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DIFFERENCES IN ATTITUDES TOWARDS/BELIEFS ON COMPLEMENTARY AND ALTERNATIVE MEDICINE WITNESSED BETWEEN PHYSIOTHERAPISTS, NURSES/PARAMEDICS AND PHYSICIANS

Živčić, Debi[1], Racz, Aleksandar[2], Naletilić, Dario[2]

[1] CHC Zagreb, Orthopaedics Clinic, Zagreb, Croatia, [2] University of Applied Health Studies, Zagreb, Croatia
Corresponding author**: E-mail:** aleksandar.racz@zvu.hr

Abstract

Background: The change in social order that took place in Croatia in the 1990s made medical pluralism - in terms of coexistence of various treatment options apparent. In spite of the European Commission and WHO recommendations, complementary and alternative medicine (CAM) failed to be regulated by the law, even upon EU accession.
Materials and Methods: This study aimed at investigating the attitudes of healthcare professionals towards CAM, as well as possible differences in attitudes expressed by physicians, nurses/paramedics and physiotherapists and comprised a total of 325 healthcare professionals affiliated with either private or public healthcare facilities and belonging to one of the three major categories of healthcare providers under study. The study was carried out throughout 2011 - 2012, and made use of IMAQ (Integrative Medicine Attitude Questionnaire).
Results: A total score seen in the physicians' arm was statistically lower (M 91.76) when compared to that obtained in the nurses/paramedics' (M 97.28) and the physiotherapists' arm (M 97.27). Significant differences in CAM-related attitudes were proven to exist between physicians and nurses/physiotherapists ($F=7.853921$, $p=0.000$), but not between nurses and physiotherapists ($\delta=1.531$, $p=1.000$). These differences boil down to higher criticism expressed by physicians as regards CAM efficiency, especially the therapeutic value of spiritual & intuitive curing methods and osteopathic & laying-on-hands treatments, while significant differences in attitudes towards acupuncture, chiropractic and massage failed to be found. Differences in healthcare professionals' attitudes arising on the grounds of gender ($T=-1.411$, $p=0.159$), educational background ($F=2.372303$, $p=0.095$) and the number of years in service ($F=0.833$, $p=0.436$), failed to be seen as well.
Conclusion: Despite the fairly high IMAQ score obtained in the study sample that speaks in favour of a positive rather than neutral CAM-related attitude of healthcare providers under study, the very structure of the IMAQ tool prevents us from the unbiased conclusion that Croatian healthcare providers support CAM. Physicians are far less prone to support alternative and spiritual treatment practices than nurses/paramedics and physiotherapists.

Keywords: attitudes towards CAM; physicians, nurses/paramedics, physiotherapists, IMAQ

Introduction

Croatian healthcare system has witnessed an ever increasing number of patients seeking opinion and advice on complementary and alternative treatment options. This partly comes as a result of the fact that, just like other south-eastern European countries, Croatia belongs to the group of post-socialist countries undergoing transition. During the era of socialism, healthcare system represented one of the fundamental service-rendering sectors at disposal of people from all walks of life. The change of social order seen in the 1990s made medical pluralism in terms of coexistence of various treatment options emerge on the surface, so that patients are now at liberty to choose a treatment option of their preference. Until the 1990s, healthcare sector was financed from the State budget, so that each and every insured person could afford treatment at any given hospital, University clinic, public healthcare centre or any other healthcare facility of his/her choice, each and every rendered healthcare service thereby being free of charge. As claimed by the interviewees, most people populating the former Yugoslavia, especially its urban areas, resorted to conventional medical treatments (Bukovčan 2008). Some of the traditional treatments had been practiced in local communities though, but on the verge of law and mostly in rural areas (Benko, 2004). From the 1990s on, healthcare sector has been only partly financed from the State budget, thus gradually becoming market-oriented and market-driven. Owing to that, an arena for non-biomedical systems (folk healers, herbalists, exorcists, bio-energy practitioners, Chinese and Hindu medicine practitioners, chiropractitioners, homeopaths, reiki-masters, and so forth) has been provided for. Lazar (2006) conducted a study investigating into the health of alternative medicine users and came up with the conclusion that post-socialist settings and transition processes have facilitated and strengthened the pluralism of the healthcare system. However, despite recommendations of the European Commission (EC, 1997) and WHO, Croatia has insofar failed to regulate CAM by law.

Healthcare professionals play a crucial role in providing impartial information on CAM treatment options, building thereby a solid basis for realistic patient expectations. Namely, the above information often gets to be provided by pharmaceutical companies that make profit from selling virtually the same products, but under different trade names. However, information on CAM delivered to healthcare providers along the line of their formal education is scarce or even non-existent. On top of that, studies on CAM treatments' prevalence and coverage are also lacking. Regardless of the lack of formal education, public response to CAM implementation is strikingly polarised and wide in range, spanning from biased enthusiasm to an uninformed scepticism of conventional medicine circles and healthcare establishment. Given that attitudes expressed by healthcare professionals have a great deal of influence on policy makers and public opinion, and that they drive their decisions on the adoption or dismissal of certain CAM treatment options available in the Republic of Croatia and guide future prospects of CAM-related legislation, this study strived to investigate into attitudes towards certain CAM procedures expressed by three major groups of healthcare providers. Since comparative differences between CAM-related attitudes expressed by healthcare providers of different backgrounds have never been studied in Croatia before, this study represents a pioneer effort in this regard. Studies tackling this issue are still fairly low in number, even on a global scale. Search of available databases failed to identify

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any studies devoted to CAM-related attitudes expressed by healthcare practitioners not educated on the topic, neither formally nor through lifelong learning courses. Therefore, healthcare professionals practicing in the Republic of Croatia represent a group exemplary in this regard, since their knowledge on CAM gained during formal education is virtually zero.

Attitude is a permanent mental or neural state of preparedness, attained based on personal experience; it has either directive or dynamic influence on individual responses to items and situations an individual comes across (Allport, 1935). It is actually a permanent validation of people, items or ideas, and tends to be fairly stable and reluctant to change (Aronson et al, 2005). This study aimed at establishing the attitudes of Croatian healthcare providers towards CAM. Also, it attempts investigating into possible differences in these attitudes expressed by physicians, nurses/paramedics and physiotherapists.

Subjects and methods

The study comprised a total of 325 formally educated healthcare professionals affiliated with either private or public healthcare facilities established throughout the Republic of Croatia (all Croatian counties covered). The study was carried out throughout the years 2011 and 2012, and embraced the representatives of three major groups of healthcare providers (physiotherapists, physicians and nurses/paramedics). The study made use of IMAQ (Integrative Medicine Attitude Questionnaire), a tool composed of 27 items (statements). Subjects assess the level of their agreement with each of these statements on a 5-point Likert scale and can opt for answers spanning from „*I strongly disagree"* to „*I fully agree*". The respondents remained anonymous at all times and filled the questionnaire on their own, that is to say, in the absence of any of the researchers. IMAQ scores span from 29 to 145 points and are interpreted in the following manner: the larger the score, the more favourable the attitudes towards CAM. The original questionnaire was translated into Croatian, but not "to a T"; certain modifications had to be made though. For instance, the palmetto plant was omitted from the translation of the statement 23, since the Croatian population is still blind as to its remedial properties. In the translation of statements 7, 9, 11, 14, 17, 19, 22, 25, 26, 27, 29, 33 and 34, the word "physician" was replaced by the wording "healthcare provider", since the study sample embraced not only physicians, but nurses/paramedics and physiotherapists too. Data collection methodology employed within the frame of this study was that of a „snowball"(Erickson, 1979). The "snowball" method comes down to a chain of referrals that starts with the identification and locating of a certain number of target population members that satisfy the pre-established criteria. These subjects subsequently pose as the initial source of information and the "launching point"; they guide the researchers towards their acquaintances and friends who also meet the study criteria (Bačak, 2006). This chain of referrals goes on and on until the appropriate sample size gets to be obtained.

Statistical evaluation

Gender-based differences in the obtained results were tested for their statistical significance using the independent T-test (Petz, 2007). Inter-group differences arising on the grounds of profession, educational background and the number of years in service were tested for their statistical significance using a simple variance analysis. For both the T-test and the variance analysis, the level of statistical significance was set at 95%, so that p-values of less than 0.05 pointed towards statistically significant differences. Given the statistical significance of the inter-group F-value, an additional statistical validation was completed. In order to precisely identify mutually differing groups, the Scheffe method having the statistical significance threshold set at 95% was employed.

Results

Statistical evaluation embraced the results obtained in the sample composed of 325 subjects divided into three groups based on their professional and educational background, gender, the number of years in service and their responses to IMAQ items.
The number of physiotherapists comprised by the study sample was 104 (32%). The number of participating physicians equalled to 98 (30.1% of the total study sample), while the number of participating nurses/paramedics equalled to 123 (37.8% of the total study sample).

Table 1: Study sample composition displayed by subjects' professional background

	N	**%**
Physiotherapists	104	32.0%
Physicians	98	30.2%
Nurses/Paramedics	123	37.8%
Total	325	100%

The study subjects' age spanned from 20 to 65, so that all of them are still in active service. The average age seen in each of the study arms was similar (Table 2).

Table 2: Average age of the subjects on the whole and per study arm

Profession	**Average age (yrs)**
Physiotherapists	34.6
Physicians	40.4
Nurses/Paramedics	38.1
Total	37.7

The study sample was composed of healthcare providers of both genders. Table 3 shows that the study arm composed of physicians had an equal number of males and females, while, in line with the multi-year tradition, physiotherapists were mostly of the female gender. To an even greater extent and also in line with the multi-year tradition, the number of nurses trumped over the number of paramedics.

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Table 3: Study sample displayed by profession and gender

	TOTAL		Physiotherapists		Physicians		Nurses/Paramedics	
Gender	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Male	101	31.1%	35	33.7%	49	50.0%	17	13.8%
Female	224	68.9%	69	66.3%	49	50.0%	106	86.2%
Total	325	100%	104	100%	98	100%	123	100%

All physicians embraced by the study had an academic background (over 16 years of formal education). As for the nurses/paramedics and physiotherapists, three educational strata were identified: subjects having a high school degree, those having a Bachelor degree or those having a Master degree. On the whole, the share of subjects who have completed higher education was similar to that of highly educated subjects (Table 4).

Table 4: Professional and educational background of the study sample on the whole

	TOTAL		Physiotherapists		Physicians		Nurses/Paramedics	
Educational background	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
High school degree	75	23.00%	1	1.00%	0	0%	74	60.20%
Bachelor degree	125	38.30%	91	86.70%	0	0%	34	27.60%
Academic degree	125	38.30%	13	12.40%	98	100%	15	12.20%
TOTAL	325	100%	104	100%	98	100%	123	100%

Profession-based groups were equally large (physiotherapists 32.0%, physicians 30.1% and nurses/paramedics 37.8% of the study sample). For the purposes of the tool & response reliability validation, as well as for the purpose of factorial analysis, the scores obtained in response to the statements 1, 2, 4, 6, 7, 8, 10, 11, 13, 17, 18, 25 & 27 were validated in an "upside down" manner; lower scores indicated a greater deal of open-mindedness towards CAM. The obtained results revealed that the physicians scored significantly worse than nurses/paramedics and physiotherapists (Table 5, Figure 1).

Table 5: Mean value (± SD) of IMAQ scores obtained in healthcare providers of different professional backgrounds

	Total M(σ)	**Physiotherapists** M(σ)	**Physicians** M(σ)	**Nurses/Paramedics** M(σ)	**F-value**	**p-value**
IMAQ	95.61 (11.76)	97.27 (10.17)	91.76 (12.92)	97.28 (11.43)	7.853921	**0.000**

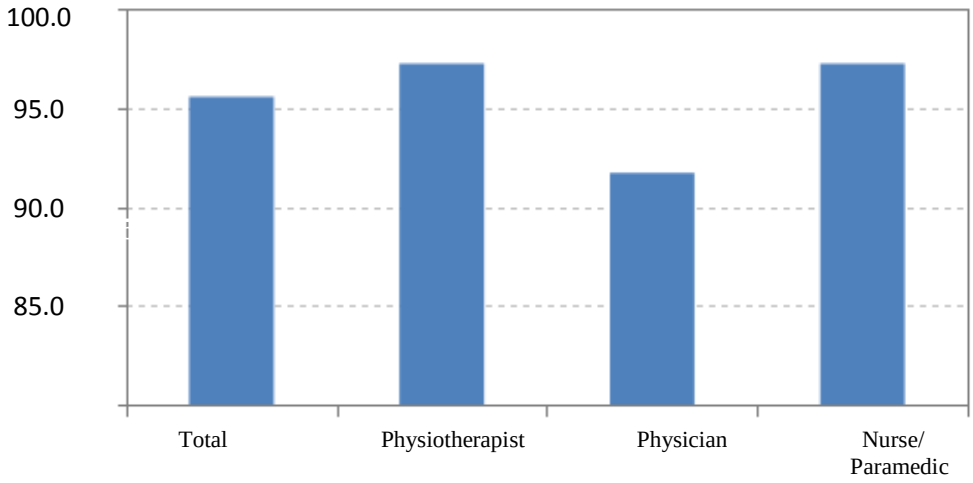

Figure 1: The average IMAQ scores obtained in healthcare providers of different professional backgrounds (min 29; max 145)

As can be seen from the displayed results, the highest IMAQ scores were seen in healthcare providers having a Bachelor degree, although these scores did not statistically significantly differ from those seen in healthcare providers having a high school or an academic degree (the latter group being mostly, but not exclusively, represented by physicians) (Table 6, Figure 2).

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Table 6: Mean value (± SD) of IMAQ scores obtained in healthcare providers of different educational backgrounds

	Total M(σ)	**High school degree** M(σ)	**Bachelor degree** M(σ)	**Academic degree** M(σ)	**F-value**	**p-value**
IMAQ	95.61 (11.76)	95.23 (11.59)	97.33 (9.99)	94.14 (13.27)	2.372303	0.095

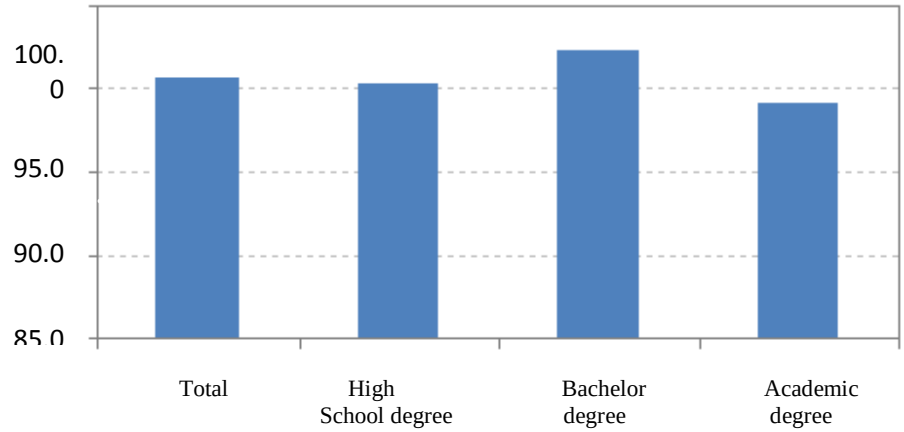

Figure 2: The average IMAQ scores obtained in healthcare providers of different educational backgrounds (min 29; max 145)

Statistical evaluation showed no gender-based differences in CAM-related attitudes (Table 7, Figure 3).

Table 7: Mean value (± SD) of IMAQ scores obtained in healthcare providers of opposite genders

	Total M(σ)	**Female** M(σ)	**Male** M(σ)	**T**	**p-value**
IMAQ	9.61 (11.76)	96.23 (11.77)	94.24 (11.73)	-1.411	0.159

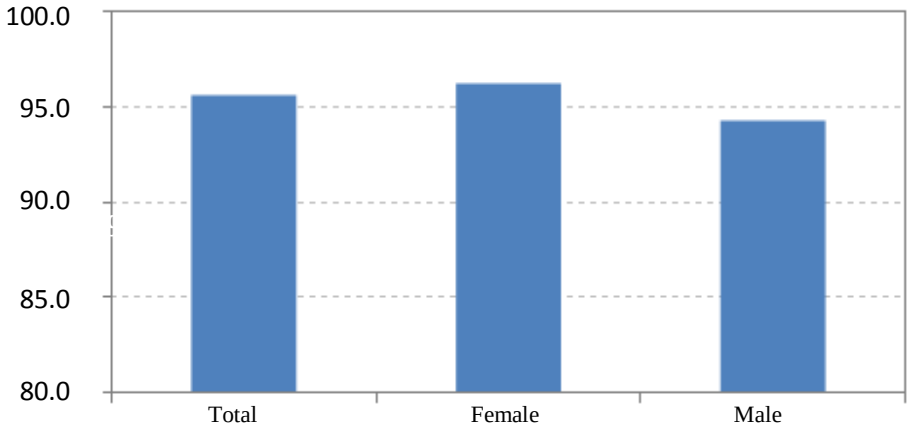

Figure 3: The average IMAQ scores obtained in healthcare providers of opposite genders (min 29; max 145)

Inter-group differences in IMAQ scores arising on the grounds of the number of years in service failed to be seen (Table 8, Figure 4).

Table 8: Mean value (± SD) of IMAQ scores obtained in healthcare providers differing in numbers of their years in service

	Total M(σ)	**< 9 yrs in service** M(σ)	**10 - 29 yrs in service** M(σ)	**> 20 yrs in service** M(σ)	**F-value**	**p-value**
IMAQ	95.61 (11.76)	94.89 (11.59)	96.80 (11.02)	95.20 (12.73)	0.833	0.436

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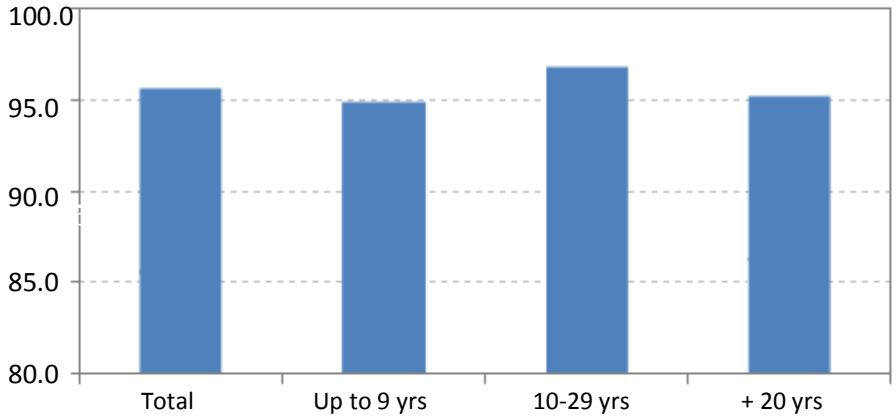

Figure 4: The average IMAQ scores obtained in healthcare providers differing in numbers of their years in service (min 29; max 145)

The analysis of responses to each and every IMAQ item is displayed in Table 9. Statistically significant differences in attitudes expressed by healthcare providers were established regarding the perception of healing or health improvement covered by IMAQ statements 1 and 11. Healthcare professionals under study also statistically significantly differed in their attitudes towards the synergy between conventional medicine and CAM covered by IMAQ items 3 and 12. The importance of evidence coming as a result of randomised clinical trials (elaborated under IMAQ items 4, 15, 23, 25, and 27) was most appreciated by the physicians. When it comes to acupuncture, chiropractic and massage elaborated under IMAQ items 8, 16 and 18, meaningful inter-group differences failed to be seen. However, attitudes expressed by the three study groups towards osteopathic and laying-on-hands treatments (covered by IMAQ items 13 and 26), which also represent prominent alternative treatments, were strikingly different; at this instance, a collision point was reached. On the average, the lowest inter-group level of agreement was seen with the responses to IMAQ items 5, 7 and 28 that elaborate the use of spiritual, intuitive treatments. Both, when it comes to the study sample on the whole and to each of the three study arms, the highest IMAQ score was witnessed in response to item 24 that questions about the importance of diet-related counselling provided to the ultimate goal of chronic disease prevention. On top of that, all three groups under study fully supported and highly appreciated the standpoint that, in addition to specific disease parameters, studies should strive to measure the quality of life as well (IMAQ statement 15). The respondents also reached a high level of agreement on IMAQ items 14, 21 and 29 that emphasise and promote the importance of a personal development of every healthcare provider.

Discussion

Although the repeated attempts to regulate CAM by the Croatian law have unanimously failed, in the last twenty years various healers and CAM therapists and their treatment techniques have often been discussed in various media; they have made the front-page headlines or advertisement contents, or have been discussed in various articles or TV-shows (Letica, 2010). Owing to an abundant body of information at the disposal of Croatian citizens, it is fair to assume that a substantial number of them resort to CAM treatment(s) (Domljan, 2006). However, search of available databases failed to reveal the information on the percentage of Croatian population resorting to CAM, or the information on annual earmarked budget allocated for the purpose. When deciding on the use of CAM treatments, patients shall seek information from healthcare providers whose systematic knowledge on the matter is very poor, if existent at all. Due to the nature of their job duties, easier communication with them and the amount of time they spend with the patient, nurses/paramedics and physiotherapists are often questioned about CAM (Yildirim, 2010). Review of the curricula offered by the School of Medicine University of Zagreb and the University of Applied Health Studies revealed that the only module embraced by the curriculum of the Medical School University of Zagreb that teaches students on basic distinctions between evidence-based medicine, folk medicine, informal (complementary & alternative) medicine and quackery is the “Introduction to Medical Practice”. As for the curriculum of undergraduate and graduate Nursing studies offered by the University of Applied Health Studies, the sole module that tackles CAM-related issues is “Diet and Dietetics”. When it comes to the undergraduate and graduate studies in Physiotherapy hosted by the University of Applied Health Studies, certain knowledge on the matter is offered through the elective “Nutrition”.

Review of the lifelong learning programme offered to nurses/paramedics by the Croatian Nursing Council in 2011, managed to identify certain CAM-tackling topics. The foreseen lectures mostly deal with diet and health of both children and adults. The sole lecture elaborating a specific dietary regimen is “The Impact of Vegetarian Diet on Pregnancy and Small Children”. Spiritual medicine is presented through the following lectures: “Religion – Basic Human Need”, “Spiritual Patient Aid”, “Spiritual Therapy of a Psychiatric Patient”, and “Spiritualism and Schizophrenia”.

The lifelong learning curriculum displayed on the web-pages maintained by the Croatian Council of Physiotherapists comprises a few lectures dealing with Shiatsu technique, TUI-NA massage and other massage techniques. On the menu of lifelong learning courses tailored for physicians and offered by the Croatian Medical Chamber, an acupuncture course can be found.

Our study proved the existence of differences in CAM-related attitudes expressed by physicians as opposed to nurses and physiotherapists ($F=7.853921$; $p=0.000$); however, differences in attitudes expressed by nurses and physiotherapists failed to be found ($\delta=1.531$; $p=1.000$). Previous studies have shown the differences in CAM-related attitudes expressed by medical students and the nursing staff (Yildirim, 2010). It is fair to assume that these differences arise on the grounds of differences in curricula offered by Schools of Medicine, as compared to those offered by Medical Colleges. This study failed to reveal any gender-based ($T=-1.411$; $p=0.159$), educational background-based ($F=2.372303$; $p=0.095$) and years-in-

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service-based (F=0.833; p=0.436) differences in CAM-related attitudes expressed by healthcare providers under study. Regrettably, the lack of relevant literature rendered the comparison between our study outcomes and the results of other authors virtually impossible.

The analysis of IMAQ input obtained in various domains under study brought us to the conclusions elaborated below. Physicians' attitudes towards healing or health improvement IMAQ items 1 (p=0.012) & 11 (p=0.000)}, as well as the efficiency of herbal remedies ({IMAQ items 4 (p=0.002), 23 (p=0.007) & 25 (p=0.001)} differ from those expressed by physiotherapists and nurses. Presumably, the reason behind such an outcome

Table 9: Responses to IMAQ items given by healthcare providers of different professional backgrounds

Statement (item)	**Total** N=325 M(σ)	**Physio-therapists** N=104 M(σ)	**Phy-sicians** N=98 M(σ)	**Nurses/Para me-dics** N=123 M(σ)	**F**	**p**
S01: A patient is healed when the underlying pathological processes are corrected or controlled	2.91 (1.13)	2.78 (1.13)	3.19 (1.10)	2.80 (1.14)	4.451324	**0.012**
S02: The primary role of healthcare providers is to promote health and somatic treatment	3.05 (1.18)	2.95 (1.15)	3.20 (1.11)	3.00 (1.25)	1.312284	0.271
S03: Patients whose physicians have certain knowledge on various complementary and alternative treatments that supplement conventional medicine practices, benefit more from their treatment as compared to patients whose physicians practice conventional medicine only	3.38 (1.20)	3.70 (1.08)	3.19 (1.21)	3.25 (1.25)	1.312284	**0.003**
S04: Healthcare providers are bound by the obligation to advise patients to avoid the usage of herbal remedies and dietary supplements until the latter are proven safe under rigorous testing due for any given medicinal product.	3.29 (1.27)	3.34 (1.14)	3.59 (1.23)	2.99 (1.35)	6.477343	**0.002**
S05: It is acceptable for a physician to primarily rely on his/her intuition ("gut feeling") when deciding on the most appropriate therapy	2.25 (1.09)	2.30 (0.96)	2.15 (1.14)	2.28 (1.14)	0.584237	0.558
S06: Spiritual beliefs and practices of healthcare providers are of no particular relevance for the treatment process	3.05 (1.20)	2.95 (1.04)	3.34 (1.27)	2.89 (1.25)	4.240927	**0.015**
S07: Patient's spiritual beliefs and practices are of no particular relevance for the healing process	2.40 (1.08)	2.31 (0.93)	2.59 (1.10)	2.31 (1.17)	2.312428	0.101
S08: It is irresponsible of physicians to recommend acupuncture to patients suffering from post-chemo nausea, vomiting and headache	2.55 (1.11)	2.68 (1.05)	2.51 (1.13)	2.47 (1.14)	1.048207	0.352
S09: Palliative care should be perceived by healthcare providers as an invaluable opportunity to help the patient in every possible way	3.76 (1.08)	3.74 (0.98)	3.86 (0.99)	3.70 (1.23)	0.599519	0.550
S10: It is not desirable for a physician to take therapeutic advantage of the placebo effect	2.78 (1.10)	2.79 (1.08)	2.59 (1.03)	2.91 (1.17)	2.301489	0.102
S11: Healing is not possible when the disease is incurable	2.78 (1.33)	2.40 (1.04)	3.29 (1.41)	2.70 (1.38)	12.33743	**0.000**
S12: Healthcare providers knowledgeable about various complementary and alternative medical treatments that supplement conventional medical practices generate more satisfied patients	3.30 (1.08)	3.50 (0.97)	3.12 (1.15)	3.28 (1.10)	3.080462	**0.047**
S13: Laying-on-hands treatments (therapeutic touch) practiced by healers should be fully discredited as a treatment method	3.14 (1.20)	2.99 (1.08)	3.55 (1.29)	2.94 (1.15)	8.613659	**0.000**
S14: Healthcare providers who pose as role models of a well-balanced lifestyle aid to the rise of patient satisfaction	3.82 (0.99)	3.85 (0.89)	3.83 (1.01)	3.80 (1.06)	0.054987	0.947
S15: When it comes to research, quality-of-life metrics is equally important as that of specific disease outcomes	4.06 (0.86)	4.07 (0.71)	4.24 (0.91)	3.92 (0.92)	3.974771	**0.020**

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S16: Chiropractic is a valuable method of resolving a wide variety of musculoskeletal problems (not just back pain)	3.45 (1.04)	3.33 (0.99)	3.41 (1.09)	3.59 (1.05)	1.774105	0.171
S17: The primary role of healthcare providers is to treat the disease, not to address patient's personal changes and personal development	2.59 (1.13)	2.76 (1.05)	2.66 (1.05)	2.39 (1.22)	3.410407	**0.034**
S18: Massaging often makes the patient feel better for the time being, but does not lead to an undisputable long-term health improvement	3.29 (1.19)	3.36 (1.24)	3.20 (1.13)	3.30 (1.21)	0.447427	0.640
S19: Innate patient's healing capacities often determine disease outcomes regardless of therapeutic intervention (treatment)	3.05 (1.01)	3.02 (0.87)	2.96 (1.10)	3.15 (1.06)	1.094863	0.336
S20: A strong bond between the patient and the attending healthcare provider is an extremely valuable therapeutic intervention that leads to more favourable treatment outcomes	3.69 (1.03)	3.47 (0.98)	3.80 (0.87)	3.80 (1.14)	3.742001	**0.025**
S21: Healthcare providers who make an effort to dive deep into their inner being in order to better understand themselves generate improved patient satisfaction	3.91 (0.90)	3.89 (0.78)	3.80 (0.97)	4.02 (0.92)	1.848173	0.159
S22: Healthcare providers are bound by the obligation to give their patients hope	3.61 (1.12)	3.49 (1.00)	3.73 (1.07)	3.61 (1.24)	1.260966	0.285
S23: Physicians should be ready to answer patient's questions about safety, efficacy and proper use of common herbal remedies such as St. John's Wort or Valerian	3.53 (1.17)	3.73 (0.92)	3.23 (1.22)	3.60 (1.27)	5.080074	**0.007**
S24: Diet-related counselling should be a major task of any given healthcare provider involved into chronic disease prevention	4.29 (0.90)	4.10 (0.99)	4.36 (0.74)	4.41 (0.91)	3.855876	**0.022**
S25: Physicians should avoid recommending herbal remedies valued for their efficiency based on long-term observations of their use in other cultures and therapeutic systems, , because such evidence does not stem from large controlled trials	3.07 (1.13)	2.77 (0.94)	3.38 (1.12)	3.09 (1.21)	7.662147	**0.001**
S26: Manipulative osteopathic treatment is a valuable method for resolving a wide variety of musculoskeletal problems (not just back pain)	3.31 (0.98)	3.73 (0.93)	3.08 (1.02)	3.14 (0.88)	15.5312	**0.000**
S27: Information obtained by research methods other than controlled trials is of little value to physicians	3.23 (1.03)	3.12 (0.91)	3.46 (1.00)	3.13 (1.13)	3.614384	**0.028**
S28: It is ethically acceptable for healthcare providers to recommend therapies that involve the use of subtle energy fields in and around the body	2.44 (1.16)	2.70 (1.05)	1.92 (1.07)	2.64 (1.19)	15.86798	**0.000**
S29: Healthcare providers who strive to better understand themselves provide better care than those who have no such aspirations	3.85 (1.10)	3.87 (1.03)	3.64 (1.14)	4.01 (1.01)	3.07626	**0.047**

should be sought in the fact that physicians are generally more prone to rely on evidence-based information on successfulness and efficiency of any given treatment than the other two groups of healthcare providers studied within this frame. All three groups highly appreciated and validated the importance of quality-of-life measurements that should be carried out within the frame of clinical trials (M=4.06), although the attitudes towards this issue expressed by nurses (δ=1.116; p=0.020) differ from those expressed by physicians and physiotherapists. The reason behind these differences should probably be sought in the nature of nursing care delivery which puts the patient in a somewhat passive position, while physiotherapists constantly assess the remaining patient capacities and strive to make him/her actively involved in the rehabilitation process. This assumption is further substantiated by the fact that physiotherapists (δ=0.143; p=0.052) differ in their attitudes towards building a strong bond between the attending healthcare professional and the patient, as compared to nurses and physicians. Physiotherapists are less prone to build a closer relationship with the patient as they strive to keep the patient as independent as possible. Their tendency to keep a distance stems directly from the nature of their performance and the number of working hours spent with the patient during rehabilitation that often takes months or even years.

The responses to IMAQ items detailed below revealed the extent to which healthcare providers put their trust into certain CAM treatments. As expected, physiotherapists (δ=0.132289; p=0.000) are more in favour of osteopathic treatments, as compared to healthcare professionals of other backgrounds; even more so, a number of them actively performs such treatments. Attitudes towards acupuncture (p=0.352), chiropractic (p=0.171)

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and massage techniques (p=0.640) are similar across the three groups since these treatments represent the most renowned and appreciated CAM treatments, which are practiced by a number of healthcare professionals. Laying-on-hands treatment and therapeutic use of subtle energy fields were rated low by all three groups of healthcare providers under study, especially by physicians (p=0.000). Intuitive therapeutic approach (p=0.558) was deemed equally unacceptable by all three groups; the same applies to the placebo effect (p=0.102).

Unlike physiotherapists and physicians, whose attitudes are quite similar in this regard, nurses (δ=0.161; p=0.024) appreciate the spiritual aspect of patient treatment much higher. The reasons for the above might be explained by several facts. Nurses/paramedics are predominantly female and more religious than men (Britt, 2009). On top of that, they often represent the pillar of patient care in its most dire phases, especially when it comes to palliative care, so that they resort to their own spirituality to cope with their occupational stress (Šolar, Mihelič Zajec, 2008). As for the patients' spirituality and its role in the healing process, all three groups remained equally neutral (p=0.101).

Physiotherapists (δ=0.166; p=0.010) believe that the synergic use of conventional and complementary treatments shall be more beneficial for patients, while all three groups are of the opinion that patient satisfaction shall be equal regardless of the medical practice in use. A possible explanation can be found in the fact that healthcare providers are fully aware of patient perception of their health, sickness, curability or incurability of their condition and the consequences of the aging process.

The importance of personal growth and development to the effect of higher job satisfaction and better performance, particularly in terms of higher level of healthcare service provided to the patient, was equally highly validated by all three studied groups. The IMAQ item demonstrated to have the highest pertaining mean value (M=4.29) is the one elaborating the importance of diet-related counselling of chronic patients, the latter counselling being most appreciated by nurses/paramedics (δ=0.118; p=0.032). It can be assumed that such a response comes as a result of healthcare providers' awareness on the lack of preventative diet-related counselling services within the public healthcare system frame.

Similar studies available for comparison with our study outcome were carried out by Yildirim and co-workers (2010), who compared CAM-related attitudes and knowledge of nursing and medical students. Despite of an ever increasing interest of patients for information on CAM treatments, medical and nursing students do not get the appropriate information during their formal education since the curricula of medical colleges and schools of medicine neglected to cover these topics. The study in question demonstrated that nursing students have more positive attitudes towards CAM than medical students and are of the opinion that relevant CAM-related information should be delivered to them during their formal education. They are also of the opinion that CAM treatments which have been proven efficient beyond doubt should be practiced in clinical settings. Medical students are of the opinion that CAM treatments are mostly associated with the placebo effect and perceive them as a public health threat far more than nursing students. More than a half of students from both study arms agreed that CAM treatments stimulate the natural healing power of the human body. Furthermore, Eran Ben-Arey and co-workers assessed the attitudes of patients, physicians and CAM practitioners towards CAM integration into the Israeli public healthcare system (Ben Ayre, 2008). The study showed that patients, physicians and CAM practitioners believe that, in the future, primary healthcare physicians or FM practitioners shall play a crucial role in treatment modality selection, acting thereby in the best interest of their patients.

A group of authors affiliated with the University of Minnesota assessed CAM-related attitudes of pharmacy students and faculty members of the School of Pharmacy (Harris, 2006). The results showed that general CAM-related attitudes of both study groups are positive and that the majority of subjects believe that the pertaining topics should be included into the study curriculum. Due to an ever increasing interest for alternative and complementary medicine, Lie and co-workers (2006) investigated into the attitudes of students, residents and faculty members of the Irvine School of Medicine, USA, towards the inclusion of CAM-covering modules into the study curriculum (Lie, 2006). The attitudes expressed by all three groups were positive; however, more positive when it comes to the faculty members, as compared to the students and the residents. All three groups were revealed to gather CAM-related information from the same sources, i.e. the internet and topic journals. All three groups also practice certain CAM treatments in their private lives (mostly the faculty members), most commonly massage, spiritual techniques, herbal remedies, meditation, chiropractic and traditional Chinese medicine. The studied groups unanimously expressed the need for a systematic delivery of the appropriate information and systematic training in the appropriate skills, so as to be able to advise patients on best CAM options. Our study, conducted on Croatian healthcare providers, represents the very first and unique research on the topic ever conducted in the Republic of Croatia, since no previous studies on CAM-ignorant practising healthcare providers has ever been attempted in our Homeland. Global trends, especially those witnessed in the USA (Schneider, 2003) dictate the inclusion of CAM-covering modules into the study curricula offered by schools of medicine and medical colleges. It is reasonable to assume that these changes shall be seen in Croatia as well, despite of current doubts (Marušić, 1986).

The Croatian accession to the European Union shall impose the need for the enactment of the legal framework governing complementary/alternative medicine domain, thus providing for a more constructive co-existence of CAM and conventional medicine. In order to truly assess the impact of formal education on CAM-related attitudes of Croatian healthcare providers, a similar study should be repeated on a larger randomised study sample following the implementation of novel study curricula covering CAM topics.

Conclusion

Despite the fairly high IMAQ score obtained in the study sample (95 out of the maximal 145 points) that speaks in favour of a positive rather than neutral CAM-related attitude of healthcare providers under study, the very structure of the IMAQ tool prevents us from the unbiased conclusion that healthcare providers support CAM. Namely, only certain IMAQ items directly question attitudes towards exemplary alternative therapies, while the majority of items are more indicative of the open-mindedness towards new ideas, healing-related attitudes, prevention and shifting the focus from the condition to the patient. Therefore, the high IMAQ score probably mirrors healthcare professionals' belief that a wider holistic approach to both patients and treatments should be implemented, however, not in terms of practicing of spiritual or intuition-based treatments not supported by evidence-based medicine and professional experience. The most striking differences in attitudes were found to arise on the grounds of various professional backgrounds of healthcare providers comprised by the study. Physicians are far less prone to support alternative and spiritual treatment practices than nurses/paramedics and physiotherapists as revealed by the responses to the majority of IMAQ items. The reason should probably be sought in the traditional formal education and curricula of academic institutions educating Croatian healthcare professionals. The lack of formal CAM education, i.e. modules systematically elaborating CAM-related topics, witnessed in Croatian academic institutions educating Croatian healthcare professionals is probably only partly responsible for the situation at hand; it is reasonable to assume that occupational and wider social environment play a substantial role as well.

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