

# Complementary and Alternative Medicine in Knee Osteoarthritis: Which Place?

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## Abstract

**Objectives:** As regards osteoarthritis (OA), conventional treatment has still not given total satisfaction to our patients. This may explain their use of Complementary and Alternative Medicine (CAM) which could easily interfere with the physician prescription. The aim of the present study was to determinate the prevalence of CAM use by knee OA patients and to assess its predictive factors.

**Methods:** A cross-sectional study was set at the university hospital. Patients with knee OA according to the American college of rheumatology were included. Information was collected about Knee OA patients, the different types of CAM used, the reasons for using CAM, and CAM's effectiveness on pain and function. The doctor-patient relationship was also analyzed. We performed a statistical analysis with a logistic regression to determine predictive factors of CAM use.

**Results:** Of the 105 patients included in this study, 64.8 % used CAM at least once in their lives, 77.5% said they started CAM as soon as their OA had been diagnosed. Fifty eight percent of patients reported using CAM to relieve pain, while 18.4% were using it to cure their OA. Regarding the types of CAM, 72% of patients used massage with application of essential oils, 51.5% used balneotherapy, 22% used phytotherapy, 17.6% did cupping, 13.2% went to sand baths and 10.3% have used acupuncture. Olive and argon oil were the most used as topic agents. Eighty eight percent of patients admitted that their doctor was not aware about their use of CAM, because he had never asked about it in the majority of cases. After univariate analysis, there were no predictive factors for the use of CAM.

**Conclusion:** The use of CAM is frequent and various in our study. Health care providers should discuss these therapies with all OA patients, in order to assess their effectiveness, and to prevent their adverse effects.

## Background

Knee osteoarthritis is a very common degenerative disease. It affects the articular cartilage and subchondral bone and leads to its destruction. According to Osteoarthritis Research Society International (OARSI), the goal of treatment in osteoarthritis is to reduce joint stiffness and pain, improve function and mobility and stop the progression of joint destruction [1]. The chronic nature of this disease and its impact on the quality of life of elderly patients, the lack of effective conventional treatment explain in most cases the use of alternative and complementary medicine.

In our study, we investigated the use of Complementary and Alternative Medicine (CAM) by a population of patients with knee OA followed in consultation. We were interested, first by its prevalence of use, the types of therapies used, the reasons of use, and finally, by the existence and the quality of the dialogue about alternative medicine between physician and patient.

## Methods

We conducted a cross-sectional study in the Rheumatology department. All our patients were followed in consultation and had confirmed knee osteoarthritis according to ACR (American College of Rheumatology) diagnosis criteria. Were excluded from the study: people with advanced osteoarthritis (candidate for knee replacement), osteoarthritis due to inflammatory arthritis, metabolic or microcrystalline etiology, people with other symptomatic sites of osteoarthritis and those with poor health.

## Patient's and CAM data

Information about age, sex, level of education, and Body Mass Index (BMI) was collected. In order to enlarge samples in the statistical study, patients were aggravated into two groups: Low level of education involving illiterate and primary level; and high level of education which contains secondary and university level.

**Table 1:** Characteristics of patients with knee OA.

Characteristics	Proportion (N = 105)
<b>Female</b>	101 (96.2%)
<b>Age (years)</b>	56,44 ± 10,29 (range, 30–80)
<b>Education</b>	N = 105
Did not go to school (illiterate)	49(46.7%)
Did not complete high school	18(17.1%)
High school graduate	23(21.9%)
College diploma or Bachelor's degree	15(14.3%)
<b>BMI</b>	N=105
Normal	10(9.6%)
Overweight	47(44.4%)
Moderate obesity	31(29.8%)
Severe obesity	16(15.2%)
Morbid obesity	1(1%)
<b>Duration of OA</b>	N = 105
Less than 1 year	38 (36.2%)
1–5 years	44 (41.9%)
Longer than 5 years	23 (21.9%)
<b>Affected limb by Knee OA</b>	N = 105
Left	4 (3.8%)
Right	10(9.5%)
Both	91(86.7%)
<b>Pain (VSA)</b>	N=103
<b>Mild pain (0-3)</b>	73(71%)
3-5	23(22.3%)
5-7	6(5.8%)
7-10	1(1%)
<b>Walking distance (m)</b>	N=105
Less than 100m	2(1.9%)
100-500m	14(13.3%)
500-1000m	13(12.4%)
>1000m	76(72.4%)
<b>Knee Lequesne</b>	N=105
Less than 10	80%
<b>Womac (max=68pts)</b>	N=105
Womac function>12	79%
<b>Grade OA*</b>	N = 105
0 = no osteophytes	0 (0%)
1 = doubtful osteophytes	22 (21%)
2 = minimal osteophytes	45(42.9%)
3 = moderate osteophytes	38 (36.2%)
4 = severe, large osteophytes	0(0%)
<b>Previous treatments for OA</b>	N = 105
NSAIDs	27 (25.7%)
Corticosteroid injection	15 (14.3%)
Analgesics	65 (62.9%)
Hyaluronic acid injection	7 (6.7%)
<b>Other medications</b>	N=72
Chondroitin	24(34.8%)
Glucosamin	0
Diacerein	1(1.4%)
Avocado soybean unsaponifiables	44(63.8%)

\*According to the Kellgren-Lawrence radiographic scale.

Patients were asked to report only symptoms related to their knee. We collected data about the duration of the disease (years) and the affected limb (right, left, both, most symptomatic). Pain was assessed by the Visual Analogical Scale (VAS) and functional impairment of patients by Walking Distance in meters (WD), Algofunctional Lequesne index and WOMAC scale. The radiological grade was noted according to the classification of Kellgren Lawrence (Table 1). Patients were asked about the type of received treatment: analgesics, NSAIDs, Hyaluronic acid injections or steroid infiltrations, Avocado soybean unsaponifiables, glucosamin, chondroitin and diacerein.

CAM users respond with a yes to a direct question: «Have you used the CAM with the intention of relieving osteoarthritis?» patients must then specify the reasons and timing of use of CAM. Non-users should clarify the reason for non-use (open question). The list of CAM was developed using data from the literature, the answers were “yes” or “no” with the possibility for patients to add another type of CAM (if it doesn't figure on the list). The type of herbal and essential oils applied was detailed if the patient reports their use. Users of CAM should also report if they had informed their rheumatologist or not about the CAM use and explain why they had not done. Perceptions of patients about the side effects of complementary medicine and interactions with conventional treatment were evaluated. Finally, they were asked to rate the effectiveness of single CAM use and its effectiveness on pain and function on a scale of 0 (ineffective) to 10 (very effective).

### Ethical considerations

The study was approved by the ethical committee of the faculty of medicine Sidi Mohammed Ben Abdellah University. All patients gave written informed consent.

### Statistical analysis

Data were collected, and then the statistical analysis was performed using the statistical analysis software SPSS.20. First, a descriptive analysis of the population studied and various data related to the knee OA and the use of CAM was done. Then, we proceed to a multivariate analysis using logistic regression. The results are reported in the form of commented figures and tables. A  $p < 0.05$  was considered significant.

## Results

### Characteristics of patients with knee OA: (Table I)

One hundred and five patients were included in this study. A female predominance was noted with 101 women (96.2%) and 4 men. Half of our patients were obese (46.2%).

Sixty-three percent of patients are using analgesics, with a majority of paracetamol use in 84.1% and only 25.7% of patients were using NSAIDs.

### Characteristics of patients using CAM

Among the 105 patients included in this study, 68 patients (64.8%) of the sample studied, used CAM at least once in their lives. Within this category of patients, women represent 97.1%, with a mean age of 56.09+/-10.68 [30-80] years, 56% had a low level of education. Half of the patients were obese with a WOMAC function > 12 in 79.4% of cases and a Lequesne > 10 in 22.1%. Sixty five percent had a mild pain and a WD superior to 1Km in 75% of cases.

**Table 2:** Comparison between the users and the non users of CAM.

Variables	CAM users N=68	CAM non users N=37	p value
<b>General characteristics</b>			
Age (years)	56,09 [30-80]	57,08 [40-75]	0.63
Female (%)	97	94.6	0.52
Education (% Low level)	55,88	48,65	0.24
BMI > 30kg/m <sup>2</sup>	47%	32.4%	1.13
<b>OA characteristic</b>			
Disease duration (years)	5	3	0.23
Pain by VAS (0-10)	2,69	2	0.08
Walking Distance (>1km)	75%	67.5%	1.41
Womac function	25,86	20,62	0.07
Lequesne index (>12)	11.7%	5.4%	1.48
<b>Grade OA:</b>			
1	19.1%	24,3%	-
2	39.7%	48.6%	-
3	41.2%	27%	-
<b>Treatment :</b>			
NSAIDs	29.4%	18.92%	0.33

\*statistical study is not possible due to the small sample of the subgroups.

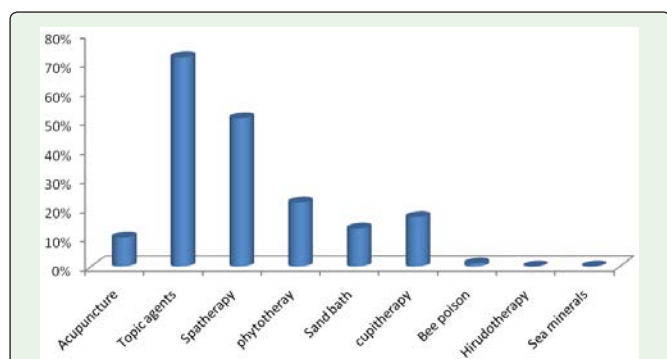
The knee OA affects mainly internal tibiofemoral compartment (70%). According to the radiological classification Kellgren Lawrence, 41.2% of patients had grade 3 of osteoarthritis.

Sixty five percent of patients used analgesics, and 29.4% of patients used NSAIDs.

In this group, 8.8% of patients underwent hyaluronic acid injections, and 16, 2% were treated with steroid injections, 61.7% took avocado soybean unsaponifiables.

**CAM Data**

Regarding the timing of the beginning of the use of CAM, 77.5% of patients reported having started CAM use at the diagnosis of their knee OA, and 15.5% of patients used CAM before the onset of the disease. Fifty eight percent of cases used CAM to relieve pain while 18.4% of patients used it in the hope of healing completely their OA. Seventy two percent of patients used essential oils as topics, 51.5% used the spa treatment, 22% were taking a herbal medicine, 17.6% opted for cupitherapy, 13.2% have used sand baths and 10.3% had used acupuncture. The ultrasonic, electromagnetic fields and hirudotherapy, which are foreign to our traditional medicine practices, were not used by our patients. Olive oil, argan oil and butter were used as topics, with respective proportions of 64.4%,



**Figure 1:** Types of CAM used by our patients.

20.3% and 5.1%. Pennistum spicta W was used by 44% of patients as phytotherapy (Figure 1).

Concerning the effectiveness of CAM on the knee OA, the maximum score given by patients was 9 with two frequency peaks in notes 5 and 7. Also in their judgment about the effectiveness of CAM on pain component, the peak frequency was between 5 and 7, and the estimation of patients about the effect of CAM on Knee function was between 4 and 7.

To the question “Have you informed your rheumatologist about your use of CAM?” 61.8% of patients responded “no”. «Concerning the reasons why patients do not inform their physicians, 45.2% of them reported that their doctors had never asked. Non-users of alternative medicine patients had several reasons for their abstinence: 40.5% have no confidence in these therapies, 18.9% reported fear of side effects, while 27% did not believe in their efficiency.

**CAM use predictive factors: (Table II)**

In univariate analysis there were no statistically significant relationship between the onset of osteoarthritis and the use of CAM was found (p = 0.23). BMI, degree of pain, Lequesne index, walking distance, radiological grade were not predictive factors of CAM use. There was no significant relationship either between the two groups (CAM users and non-users) regarding the use of analgesics or NSAIDs and the use of CAM (p = 0, 33).

**Discussion**

In this study, 64.8 % of knee OA patients have used CAM at least once during their lives. This agrees with the average proportion of use of the CAM in the literature, between 33 % and 66 % [2]. A Canadian study of Marsh and al, found among 373 patients with osteoarthritis (mostly knee OA: 84.7%), that 42.9 % have used one or more types of CAM [3]. The U.S. study of Herman and al found a proportion of users of 89.4% among patients with osteoarthritis [4]. Such higher frequencies can be explained by the inclusion of practices such as prayer, mind and body therapies.

In our study, treatment of OA, using glucosamin, chondroitin, diacerein, Avocado soybean unsaponifiables, were not included in the CAM group because they are considered in our country as drugs delivered under medical prescription. In the other hand, the high prevalence of CAM use in our paper could be explained by the high popularity of traditional medicine in our culture.

The use of CAM in our study was dominated by the use of topic agents, spa treatment and herbal medicine. The literature shows that herbal medicine, topics and mind-body therapies are by far the most used. Mind and body therapies were not mentioned by patients in our context. Most of these therapies have an Asiatic origin and are not popular in our culture.

We did not find any significant relationship as to the use of CAM and the level of education or occupation. However, significant differences between users and non-users have been reported on the level of instruction in the literature. It was found that patients with medium and high levels of education used more CAM than patients with low educational level. Jordan and al objectified a significant relationship between these two parameters with a p < 0.05 [5]. This finding could be explained by the non-inclusion of drugs such as

chondroitin and glucosamin as a type of CAM in our study, and this is the reason why the CAM use is associated with a high level of instruction in developed countries as Lapane and Jordan shows [5,6].

Disease duration of knee osteoarthritis was not associated with the use of CAM according to Jordan and al study [5]. Another study showed that the use of more than 3 types of CAM was associated with a long course of the disease [7,8]. This finding seems reasonable if we consider that a long lasting disease will be a severe one. Zöchling and al reported that patients taking CAM had more pain and stiffness and poor function on the WOMAC scale compared with non users [9]. Lapane and al found that in the group of CAM users, pain and function values were lower compared with users of conventional therapy alone [6]. This is not surprising because patients with severe disease are probably in need of greater pain relief.

These therapies are usually not mentioned by patients and doctors during visits. Marsh and al found that 40.6% of patients did not report their use of CAM to their doctors, and according to this same study, the reasons were: that the CAM subject is not important (29.7%), that the doctor will not be interested (13.5%) or that he has no knowledge about CAM (8.2%) [3]. Herman and al conclude that the key to talk about CAM use is to ask patients directly [4]. Another study by the same team revealed that 22.6 % of users never mentioned their CAM to their doctors [7]. These results partially agree with ours. In our study, 61% of users have never talked about CAM to their doctor. This could be explained by illiteracy, popularity of certain types of CAM (essential oils ...) and lack of awareness about this. On the other hand, the discussion doctor-patient about CAM is quite important, given the risk of side effects of CAM and its possible interactions with conventional treatment.

Finally, given the small sample in this study and the hugeness of CAM use, we believe that more studies with large samples should be necessary.

## Conclusion

This study underlined the important use of CAM by patients suffering from knee OA, despite all the sociodemographic or disease characteristics they could have. Discussion about CAM should not be ignored by doctors for a better evaluation of knee OA patients. This dialogue will possibly guide the choice of CAM type, assess objectively

its effectiveness in the absence of controlled and randomized trials testing the efficacy of the majority of CAM types, and will permit also to prevent some adverse effects and possible interaction with conventional treatment.

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