## ORIGINAL PAPER

# Characteristics of patients consulting their regular primary care physician according to their prescribing preferences for homeopathy and complementary medicine

France Lert[1], Lamiae Grimaldi-Bensouda[2,*], Frederic Rouillon[3], Jacques Massol[4], Didier Guillemot[5], Bernard Avouac[6], Gerard Duru[7], Anne-Marie Magnier[8], Michel Rossignol[9], Lucien Abenhaim[10] and Bernard Begaud[11]EPI3-LA-SER Group

[1]INSERM U1018, Centre for Epidemiology and Population Health, Villejuif, France
[2]Pharmacoepidemiology and Infectious Diseases Research Group, Pasteur Institute and LA-SER, Paris, France
[3]Sainte-Anne Hospital, University of Paris V René Descartes, Paris, France
[4]Faculty of Medicine, University of Franche Comté, Besançon, France
[5]Institut Pasteur and University of Paris-Ile de France Ouest, Paris, France
[6]LA-SER, Paris, France
[7]Cyklad Group, Rillieux la Pape, France
[8]Faculty of Medicine, University Pierre and Marie Curie, Paris, France
[9]Department of Epidemiology, Biostatistics and Occupational Health, McGill University and LA-SER Centre for Risk Research, Montreal, Canada
[10]Department of Epidemiology, London School of Hygiene & Tropical Medicine and LA-SER, London, UK
[11]INSERM U657, University of Bordeaux Segalen, Bordeaux, France

*Background:* Homeopathic care has not been well documented in terms of its impact on patients' utilization of drugs or other complementary and alternative medicines (CAM). The objective of this study was to describe and compare patients who visit physicians in general practice (GPs) who prescribe only conventional medicines (GP-CM), regularly prescribe homeopathy within a mixed practice (GP-Mx), or are certified homeopathic GPs (GP-Ho).

*Material and methods:* The EPI3-LASER study was a nationwide observational survey of a representative sample of GPs and their patients from across France. Physicians recorded their diagnoses and prescriptions on participating patients who completed a self-questionnaire on socio-demographics, lifestyle, quality of life Short Form 12 (SF-12) and the complementary and alternative medicine beliefs inventory (CAMBI).

*Results:* A total of 6379 patients (participation rate 73.1%) recruited from 804 GP practices participated in this survey. Patients attending a GP-Ho were slightly more often female with higher education than in the GP-CM group and had markedly healthier lifestyle. They did not differ greatly in their comorbidities or quality of life but exhibited large differences in their beliefs in holistic medicine and natural treatments, and in their attitude toward participating to their own care. Similar but less striking observations

*Correspondence to: Lamiae Grimaldi-Bensouda, LA-SER, 10 place de Catalogne, 75014 Paris, France.
E-mail: france.lert@inserm.fr, Lamiae.grimaldi@la-ser.com, Lamiae.Grimaldi@la-ser.com, F.ROUILLON@ch-sainte-anne.fr, Jacques.Massol@univ-fcomte.fr, Didier.Guillemot@Pasteur.fr, Bernard.Avouac@la-ser.com, Gerard.Duru@gmail.com, AMMagnier@nerim.fr, michel.rossignol@crr-intl.com, lucien.abenhaim@gmail.com, Bernard.Begaud@pharmaco.u-bordeaux2.fr

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were made in patients of the GP-Mx group.

*Conclusion:* Patients seeking care with a homeopathic GP did not differ greatly in their socio-demographic characteristics but more so by their healthier lifestyle and positive attitude toward CAM. Further research is needed to explore the directionality of those associations and to assess the potential economic benefits of homeopathic management in primary care. *Homeopathy* (2013) **103**, 51–57.

**Keywords:** Homeopathy; Prescription drugs; General practitioner; Patient's decision making

## Introduction

Homeopathic care has not been well documented in the literature from patients' utilization of drugs or other complementary and alternative medicines (CAM) which are often obtained over-the-counter (OTC).[1,2] Factors associated with consulting a primary care physician who integrates homeopathic and CAM into their practice include perception of limited efficacy of conventional medicine (CM) for chronic illnesses and of their adverse side-effects,[3–6] and of greater participation in medical decision making with their healthcare provider.[7–9] In France, homeopathy is practiced exclusively by physicians which allows a direct comparison of patients who consult general practitioners (GP) with different prescribing preferences for homeopathy. The objective of this nationwide survey was to describe and compare the characteristics of patients who visit GPs according to their prescribing preferences for homeopathy. Participating GPs were classified as those who self-declared prescribing only conventional medicines (GP-CM), regularly prescribing homeopathy within a mixed practice (GP-Mx), or being certified homeopathic GPs (GP-Ho).

## Methods

### Study design, settings and participants

The EPI3 (epidemiology in three groups of primary care practice) survey was a nationwide survey of primary care practice conducted in France between 2007 and 2008 using a representative sample of GPs and their patients.[10] The sample was drawn using a two-stage sampling process. First, a random sample of GPs was drawn from the French National Directory of Physicians in primary care. Sampling of GPs was stratified according to their own declaration of prescribing preferences for homeopathy and CAM obtained by telephone at the time of their recruitment and categorized into three groups: strictly prescriber of conventional medicine (GP-CM) who declared never or rarely using homeopathy or CAM, regular prescribers of homeopathy and CAM in a mixed practice (GP-Mx), and certified homeopathic GPs (GP-Ho). Physicians who prescribe homeopathy in France are either occasional prescribers or have completed a certification in homeopathic medicine accessible through private organizations (see for instance www.cedh.org/home/uk/). Second, a one-day survey of all patients attending the medical practice of each participating GP was conducted by a trained research assistant. The present study was restricted to patients who identified the attending physician as their regular GP.

*Data collection*: Data on physicians included age, gender, type of contract with the National Health Insurance (NHI) (regular fees, extra fees for service, and practice outside the NHI) and workload. At inclusion, GPs completed a medical questionnaire for each patient surveyed including the main reason for consultation and up to five other diagnoses (comorbidities), including all drugs prescribed that day. Diagnoses were coded by a trained archivist using the 9th revision of the International Classification of Diseases.[11] All consenting patients (or the accompanying adult for minor patients) completed a self-administered questionnaire at inclusion, in the waiting room just prior to consultation, collecting information on lifestyle, occupation, history of hospitalization, number of GP consultations in the past year, and the health-related quality of life questionnaire Short Form 12 (SF-12).[12,13] Participants also completed the complementary and alternative medicine beliefs inventory (CAMBI), a 17-item questionnaire that assesses beliefs in natural treatments and holistic health, and expectations for participating in treatment.[14]

### Statistical analysis

Characteristics of patients not participating in the survey (gender, age, length of time attending the GPs' medical practice, type of health insurance and main reasons for consultation) were used to calibrate the final sample using a method known as the CALMAR procedure.[15] This procedure permitted the weighting of each variable so as to improve the representativeness of the source population. Patients' characteristics in the GP-Mx and GP-Ho groups were compared to the GP-CM group using multiple logistic regression analyses. Variables showing a significant association were further used for adjustment in modelling the diagnoses/motives for consultation, classified in 25 diagnostic groupings. The number of comorbidities was calculated individually for each participant as the number of diagnoses reported by the physician on the same day of the survey. Each of the three CAMBI subscales scores were dichotomized at the third quartile (high score) obtained from the whole study population. The probability of high CAMBI scores (global and subscales) in the GP-Mx and GP-Ho groups compared to the GP-CM group were obtained in logistic regressions adjusted for patients' characteristics and number of comorbidities. A similar approach was used for the SF-12 quality of life subscales, physical composite summary (PCS) and mental composite summary (MCS), modelling the probability of a low score (≤first quartile). All the analyses were performed with SAS software version 9.1 (SAS Institute, Inc., Cary, North Carolina).

**Table 1** Characteristics of treating physicians according to their type of practice (*N* = 804)

| | Type of practice | | |
|---|---|---|---|
| | GP-CM<br>N = 196 | GP-Mx<br>N = 352 | GP-Ho<br>N = 256 |
| Age (median, IQR) | 52 (45–57) | 50 (45–56) | 52 (47–56) |
| Gender (% female) | 20.4 | 31.0* | 48.8* |
| Solo practice (%) | 51.5 | 56.0 | 73.1* |
| Health Insurance contract (%) | | | |
| • Regular fees | 92.3 | 90.6 | 41.8* |
| • Extra fees for service | 7.7 | 6.0 | 50.4* |
| • Outside NHI | 0 | 1.1 | 6.3 |
| Activity | | | |
| • Usual daily working hours (median, IQR) | 9 (2–10.5) | 9 (2–10.5) | 9.5 (2.5–10.5) |
| Prescription of homeopathic drugs on the survey day (%) | | | |
| • *None* | 92.4 | 67.1* | 6.3* |
| • *1 drug* | 5.6 | 15.4 | 5.1 |
| • *2 or more drugs* | 1.0 | 17.5 | 88.6 |
| Complementary medicine practice (% often or daily) | | | |
| • Acupuncture | 2.0 | 9.9* | 34.0* |
| • Mesotherapy | 7.7 | 20.4* | 16.0* |
| • Phytotherapy | 7.7 | 41.5* | 53.1* |
| • Other | 9.2 | 10.2 | 31.6* |

*Differences with GP-CM statistically significant (*p* < 0.05) obtained by logistic regression adjusted on all variables in the table.
**Abbreviations:** GP, general practitioner; CM, conventional medicine; Ho, homeopathy; Mx, mixed practice; IQR, interquartile range; NHI, National Health Insurance.
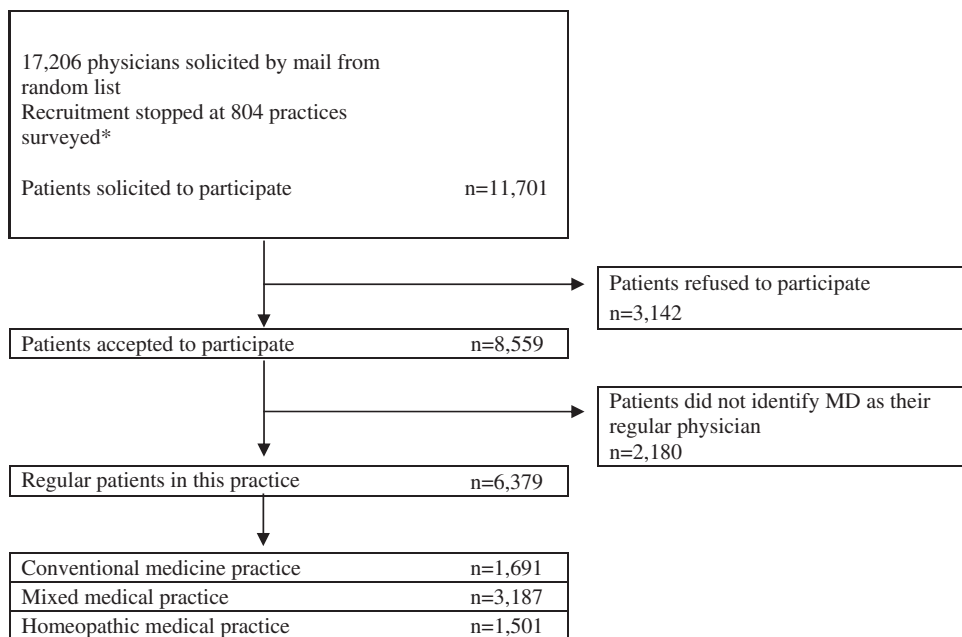
## Results

### Physicians

A total of 804 GPs recruited at least one patient who reported them as their regular primary care physician: 196 (24.4%) GP-CM, 352 (43.8%) GP-Mx and 256 (31.8%) GP-Ho (Table 1). With regard to demographic characteristics, GPs in the three groups did not differ in age, but the proportion of female physicians was higher in the GP-Mx and GP-Ho groups compared to GP-CM (*p* < 0.05). GP-Ho were more likely to work in solo practice and to bill for extra fees than the two other groups. Workload in terms of average number of hours worked daily did not differ between the three groups. Prescribing preferences of physicians for homeopathy in the three groups were confirmed with 6.6% of GP-CM, 32.9% of GP-Mx and 93.7% of GP-Ho prescribing at least one homeopathic drug during the surveyed consultation session. Similar distributions were observed for other modalities of CAM.

### Patients

Among the 11,701 patients attending the medical practice on the surveyed day, 8559 (73.1%) agreed to participate in the survey and 6379 identified the attending physician as their regular GP (Figure 1). Their distribution in the three groups was 1691 (26.5%) in the GP-CM group, 3187 (50.0%) in the GP-Mx, and 1501 (23.5%) in the GP-Ho (Table 2). Compared to the GP-CM group, participants in the GP-Ho were similar in terms of age distribution, more often educated females, more frequently covered by additional private insurance and less often of foreign origin (*p* < 0.05). They were also more likely to have a healthier lifestyle and as a result have lower body mass index (BMI), to be less likely to smoke and to consume slightly less alcohol than patients in the GP-CM group (*p* < 0.05). No statistically significant difference was observed when comparing patients in the GP-Mx and GP-CM groups.

Table 3 presents the prevalence for each of the 25 diagnostic categories reported by GPs on participating patients. The same patient might have been attributed to more than one diagnosis. Overall, differences between the three groups of physicians were small. On the one hand, excess



| 17,206 physicians solicited by mail from random list<br>Recruitment stopped at 804 practices surveyed*<br><br>Patients solicited to participate | n=11,701 |
|---|---|

| Patients accepted to participate | n=8,559 |
|---|---|

| Patients refused to participate<br>n=3,142 |
|---|

| Patients did not identify MD as their regular physician<br>n=2,180 |
|---|

| Regular patients in this practice | n=6,379 |
|---|---|

| Conventional medicine practice | n=1,691 |
|---|---|
| Mixed medical practice | n=3,187 |
| Homeopathic medical practice | n=1,501 |

\* Recruitment stopped when sample size was reached in each stratum: 200 in conventional medicine and homeopathic medicine and 400 in mixed practice.

**Figure 1** Flow chart of recruitment.

**Table 2** Characteristics of patients by type of practice of their treating physician (N = 6379)

| | Type of practice | | |
| --- | --- | --- | --- |
| | GP-CM N = 1691 (%) | GP-Mx N = 3187 (%) | GP-Ho N = 1501 (%) |
| Gender (female) | 56.5 | 57.6 | 66.3* |
| Age (years) | | | |
| • ≦17 | 14.0 | 15.4 | 18.4 |
| • 18−39 | 20.7 | 22.2 | 20.0 |
| • 40−59 | 30.0 | 31.3 | 31.6 |
| • ≧60 | 35.4 | 31.1 | 30.0 |
| Born outside France | 9.6 | 9.7 | 5.5* |
| Education (High school and higher) | 40.6 | 40.3 | 57.8* |
| Complementary insurance for low-income | 8.8 | 9.5 | 5.2 |
| Private additional insurance | 90.4 | 89.6 | 94.3* |
| BMI ≥25 kg/m² | 42.9 | 40.0 | 27.9* |
| Current smoker | 27.0 | 27.1 | 20.4* |
| Alcohol (daily/almost daily) | 13.3 | 11.7 | 12.2* |
| Physical activity (<30 min/day) | 62.2 | 64.1 | 64.6 |

*Differences with GP-CM statistically significant (p < 0.05) obtained by logistic regression adjusted on all variables in the table.
**Abbreviations:** GP, general practitioner; CM, conventional medicine; Ho, homeopathy; Mx, mixed practice; BMI, body mass index; IQR, interquartile range; NHI, National Health Insurance.

prevalence of osteoarthritis and joint diseases, anxiety-depressive and sleep disorders, and dermatologic complaints were observed in patients in the GP-Ho group compared to GP-CM and also consulted more often look-

ing for general examination and to discuss test results. On the other hand, they had slightly lower prevalence of cardiovascular problems, acute bronchitis and flu-like symptoms and thyroid diseases, and were slightly less likely to consult for vaccination and administrative reasons. Stratifications on gender and age did not change the results.

For quality of life estimated by the SF-12, the GP-Ho group showed a slightly higher (better) mean physical component score than the GP-CM group (47.2, standard deviation (SD): 10.6; and 45.2, SD: 11.1, respectively) and a slightly lower (worse) mental component scores (40.9, SD: 10.5; and 41.6 SD: 10.9, respectively), differences that were statistically significant (p < 0.05) after adjusting for variables in Table 2 and number of comorbidities. No difference was observed between the GP-Mx and GP-CM groups as to QOL results from life subscales.

## Complementary and alternative medicine beliefs inventory

The beliefs and attitudes towards complementary medicine estimated by the CAMBI questionnaire are presented in Table 4. Patients consulting a GP-Ho were consistently about twice more likely to agree to each of the 17 items than patients of GP-CM group and over three times more likely to score high (above the third quartile) (adjusted Odds ratio (OR) 3.43; 95% confidence intervals (CI):

**Table 3** Prevalence of diagnoses and motives for consultation by type of practice (N = 6379)

| | Type of practice | | |
| --- | --- | --- | --- |
| | GP-CM N = 1691 (%) | GP-Mx N = 3187 (%) | GP-Ho N = 1501 (%) |
| **Diagnoses at the consultation** | | | |
| Cardiovascular disorders | 27.3 | 24.1 | 17.4* |
| Anxiety-depressive disorders | 15.8 | 13.5 | 19.1* |
| Osteoarthritis and joint diseases | 13.4 | 12.2 | 14.9* |
| Upper respiratory tract infections | 12.3 | 11.5 | 14.2 |
| Gastrointestinal disorders | 11.0 | 9.8 | 9.9 |
| Back pain and back disorders | 10.3 | 10.8 | 11.2 |
| Obesity and hypercholesterolaemia | 10.7 | 8.0* | 7.4 |
| Other acute respiratory diseases (bronchitis, pneumonia, flu-like) | 6.5 | 4.6* | 4.7* |
| Neurological and Head & Neck disorders | 6.4 | 4.6* | 6.5 |
| Diabetes mellitus | 6.0 | 4.8 | 3.0 |
| Thyroid and other endocrine diseases (except diabetes) | 5.7 | 3.8* | 4.0* |
| Sleep disorders, fatigue and general symptoms | 5.1 | 4.6 | 6.8* |
| Urological and genital disorders | 5.5 | 4.4 | 4.8 |
| COPD & non-asthmatic chronic respiratory diseases | 4.4 | 3.9 | 4.7 |
| Asthma & allergic rhinitis | 3.5 | 2.9 | 4.5 |
| Osteoporosis | 3.5 | 3.2 | 3.8 |
| Other bacterial, viral, parasitic infectious diseases | 3.5 | 3.4 | 4.4 |
| Trauma | 3.5 | 3.5 | 2.8 |
| Dermatological diseases | 3.4 | 3.6 | 5.3* |
| Allergies to drugs and intoxications | 1.2 | 1.5 | 1.7 |
| Others (including cancer) | 5.6 | 3.6* | 3.2* |
| **Other motives for consultation** | | | |
| General examination and test results | 8.4 | 8.0 | 12.7* |
| Formularies and other administrative reasons | 7.4 | 6.4 | 4.5* |
| Vaccinations | 3.9 | 3.5 | 2.7* |
| Pregnancy and childcare | 2.8 | 2.2* | 2.6 |

*Differences with GP-CM statistically significant (p < 0.05) obtained by logistic regression adjusted on all variables in Table 2.
**Abbreviations:** GP, general practitioner; CM, conventional medicine; Ho, homeopathy; Mx, mixed practice; COPD, chronic obstructive pulmonary disease.

**Table 4** The complementary and alternative medicine beliefs inventory (CAMBI) by type of practice (*N* = 6379)

| | Type of practice | |
|---|---|---|
| | GP-Mx GP-CM OR* (95% CI) | GP-Ho vs. GP-CM OR* (95% CI) |
| 1. Treatments should have no negative side-effects | **1.14 (1.02−1.27)** | **1.66 (1.44−1.90)** |
| 2. It is important to me that treatments are non-toxic | 0.95 (0.80−1.13) | **1.60 (1.26−2.02)** |
| 3. Treatments should only use natural ingredients | **1.19 (1.08−1.30)** | **2.18 (1.94−2.45)** |
| 4. It is important that treatments boost my immune system | 1.05 (0.94−1.18) | **1.83 (1.58−2.11)** |
| 5. Treatments should allow my body to heal itself | **1.25 (1.13−1.38)** | **1.96 (1.73−2.22)** |
| 6. Treatments should increase my natural ability to keep healthy | **1.17 (1.03−1.32)** | **1.98 (1.68−2.33)** |
| 7. Treatment providers should treat patients as equal | 1.00 (0.89−1.11) | **1.43 (1.25−1.65)** |
| 8. Patients should take an active role in their treatment | 0.92 (0.81−1.04) | **1.63 (1.38−1.93)** |
| 9. Treatment providers should make all decisions about treatment | 0.90 (0.79−1.02) | **1.38 (1.20−1.58)** |
| 10. Treatment providers should help patients make their own decisions about treatment | 0.97 (0.88−1.08) | **2.20 (1.85−2.62)** |
| 11. Treatment providers control what is discussed during consultations | 1.01 (0.89−1.14) | **1.35 (1.18−1.55)** |
| 12. Health is about harmonising your body, mind and spirit | 1.07 (0.95−1.21) | **2.20 (1.85−2.62)** |
| 13. Imbalances in people's lives are a major cause of illness | **1.15 (1.05−1.27)** | **1.98 (1.77−2.22)** |
| 14. Treatments should focus only on symptoms rather than the whole person | 0.87 (0.78−0.97) | **2.18 (1.93−2.46)** |
| 15. Treatments should focus on people's overall well-being | **1.16 (1.04−1.29)** | **1.71 (1.49−1.96)** |
| 16. I think my body has a natural ability to heal itself | **1.10 (1.00−1.21)** | **2.02 (1.80−2.26)** |
| 17. There is no need for treatments to be associated to natural healing power | 0.97 (0.88−1.07) | **1.61 (1.43−1.80)** |
| **CAMBI Total score > 3ʳᵈ quartile** | 1.09 (0.95−1.24) | **3.43 (2.97−3.97)** |
| **CAMBI sub-scores:** | | |
| • Natural treatment > 3rd quartile | **1.22 (1.08−1.37)** | **2.05 (1.79−2.36)** |
| • Patient's participation > 3rd quartile | 0.91 (0.81−1.02) | **1.52 (1.33−1.74)** |
| • Holistic medicine > 3rd quartile | **1.13 (1.00−1.28)** | **3.19 (2.77−3.66)** |

**Abbreviations**: GP, general practitioner; CM, conventional medicine, Ho, homeopathy; Mx, mixed practice.
* Odds ratios (OR) and 95% confidence intervals (CI) obtained in logistic regressions adjusted for age, gender and level of education.

2.97−3.97). The highest subscale scores observed belief in holistic medicine followed with natural treatment and patients' participation to care. Patients in the GP-Mx group also scored higher than in the GP-CM group but only in the natural treatment and holistic medicine subscales.

# Discussion

The EPI3 nationwide survey of a large representative sample of the population allowed describing the characteristics, health conditions and attitudinal factors associated with seeking care from a regular primary care physician demonstrating different prescribing preferences towards CAM and homeopathy. Patients' characteristics associated to seeking care from a GP-Ho such as a greater proportion of female with higher education observed in this study have been previously reported.[16−18] However, the marked differences in healthier lifestyle observed in patients in the GP-Ho group compared to GP-CM, including BMI, smoking and alcohol use, can be interpreted as both as having a common origin to seeking homeopathic care or a result of homeopathic care itself.[19−21] Also, the high CAMBI scores in the GP-Ho group, more modestly so in the GP-Mx group, could not be interpreted only as attributes associated with consulting a certain type of physician because those differences could also result from patient−physician interactions. The cross-sectional nature of this survey did not allow distinguishing between the two effects.

Another difference between the three groups of physicians was the case mix of their patients, including more often chronic conditions such as back pain, anxiety disorders and dermatological problems in the GP-Ho group.

These types of health issues might be more amenable to complementary approaches following dissatisfaction with conventional care, as suggested by some authors.[9] Above and over differences highlighted between patients in the three groups of physicians, results showed important overlap of homeopathic and CAM practices with CM practice, as well as similarities between patients of the three groups. In other studies, one third of patients who visited a primary care physician reported using CAM alone or in association with CM.[22−25] This observation is well supported by results from our study, where physicians not belonging to the GP-Ho group prescribed 40% of all homeopathic drugs.

Self-perceived health expressed as quality of life in our study showed similar patterns to those reported in Western countries with slightly poorer perceived mental health but slightly better physical health in patients seeking homeopathic advice.[26,27] The meaning of those small differences is difficult to interpret and might lack clinical relevance. Finally, our findings suggest that complementary private insurance (CPI) was associated with increased consultation to a GP-Ho, further contributing to the current debate in France on the cost-effectiveness of homeopathy and CAM compared to CM.[28−31] The association with patients who held CPI remained after controlling for education and income, indicating that other social and environmental factors are at play. This was also illustrated by the lack of association between CPI and consulting a GP-Mx. Economic studies are needed to clarify cost-effectiveness and cost-benefit of homeopathic and CAM care compared to conventional health care.

A strength of this study was its representativeness drawn from a large national sample of physicians and

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patients which minimized the risk of a selection bias.[32,33] Moreover, no selection criteria was used on health conditions or motives for consultation in order to closely reflect a typical consultation day in primary care. To that effect, two other strategies were used. First, physician's self-declaration of frequency of use of CAM and homeopathy was used to classify the three groups. That strategy has shown to be more congruous with real-life clinical practice than prescription counts or patient's reporting.[34,35] The second strategy used patients' self-declaration of the attending physician being their regular physician. This strategy was done in order to better reflect health management rather than solely the act of prescribing.

The main limitation of this study was its cross-sectional nature which did not allow interpreting the directionality of the associations found and therefore no conclusion can be drawn on the specific contribution of homeopathic management to the findings. Another limitation is the lack of trans-cultural utilization of the CAMBI scale which has not been validated in France. The apparent discrimination of the scale between the three groups provided for the first time an element of validation which needs to be pursued.

In conclusion, the EPI3 survey was one of the largest studies conducted in general practice to describe attitudes and burden of disease in patients seeking care from GPs with different prescribing preferences towards CAM and homeopathic practices. Results showed that patients seeking care with a homeopathic GP differed mainly by their healthier lifestyle and positive attitude toward CAM. They were more often in favour of a holistic management of their conditions and for participating in their own care. Further research is needed to explore the directionality of those associations and to assess the potential benefits, both in terms of health economics and health care, of consulting GPs with prescribing preferences for homeopathy and CAM.

## Authors' contributions

The work presented here was carried out with the involvement of every author. FL, LGB, FR, JM, DG, BA, GD, AMM, MR, LA and BB conceived both the research theme and the methods, analysed the data and interpreted the results. LGB implemented the trial in France, analysed the data, and together with FL, LA, BB and MR drafted and revised the paper. All members of the EPI3-LASER group designed the study. All authors have contributed to, read and approved the final manuscript. LGB is guarantor for the study.

## Funding

## Competing interests

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