

Understanding patient preferences for student clinician attire: a cross-sectional study of a student chiropractic clinic in Australia

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Objectives: *Previous studies have investigated the role of clinical attire in establishing patient-held perceptions of professionalism and knowledgeability across various healthcare settings. This study aimed to understand patients' preferences for chiropractic student attire.*

Methods: *Three hundred and twenty patients were recruited from a university chiropractic clinic and asked to complete an online questionnaire. The patients' preferences for five different attires were rated and*

Comprendre les préférences des patients en matière de tenue vestimentaire des étudiants en clinique: étude transversale d'une clinique chiropratique étudiante en Australie

Objectif : *Des études antérieures ont examiné le rôle de la tenue vestimentaire en clinique dans l'établissement des perceptions des patients quant au professionnalisme et à la compétence dans divers environnements de soins de santé. Cette étude visait à comprendre les préférences des patients en matière de tenue vestimentaire des étudiants en chiropratique.*

Méthodologie: *Trois cent vingt patients ont été recrutés dans une clinique chiropratique universitaire et invités à remplir un questionnaire en ligne. Les préférences des patients pour cinq tenues différentes ont*

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calculated as the composite score of five domains (knowledgeable, trustworthy, caring, professional, and comfortable).

Results: While 71.9% of participants indicated that how students dress was important to them, most (63.4%) disagreed that wearing a white coat was essential for chiropractic student clinicians. The most preferred form of attire was the current clinic shirt.

Conclusion: The attire worn by chiropractic student clinicians at a single institution was found to be an influential attribute. Student chiropractic clinicians should dress professionally to make a good first impression. This study provided some guidance with the ongoing debate around students' dress code.

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KEY WORDS: attire, chiropractic, dress code, student, teaching

Introduction

In the healthcare environment, the first impression can be very important in building rapport with patients. The initial introduction forms the basis of the "Impression formation" theory, which involves the rapid evaluation of a person's character based on specific traits such as attraction, aggression, and how competent the person appears.¹ Evidence suggests that a patient's first impression substantially impacts how they perceive the practitioner and the success of future clinical interactions.² Furthermore, it has been established that such impressions are relatively stable and, once established, remain cemented over time.^{3,4} The literature divides the factors contributing to a patient's perception of "professional attractiveness" into modifiable and non-modifiable categories.⁵ Physicians' attire, in particular, can dramatically influence patients' perceptions of their healthcare professionals², explicitly dictating a sense of trustworthiness, knowledge, and expertise, which are all crucial traits for a clinician⁶⁻⁹.

Evidence highlighting the importance of patient-centred care in clinical encounters is well-documented.^{10, 11} The modern healthcare landscape now largely conforms

été évaluées et calculées en tant que score composite de cinq domaines (bien informé, digne de confiance, attentionné, professionnel et confortable).

Résultats: Si 71,9 % des participants ont indiqué que la tenue vestimentaire des étudiants était importante pour eux, la plupart (63,4 %) n'étaient pas d'accord avec le fait que le port d'une blouse blanche était essentiel pour les étudiants cliniciens en chiropratique. La tenue vestimentaire la plus appréciée était la chemise de clinique actuelle.

Conclusion: La tenue vestimentaire des étudiants cliniciens en chiropratique d'un même établissement s'est révélée être un attribut influent. Les étudiants en chiropratique doivent s'habiller de manière professionnelle pour faire une bonne première impression. Cette étude a permis d'éclairer le débat en cours sur le code vestimentaire des étudiants.

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MOTS CLÉS : tenue vestimentaire, chiropratique, code vestimentaire, étudiant, enseignement

with Langberg's patient-centred triad, where the patient's condition, the doctor-patient partnership, and the coordination of care within a broader health system are privileged.¹² The concept of a patient-clinician relationship has been defined as the action of being respectful and responsive to the preferences, needs and values of individual patients.¹³ From its conception to the modern-day, the therapeutic benefit of providing emotional and cognitive care alongside physical care has been emphasised.¹² Attributed to increasing patient satisfaction and compliance, reduced healthcare costs, and improved patient outcomes, the patient-clinician relationship is an essential factor in every clinical encounter.¹⁴ The quality of care and the patient-clinician relationship are core factors embedded into medical/healthcare professionalism.¹⁵⁻¹⁷ Despite its multidimensional constructs¹⁸, medical professionalism is linked to the delivery and implementation of healthcare, the implementation of trust within patients and the public, and the self-monitoring and ongoing improvement of medical/healthcare professionals^{18, 19}.

Various studies have examined the influence of physician attire on patient experience^{6, 20-25}, helping to establish

and strengthen this patient-clinician relationship. White coats have been reported as the preferred attire for medical students and medical physicians in the United Kingdom²⁶, Brazil²⁷, and the United States²⁸, with 85-90% of patients stating that they thought certain clinical attire was important for medical students²⁶. In a Canadian physiotherapy⁸ setting, there was a clear delineation between attire patients thought was professional (i.e. the white coat) and attire that patients preferred (tailored dress). Some studies investigated the effect of different aspects of clinician presentation on patients' comfort.²² While there was no clear consensus on what the 'preferred clinician' should look like, some consistent qualities rated the highest level of patient discomfort, including wearing shorts, extravagant hair colour, long hair, and excessive jewellery such as multiple rings, facial piercings, and earrings.^{27,29}

There is limited evidence on patient perceptions of chiropractic professional attire and even more limited in a chiropractic student-clinician context. Although few web-based articles were published on how chiropractors should dress when practising, none explore the patient's perceptions and preferences of chiropractors' attire.³⁰ Connell and Bainbridge³¹ examined how chiropractors build patients' trust through the use of semi-structured interviews. It was determined that trust was built through honesty, communication, perceived competence, and caring.³¹ Although most interviewed chiropractors felt that their appearance, including professional attire, was required to build "perceived competence", the best attire was not explored.³¹

Patient preferences regarding chiropractic-student clinical attire have yet to be investigated. Therefore, this study aimed to answer the following research question: What are the patient's preferred chiropractic student clinician's attires? We hypothesised that students' attire influences patients' perceptions of students' knowledgeability, trustworthiness, and competence.

Methods

Study design, population, and sample size

We conducted a cross-sectional survey using an image-based online questionnaire depicting chiropractic student clinicians in varying attire for the patients to rate based on various qualities. Between March and October 2020, patients older than 18 without cognitive impair-

ment who attended Murdoch University Chiropractic Clinic were invited to participate. We excluded chiropractic students attending the clinic as patients if they had completed more than the first two years of the program. This study was approved by the Murdoch University Ethics Committee (2019/083).

The sample size requirement was calculated using G*Power 3.0.10 and was based on a previous study¹⁴ using a standard deviation of 2.2 with a mean difference of 0.3, assuming a 2-side alpha error of 0.05. The sample size was estimated at 305 participants to achieve 80% power.

Questionnaire development

With permission, the questionnaire was adapted from a previous study¹⁴, and then piloted in 2019. The questionnaire was adapted from a cross-sectional observational study of 10 academic medical centres in the USA.¹⁴ The questionnaire was modified to include photographs relevant to a student chiropractic clinic rather than medical centres. Questions related to different medical care settings were omitted as they were not applicable to a university-based chiropractic clinic. This questionnaire was then piloted within the Murdoch University Chiropractic Clinic in 2019 on 62 participants to determine its usability. Upon completion, it was recommended to duplicate section C (General Student Clinician Attire) for supervising clinicians. We found from the pilot study that the questionnaire was feasible and understood. Therefore, no other changes were made.

The survey questionnaires aimed to investigate how the following forms of attire influenced patients' perception: A) shorts and t-shirt with thongs (casual shorts), B) jeans and t-shirt with sports shoes (casual jeans), C) black dress pants and polo shirt with black shoes (polo shirt), D) black dress pants and white Murdoch University Chiropractic Clinic shirt with black shoes (clinic shirt), and E) black dress pants, black dress shirt (with a tie for male) and white coat with black shoes (whitecoat). The attire "D" is the current standard attire worn by students in the student clinic. Colour photographs of a male and female student clinician (wearing the different attire) were taken by a professional photographer (Figure 1). To avoid biases, the consistency of the facial expression, lighting, pose, and body language was maintained in all photographs. The male and female student chiropractic student models



Figure 1.
Male and female attire photographs

were volunteer members of the research team providing written consent for the photographs to be used within the questionnaire and for publication.

Questionnaire description

Two questionnaires were used: a male and a female version. Questionnaires (Appendix 1) (male and female versions) each contained five sections and were administered through an electronic platform survey (Survey Monkey). The first section (Section A) had five questions for each of the five photographs asking participants to rate each image on a 10-point Likert scale (1: Somewhat to 10: Ex-

tremely) on how “Knowledgeable”, “Trustworthy”, “Caring”, and “Professional” the student-clinician appeared and how “Comfortable” they felt. The following section (Section B) had the five photographs (male or female) and asked participants which image they preferred and to order images using a scale of 1 (prefer the most) to 5 (prefer the least). The photographs within Section A and Section B were presented to participants in a random order to prevent ordering or anchoring effects. This was achieved by using question randomisation through Survey Monkey (Momentive inc., San Mateo, California, USA).

The third section (Section C-1) included questions re-

lated to participants' general level of agreement on four statements: "1) How my student-clinician dress is important to me, 2) How my student-clinician dress influences how happy I am with the care I receive, 3) It is appropriate for a student clinician to dress casually when seeing patients over the weekend, and 4) Student-clinician should wear a white coat when seeing patients in the student's clinic. Participants rated these statements using a 6-point Likert scale (1: strongly disagree to 6: strongly agree). The fourth section (Section C-2) was similar to the previous one. However, the questions explored the participants' perception of supervisor clinicians' knowledgeability, trustworthiness, and professionalism in relation to how they dress. The questionnaire's final section (Section D) included demographic information regarding participants' age, gender, level of education, ethnicity, and how often they had attended the clinic.

Procedures

Before or after their appointment, participants were approached by a fourth-year chiropractic student and asked if they would agree to complete the survey, which took approximately 10 minutes. If interested, they were presented with an electronic tablet to access the survey, which included the study information, consent, and survey. Participants provided consent virtually before completing the questionnaire by clicking the "I agree button". Participants were not permitted to complete the survey twice.

To ensure a fair representation of patients attending the Murdoch University Chiropractic Clinic, a randomised list was created for each day of the week except Sunday. The list dictated, starting from the clinic's morning and afternoon opening hours, which patients were invited to complete the survey upon presenting to the clinic, and whether they would be assigned the male or female survey.

Statistical analysis

Data from the electronic questionnaires were downloaded and analysed using statistical software (IBM SPSS version 24, Armonk, NY). Descriptive statistics (means, percentage) and standard deviation (SD) were used to chart the results. Patient preference for the five different forms of attire was calculated as the composite score by calculating the average of five domains (knowledgeable, trustworthy,

caring, professional, and comfortable) with a range of 1 to 10. Differences in the mean composite rating scores from the student-clinician rating section were assessed using a one-way analysis of variance. Differences in proportions for categorical data were compared using the χ^2 test. Bivariate comparisons between male and female survey, participants' age, gender, and level of education and ethnicity with corresponding participant preferences for attire were assessed using χ^2 tests with results reported as mean with 95% confidence interval (CI). A p -value (2-sided) ≤ 0.05 was regarded as statistically significant.

Results

Three hundred and thirty-one participants were invited to partake in this study, in which 320 (96.7%) completed surveys were returned and included in the analysis. Participants' demographic information is provided in Table 1. The mean age (standard deviation) of participants was 33.16 (13.59), 154 (48.1%) were female, and the majority were younger than 50 years (79.5%). A large percentage (38.9%) had completed a university undergraduate degree. Only 31 (9.7%) participants attended the clinic for the first time, while the remaining of them were almost equally distributed for attending the clinic between 2 to 3 times (30.9%), 4 to 8 times (24.7%), and more than eight times (34.7%).

The overall Cronbach's alpha for the five items included in the composite score was 0.91. The domain 'comfortable' was the domain with the lowest value considering the corrected item-total correlation. However, this score was still within the acceptable value and made no difference if this item was removed.

Image D (clinic shirt) was rated the highest (Table 2), with a mean composite score of 7.92 (1.41) and was regarded as the most preferred (Table 3). Image A (casual shorts) was the least preferred (Table 3) and was rated the lowest, with a mean composite score of 4.02 (1.94) (Table 2). As per the composite score, image D was statistically significantly higher than all other images ($p = 0.000$) (Table 2). Image "D" was also significantly higher in trustworthy and caring domains than all other images. Nonetheless, there was no significant difference in the knowledge and professional domains between image "D" and "E (whitecoat)" and in the comfortable domain between image "D" and "C (polo shirt)". The composite score of images A (casual shorts) and B (casual jeans)

Table 1.
Participant demographics

Characteristics	N (%)
Gender	n=320
Female	154 (48.1)
Male	160 (50.0)
Other	6 (1.9)
Age	n=331
≤ 25 years	126 (38.1)
26 to 50 years	137 (41.4)
> 50 years	68 (20.5)
Education	n=319
Less than high school	7 (2.2)
High school	87 (27.3)
Tafe	40 (12.5)
University undergraduate	124 (38.9)
University postgraduate	53 (16.6)
Decline to answer	8 (2.5)
Ethnicity	n=320
Australian	201 (62.8)
Indigenous Australian or Torres Strait Islander	2 (0.6)
New Zealander	8 (2.5)
Asian	58 (18.1)
European	29 (9.1)
Indian	7 (2.2)
Middle Eastern	1 (0.3)
African	5 (1.6)
North American	1 (0.3)
South American	2 (0.6)
Decline to answer	6 (1.9)
Clinic visit	n=320
First time	31 (9.7)
2-3 times	99 (30.9)
4-8 times	79 (24.7)
More than 8 times	111 (34.7)

was statistically significantly lower than images C, D, and E. However, there was no statistical difference between images “A” and “B” ($p = 0.435$). Image “A” was also significantly lower in domains of knowledge, professional and comfortable than all other images, but there was no significant difference in the trustworthy and caring domains between image “A” and “B”. Image “B” was also significantly lower in the domains of knowledge and professional than all other images. However, image “B” was not significantly different from image “E” in the comfortable domain.

There was no significant difference between the mean composite image score and the participants’ age group. The composite score for image B (casual jeans) was statistically different between male (3.86; 95% CI: 3.55, 4.18) and female (4.48; 95% CI: 4.23, 4.74) surveys ($p = 0.003$). The composite score for images A (casual shorts) and B (casual jeans) was statistically different between participants’ gender, with male participant rating image A (4.43; 95% CI: 4.11, 4.75) and image B (4.61; 95% CI: 4.31, 4.90) higher than female participants (Image A: 3.63; 95% CI: 3.36, 3.91/Image B: 3.93; 95% CI: 3.66, 4.19), ($p = 0.001$).

Specific differences in preferences regarding student attire established on participants’ education level and ethnicity were also noticed. Considering the number of participants in each category, “Education” and “Ethnicity” were dichotomised to “High School or less” and “University” and “Australian” and “Non-Australian”, respectively. Based on the composite score, images A, B, and D statistically differed between participants’ education levels. University-educated participants rated images A (4.30; 95% CI: 4.01, 4.56) and B (4.47; 95% CI: 4.21, 4.73) higher than participants without a university education (image A: 3.76; 95% CI: 3.42, 4.08/image B: 4.05; 95% CI: 3.73, 4.37) ($p < 0.044$). However, the rating contrasted for image D, where non-university-educated participants rated the attire higher (8.11; 95% CI: 7.88, 8.34) ($p = 0.023$). Regarding ethnicity, images B, D and E’s composite scores were statistically different between Australian and non-Australian participants, where non-Australian participants rated all images higher (image B: 4.53; 95% CI: 4.16, 4.91/image D: 8.15; 95% CI: 7.89, 8.41/Image E: 7.89; 95% CI: 7.59, 8.20) ($p < 0.03$).

The majority of participants agreed or strongly agreed (71.9%) that how the student-clinician dressed was im-

Table 2.
Rating of student-clinician attire

Domains, mean (SD)	A	B	C	D	E
Knowledgeable	3.34 (2.22)	3.88 (2.04)	7.22 (1.63)	8.12 (1.52)	8.02 (2.00)
Trustworthy	3.87 (2.26)	4.17 (2.13)	7.26 (1.66)	8.04 (1.50)	7.42 (2.05)
Caring	3.99 (2.34)	4.22 (2.09)	7.21 (1.71)	7.83 (1.65)	6.92 (2.30)
Professional	2.38 (1.99)	3.07 (2.06)	7.47 (1.80)	8.42 (1.43)	8.27 (1.95)
Comfortable	6.51 (3.01)	5.90 (2.47)	7.47 (1.71)	7.17 (2.04)	5.91 (2.51)
COMPOSITE score	4.02 (1.94)	4.25 (1.81)	7.32 (1.53)	7.92 (1.41)	7.31 (1.82)

Table 3.
Preference for student clinician attire.

Preferences	N (%)
Preferred the most	n=320
A. Casual Shorts	17 (5.3)
B. Casual Jeans	13 (4.1)
C. Polo Shirt	113 (35.3)
D. Clinic Shirt	136 (42.5)
E. White coat	41 (12.8)
Preferred the least	n=62
A. Casual Shorts	223 (67.4)
B. Casual Jeans	36 (11.3)
C. Polo Shirt	10 (3.1)
D. Clinic Shirt	14 (4.4)
E. White coat	37 (11.6)

portant to them. However, most felt that wearing a white coat was not essential (63.4%) (Table 4). Almost 70% of participants strongly agreed or agreed that supervising chiropractor attire was important for them. Furthermore, most participants agreed that how the supervising chiropractor dressed reflected their perception of the supervising clinician based on knowledgeability (61.9% agreement), trustworthiness (62.8% agreement), and professionalism (75.3% agreement) (Table 5).

Table 4.
Participant's opinions on student-clinician attire.

	N (%)
1. How my student clinician dresses is important to me.	n=320
Strongly disagree or disagree	32 (10.0)
Neither agree nor disagree	58 (18.1)
Strongly agree or agree	230 (71.9)
2. How my student clinician dresses influence how happy I am with the care I receive	n=320
Strongly disagree or disagree	62 (19.4)
Neither agree nor disagree	109 (34.1)
Strongly agree or agree	149 (46.6)
3. It is appropriate for a student clinician to dress casually when seeing patients over the weekend.	n=320
Strongly disagree or disagree	100 (31.3)
Neither agree nor disagree	86 (26.9)
Strongly agree or agree	134 (41.9)
4. Student clinicians should wear a white coat when seeing patients in the student clinic.	n=320
Strongly disagree or disagree	203 (63.4)
Neither agree nor disagree	84 (26.3)
Strongly agree or agree	33 (10.3)

Table 5.
Participants' opinion on supervisor clinicians' attire.

	N (%)
How the supervising chiropractor dresses is important to me.	n=320
Strongly disagree or disagree	31 (9.7)
Neither agree nor disagree	66 (20.6)
Strongly agree or agree	223 (69.7)
How the supervising chiropractor dresses reflects how knowledgeable they appear.	n=320
Strongly disagree or disagree	36 (11.3)
Neither agree nor disagree	86 (26.6)
Strongly agree or agree	198 (61.9)
How the supervising chiropractor dresses reflects how trustworthy they appear.	n=320
Strongly disagree or disagree	34 (10.6)
Neither agree nor disagree	85 (26.6)
Strongly agree or agree	201 (62.8)
How the supervising chiropractor dresses reflects how professional they appear.	n=320
Strongly disagree or disagree	25 (7.8)
Neither agree nor disagree	54 (16.9)
Strongly agree or agree	241 (75.3)

Discussion

This study was the first to explore patients' preferences and perceptions of student-clinician attire in a chiropractic teaching clinic. In addition, this study also examined how participants perceived supervising clinicians' attire in terms of knowledge, trustworthiness, and professionalism. In both instances, approximately 70% of participants indicated that how students and supervising clinicians dressed was important to them. Participants believed the white coat was not essential for student clinicians to convey confidence or knowledge.

First impressions can potentially make a difference in how student clinicians are viewed; however, it is worth noting that the choice of dress may not correlate to clinical skills; a professionally dressed student may not have the best clinical skills, and a poorly dressed student may actually be an expert clinician. In building rapport with patients, many elements could come into play.

Unfortunately, comparing our results with the current literature is challenging as no other study has yet to explore the concept of chiropractic student attire. Troyanovich and Troyanovich⁵, in 2015, published a historical perspective on physician attire and commented on the gap in the literature regarding patient preferences for chiropractors' attire. They asked a leading chiropractic trade journal to conduct an internet poll to explore how chiropractors dress. The poll was completed by 345 chiropractors and reported that almost 54% of chiropractors dressed in "smart casual" (polo-type/casual shirt with dress pants), with less than 13.6% wearing business attire with a white coat. This poll specifically addressed practising chiropractors, not students and did not address how the chiropractors' attire might impact their patients' perceptions.⁵

Only a handful of studies have been published regarding student attire and patients' perceptions of competence^{26, 28, 32}, all of which are regarding medical students. These studies used an image-based questionnaire and were conducted in the United States^{28, 32} and the United Kingdom²⁶. Two studies recruited participants in a hospital outpatient clinic (orthopaedic or otolaryngology)^{26, 28} and one in a private surgical clinic.³² In a specific clinical setting, Ahmed *et al.*³² and Sax *et al.*²⁸ considered medical students perceived knowledge and professionalism based on their attire. Both studies reported that how medical students dress was important for patients, especially for men and older patients.^{21, 28} Older participants reported being more comfortable when the provider wore a shirt and tie with a white coat rather than scrubs.²⁸ Similarly, Ahmed *et al.*³² found that older patients perceived students in scrubs to be less knowledgeable, but the same results were not found in younger patients. Our results agree with the importance of students' attire as participants rate image D (clinic shirt) higher than all other attires. When wearing the clinic shirt, chiropractic students were perceived as being more trustworthy and caring compared to all other attires. Nonetheless, the white coat wasn't deemed a necessary tool to impart knowledgeability and professionalism, which is contrary to medical students.^{26-28, 32, 33} Unfortunately, older participants were underrepresented in our study, and it was not possible to assess the effect of age on the importance of the white coat as reported in previous studies.^{28, 32}

When examining studies conducted in mental health

care settings³⁴⁻³⁶ or with physiotherapists⁸ our results are comparable. This similarity with patient perceptions of the inappropriateness of the white coat could relate to the longer patient-physician relationship, as patients are often managed for a more extended period. In studies that have examined the physician's attire perceptions in the mental health field, only half of the respondents felt that psychiatrist attire was essential in establishing rapport.^{9, 35-37} With respondents who thought that it was necessary, less formal attire was preferred.³⁷ Nome-Eikhom *et al.*³⁵ delved deeper into the reasoning behind this preference for less formal attire for psychiatrists. The authors concluded that psychiatrists wearing white coats seemed more competent but less understanding and approachable. Therefore, discarding the white coat was deemed to maximise the therapeutic alliance and increase approachability between psychiatrists and patients.³⁷ Similarly, chiropractic students often manage patients for a longer period, and as students must find their own patients, they often rely on close friends and family. Therefore, the white coat may not bear the same value of knowledgeability and competence as medical students.

Regarding physiotherapists, studies results are controversial regarding the white coat. While studies agree that business attire, as the preferred outfit, conveys confidence, knowledge, and comfort, the white coat was not viewed by all participants as an essential garment, especially if patients attended the clinic for a more extended period.^{8, 38, 39} When asked whether wearing jeans was appropriate for physiotherapists, patients with greater than 50 visits felt that it wasn't inappropriate.⁸ This differed with medical practitioners^{14, 40}, including medical students^{26, 27}, where more formal attire was preferred, increasing trust and confidence. Like psychiatrists and, in certain instances with physiotherapists, chiropractors tend to establish a more long-term doctor-patient relationship, which may decrease the perceived value of the attire. Our results also align with these findings as participants regard chiropractic students' attire as important. Yet, they don't perceive wearing a white coat as an added value to impart more confidence or knowledge.

Our findings differ from Petrilli *et al.*¹⁴ who reported that college degree participants preferred more formal attire and a white coat. This divergence could be attributed to our greater proportion of students attending the clinic rather than to the level of education on its own. In

addition, student participants may be more inclined to consider chiropractic interns as students instead of health practitioners.

Similar to our findings, where non-Australian participants preferred a more formal attire and a white coat, other studies also reported sociocultural differences.^{14, 41, 42} Bramstedt *et al.*⁴¹ examined the United States and Australian medical students and instructors concerning clinical professional attire⁴¹ and stated that white coats and neckties were nearly absent in Australian clinical attire.

Although our study did not address what attire supervising clinicians should wear, patients agreed that how the supervising chiropractors dress reflects how knowledgeable, trustworthy, and professional they appear. This finding was reported in other studies where medical practitioners' attire was correlated with the patient's perceptions of professionalism and competence.^{6, 7, 14, 20, 21, 43-45} Jabbal *et al.*²⁶ also mentioned that it was important for patients to distinguish students from clinicians. Therefore, dressing appropriately may help patients with this process.

Strengths and limitations

Our study is the first to assess chiropractic student attire in a teaching environment using predefined photographs. Participants were randomly selected, decreasing the risk of selection biases, preventing an entire family from participating, and providing better representativeness of patients attending the clinic. The photographs were taken by a professional photographer, and we were attentive, ensuring that the models' facial expressions and postures were similar in all images.

Nonetheless, our study has some limitations that should be noted. First, as final-year students are asked to source their patients, many patients attending the chiropractic clinic are friends or family. This pre-established relationship may have biased how patients perceive their student-clinician favouring a more neutral or positive perception of trustworthiness, professionalism, and knowledge. This would also be true for participants who attended the clinic many times where a relationship had already been established. Both situations might have diminished the importance of the student attire. Secondly, our results must be interpreted cautiously as participants were recruited from only one centre within a teaching clinic. Therefore, results should not be extrapolated to

other chiropractic teaching clinics and regular practices. Finally, although we had multiple ethnicities, most participants were Australian, so results may not hold true across different cultures.

Future research

Our study took place in only one chiropractic teaching clinic. It would be valuable to examine other chiropractic teaching institutions in different Australian states and different countries to enhance our understanding of this concept and verify if patients' perceptions of student-clinician attire are similar where culture, language, and customs differ.

Conclusion

Based on a single institution, this study emphasises the influence of chiropractic students' and clinicians' attire and how vital it is for patients to establish the first impression to enhance patient-centred care. Trustworthiness and caring are important attributes that patients ascribed to student attire, while inappropriate attire decreases participants' perception of knowledgeability and competence. This study also guides the ongoing debate around students' and clinicians' dress codes and may help institutions better determine which proper attire is best indicated while attending clinical teaching placements. Overall, chiropractic students should dress professionally, but a white coat is not perceived as essential.

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Appendix 1. Questionnaire

Thank you for taking the time to complete this survey. Your answers will help us better understand whether student clinician chiropractors' dress influences patients' opinions of them.




Your responses are important to us. There are no right or wrong answers, and we are interested only in your honest opinions. This survey is brief and should take no more than 10 minutes to complete.

In Sections A and B, please provide a rating by circling the number on the scale that corresponds to your answer. In Sections C and D, please provide your best answer to each question.






All of your answers will be kept confidential. We will not use names in any notes, reports, or summaries. Your responses will also not be shared with any of your care providers.

Section A– Student Clinician Attire – Rating

Please rate the student clinician for each of the following questions by circling the number corresponding to the answer

A	B	C	D	E
				
1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely

Please rate the student clinician for each of the following questions by circling the number corresponding to the answer

A	B	C	D	E
				
1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	1. How knowledgeable does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	2. How trustworthy does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	3. How caring does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	4. How professional does this student clinician appear? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely
5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely	5. How comfortable does this student clinician make you feel? 1-2-3-4-5-6-7-8-9-10 Somewhat.....Extremely

Section B – Student Clinician Attire – Preferences

Which student clinician would you prefer?

How would you order the following student-clinician pictures (1 = prefer the most and 5 prefer the least) related to your perception of the student-clinician competency and knowledge?

				
1-2-3-4-5	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5	1-2-3-4-5



Section C-1 – General Student Clinician Attire

Please indicate your level of agreement with the following statements by checking ONE box to the left of your answer.

- 1) How my student-clinician dress is important to me.

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Neither Agree nor Disagree
<input type="checkbox"/> Disagree	<input type="checkbox"/> Agree
<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Strongly Agree
- 2) How my student clinician dress influences how happy I am with the care I receive.

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Neither Agree nor Disagree
<input type="checkbox"/> Disagree	<input type="checkbox"/> Agree
<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Strongly Agree
- 3) It is appropriate for a student clinician to dress casually when seeing patients over the weekend.

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Neither Agree nor Disagree
<input type="checkbox"/> Disagree	<input type="checkbox"/> Agree
<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Strongly Agree
- 4) Student clinicians should wear a white coat when seeing patients in the student clinic.

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Neither Agree nor Disagree
<input type="checkbox"/> Disagree	<input type="checkbox"/> Agree
<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Strongly Agree

Section C-2 – General Supervising Clinician Attire

Please indicate your level of agreement with the following statements by checking ONE box to the left of your answer.

- 1) How the supervising chiropractor dress is important to me.

<input type="checkbox"/> Strongly Disagree	<input type="checkbox"/> Neither Agree nor Disagree
<input type="checkbox"/> Disagree	<input type="checkbox"/> Agree
<input type="checkbox"/> Neither Agree nor Disagree	<input type="checkbox"/> Strongly Agree

2) How the supervising chiropractor dress reflects how knowledgeable they appear.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

3) How the supervising chiropractor dress reflects how trustworthy they appear.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

4) How the supervising chiropractor dress reflects how professional they appear.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Section D – Demographic (Please remember that all of your answers will be kept confidential)

1) How old are you (in years)?

2) What is your gender?

- Male
- Female
- Other
- Decline to answer

3) What is the highest level of education you have completed?

- Less than high school
- High School
- Tafe
- University Undergraduate
- University Postgraduate

4) What is your ethnicity

- Australian
- Indigenous Australian or Torres Strait Islander
- New Zealander
- Middle Eastern
- African
- Other? Please specify:
- Asian
- European
- Indian
- American
- Decline to answer

5) How often have you been to this clinic?

- First time
- Visit 2 – 3
- Visit 4 – 8
- Visit > 8