the fact that this study was carried out without a physician–patient encounter, that is, without a real confrontation of the physician's knowledge, having instead a hypothetical and abstract appreciation, from the physical aspect in photos.

In the sentence It would be easier to communicate with a physician dressed in regular clothes. although the

Table 3 Comparison of responses to the statement 'The white coat is the only clothing acceptable to a physician.' depending on the age and level of schooling of the patient and the physician's gender

		n	Average	SD	P value
Patient's age	18–65 years of age	222	1.83	±1.57	0.018
	Over 65 years of age	53	2.43	±1.74	
	Total	275	1.95	±1.62	
Patient's level of schooling	Up to 12th grade	216	2.09	±1.63	0.011
	More than 12th grade	60	1,.48	±1.48	
	Total	276	1.96	±1.62	
Physician's gender	Feminine	159	1.84	±1.64	0.128
	Masculine	124	2.15	±1.59	
	Total	283	1.98	±1.62	

general trend was disagreement, the opinions diverged between the two groups with significant difference, with greater agreement in the case of a patient who participated in a consultation in which the physician was not wearing a white coat (p=0.001). This difference between groups may have happened because patients of the group seen by a physician wearing a white coat did not experience a consultation with him without a white coat, unlike the other group, and did not have a chance to respond after concrete experience. This suggests that this experience may have influenced the perception of the facilitation of communication with a physician without a white coat, although then it was not enough to lead to differences in trust and empathy, for reasons already mentioned above. Finally, in the third affirmation, 'The white coat is the only garment acceptable for a physician', the agreement was higher when the physician presented him/herself with a white coat (p<0.001), but nevertheless, the general tendency was to disagree with this phrase, which does not mean that patients disagree with the fact that the white coat is considered the preferred garment, something that had been concluded largely in previous studies,[2 7–9 12 13 15 16 18–22 24 25 27–30] but instead that they do not agree that there is no other appropriate medical garment besides this. Again, it would be natural that the group that never had the opportunity to experience a consultation with their family physician without a white coat agreed even more that the white coat is the only acceptable garment. However, the divergence of opinions in the last two sentences in the two different groups of patients, with and without a white coat, leads us to think that although medical clothing may have importance in the physician–patient relationship, this does not mean that it must be rigid and unalterable.[31]

As we delve deeper into the opinions regarding the last sentence we conclude that, although the tendency in most patients is to disagree with it, when we speak of patients over 65 this is no longer the case, that is, elderly patients tend to have a greater preference for the white coat, which is similar to that found in several previous studies.[18 22 26 29 30] We do not know exactly what this is due to, if to the influence of the media,[30] or even to familiarity, or if a patient is accustomed to seeing physicians constantly in a white coat, that is what may be acceptable to them. In addition, it was noted that patients with a higher level of education (higher education, in this case) have a lower preference for the white coat, as previously verified.[26] One possible explanation for this is that higher education patients have a greater sense that it is not what one wears that dictates who is a better or worse physician and, in addition, they may feel closer to the physician's qualifications and accept that garments are also levelled when in consultation. This was contrary to what had been verified by Hartmans[22]; however, once again, the differences between these two studies may be due not only to the different methodologies but also to the different sociocultural contexts, since they are two different countries, Portugal and Belgium. As for the gender of the

physician, it has been shown that it has no influence on the preference of medical clothing, which goes against what was reported in 2005 by Rehman *et al.*[26] One likely justification for this is that, over the years, there has been a rise in gender equality and a loss of sexist thinking that the physical presentation of women is more important than that of men. In addition, also because most family physicians in Portugal are women, and therefore it levels out the differences that could exist with the image of a not so emancipated woman as physician and having to present herself differently in order to assert herself.

Regarding the opinion of physicians, there were no great differences in their satisfaction and comfort depending on what they wore in the consultation, something that can be explained because satisfaction and comfort during the consultation have many other variables that affect them besides the clothing, because factors such as the personality of the patient, the type of relationship they maintain or even their mood on that day may influence them. Still, the tendency was to feel more satisfied when they did not have a white coat and more comfortable when they had one. This may be due to the so-called 'force of habit' because as all physicians included in this study are accustomed to wearing a white coat, they felt more comfortable and protected with it, nevertheless they also had a higher level of satisfaction when trying to do consultation without it, perhaps because they perceive it as an experience that brings the patient closer or because they have lower expectations in that consultation because they are not wearing their typical white coat. It would be interesting to deepen this theme and understand if the physician's satisfaction with the appointments and with their work can be changed with alterations in their clothing or even in the disposition of the office favouring the approach to the patient.

The methodology used in this research allowed us a more valid and real perspective of patients' opinions compared with the studies in which photographs were presented, since it referred to the physician they had before them and not to physicians unknown to them. Another point that favours this research was its execution in several health units, allowing us a greater sociocultural diversity. Moreover, our sample had a higher number than that calculated as necessary and a distribution of users (more female and across the 41–65 age group) similar to those attending consultations in the central region of the country. However, it was only carried out in primary care and in one region, which does not allow us to draw conclusions about the reality in our country or in hospital care.

Regarding clothing, we can think that by not standardising this clothing, it becomes more difficult to compare doctors because satisfaction, trust and empathy and even the medical knowledge perceived by the user are points that can vary with this clothing, for example, a patient may find a dress less empathetic, even if this is the doctor's usual attire, than if he were dressed in trousers. However, in this investigation that was not the objective,

the objective here was to compare the same doctor with and without a white coat and not, doctors in general with each other.

At another point, as the doctor could choose when to start the 10 consecutive days of the intervention, it could also be thought that the doctor could choose what to wear on that day to please specific patients, generating some bias. However, in Portugal there are always acute and not prescheduled patients coming to consultation and that could not be predicted.

The fact that the investigation was carried out in the prepandemic period allowed us not to use a mask during these consultations, this may have been an advantage in this study since the mask, as well as other personal protective equipment, could be harmful factors. in the variables studied because they prevent some type of interaction that facial mimicry could allow.

The number of 20 questionnaires per physician, 10 with and 10 without white coat, may be insufficient to assess all the studied variables and in fact the absence of significant differences in terms of medical empathy between the 2 groups of patients may be due to the reduced number of questionnaires. The sample calculation was performed using a sample size calculator in order to be as representative as possible of the local population and to assess the variables in the sample as a whole, not discriminating between doctors. We used this sample calculation formula as there was no previous study such as this one to allow us to use an intervention study formula (having no idea of the expected incidence/difference between groups), we should have used a more specific formula for this study. Although we tried, the number of questionnaires was not higher due to the difficulty of acceptance of participation in this investigation and also with the objective of minimising the consumption of time during the consultation day, which becomes a challenge in daily practice.

During the questionnaires, and despite the fact that they used validated scales in the Portuguese population, it was difficult to interpret the phrases and the fact that the physicians were the ones that gave the questionnaire to the patients at the end of the consultations may have induced a bias in the responses. Moreover, this being a study carried out only after one consultation, does not allow us to evaluate whether this preference may vary over time or what the patients' perception was before the consultation was carried out.

As another limitation of this study, we also have the fact that the frequency of each patient's appointment with that doctor is not known, that is, if it was a first appointment or a subsequent appointment with their family doctor. Contrary to other specialties, General and Family Medicine in Portugal implies that, in most cases, patients are seen in primary care by their own family doctor, so most of the consultations are usually with return patients. But there are exceptions, as when the doctor is reassigned to a patient file, the possibility of the doctor's absence, a new patient in that health unit or acute consultations where the user can be attended by another doctor in the unit.

The consultation time is another point to be taken into account in this study, which could have significant effects on the results and which was not evaluated. This point was not evaluated during this investigation and is something that can benefit the variables satisfaction, trust and empathy in the doctor–patient relationship, such as the medical knowledge perceived by the user and the doctor's satisfaction, evaluated here.

Moreover, the personalities of both the physician and the patient can influence the interaction in the physician–patient relationship and consequently the results of this study, since it has not been possible to take them into account, these can act as a confounding factor of the results obtained.

Conclusion

Thus, we can conclude that medical clothing was not considered a barrier in the physician–patient relationship, and did not represent, in this study, a significant influence on satisfaction, confidence, empathy and medical knowledge perceived by the patient, nor on the satisfaction and comfort of the physician, in the primary care context. As for patients' opinions about medical clothing, there has been no general tendency to favour the use of white coats, and it has become difficult to define how important clothing is to patients when compared with their high confidence, empathy, serviceability, delicacy, ability to listen and to be understood by the patients. Even so, it seems important to deepen this research since clothing, even if not the most important aspect in the physician–patient relationship, would be more easily alterable than the personality and even the capacity for empathy of a physician. This study may be a starting point for many others, with the perspective to generalise the results obtained here, such as cross-exposure studies and other areas of medicine care, namely areas under which hospital care is included.

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Patient consent for publication Consent obtained directly from patient(s)

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