


Usage and Attitudes Towards Natural Remedies and Homeopathy in General Pediatrics: A Cross-Country Overview

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Abstract

In order to better understand the global approach and country differences in physicians' usage, knowledge, and attitudes towards natural remedies and homeopathy in pediatric practice, an online survey involving 582 general pediatricians and general practitioners treating pediatric diseases was conducted in 6 countries. Overall, 17% of the pediatric prescriptions refer to phytotherapy and 15% refer to homeopathic preparations. Natural remedies and homeopathic preparations are more frequently used in upper respiratory tract infections, infant colic, sleep disturbances, and recurrent infections. In the majority of cases, they are used together with chemical drugs. Both treatment options are typically used if parents are concerned about side effects of conventional drugs or prefer natural remedies for themselves. Physicians express high interest in natural remedies and homeopathy; however, their knowledge is variable. Lack of proven efficacy, knowledge on mechanism of action, and information on indications are main factors that limit their usage.

Keywords

pediatrics, natural remedies, homeopathic prescriptions, phytotherapy, complementary and alternative medicine

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Introduction

In the past decade, research studies have reported an increased usage of complementary and alternative medicine (CAM) among children, in particular herbal remedies and homeopathic preparations.^{1–13} A recent review based on 58 studies from 19 countries showed prevalence rates for overall CAM use of up to 88% for lifetime use and up to 49% for current use.⁴ However, reported prevalence rates highly vary depending on country differences, methodological differences of data collection, and CAM modality.

The aforementioned results might suggest that the growing use of CAM implies a possible dissatisfaction with conventional treatments.^{9,10,14} However, it remains unclear whether the observed results mainly reflect parents' preferences or whether they arise from physicians' prescribing behavior. Studies with pediatricians show that the use and recommendation of CAM for pediatric

patients is actually high and that the interest of pediatricians in learning about CAM is increasing.^{6,15–17}

Studies conducted among pediatricians show similar results to those of patients' surveys, with a high variability between countries and due to different *assessment*

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methods of CAM usage, CAM modalities, and investigated predictors of CAM usage.^{6,9,15-17}

The purpose of the present survey was (a) to provide insights into physicians' global attitude towards pediatric use of natural remedies and homeopathy; (b) to provide insights into cross-country consistencies or country differences by using a consistent study approach in a multicountry survey; (c) to evaluate the potential factors influencing the use of natural remedies and homeopathy in different countries from both patients' and physicians' sides; and (d) to evaluate the peculiarities of natural remedies and homeopathy use in pediatric patients.

Method

Country Scope

A multicountry approach has been used, including Western Europe (Germany), Eastern Europe (Russia, Bulgaria), Southern Europe (Spain), Latin America (Colombia), and Israel, in order to assess both global approaches and country differences regarding attitudes towards and usage of natural remedies and homeopathy in children up to 12 years. Countries composition was selected to include countries with broader cultural differences, which may have an impact on the use of natural remedies and homeopathy, and to identify global approaches across countries with different cultural backgrounds.

Data Collection

Data were collected through a structured online self-reporting questionnaire addressed to pediatricians and general practitioners (GPs) in May and June 2014. Physicians qualified if they had treated at least 50 pediatric patients in the age group 0 to 12 years in the previous 3 months. In Germany, Spain, and Russia, online interviews were conducted. In Bulgaria, Colombia, and Israel, interviews were conducted face-to-face with data entry into the online questionnaire, given that physicians are less willing to participate in online surveys. In each individual country a representative sample structure in terms of specialty (pediatricians vs GPs), practice setting (office based, hospital based), and region was reached with a given quota derived from the universe of physicians involved in the primary care of children. To avoid any bias on the results, the invitation text contained no information that the survey was about natural remedies and homeopathy.

Contents of Questionnaire

The final questionnaire (25 minutes) consisted of 31 questions addressing the following topics:

1. *Demographic features* including the number of treated children in different age groups between 0 and 16 years.
2. *Prevalence of 11 pediatric indications* among pediatric patients (0-12 years) treated in the previous 12 months.
3. *Attitudes towards integrative medicine (IM)/CAM:* agreement with 8 statements representing positive or negative attitudes towards IM and CAM.
4. *Knowledge:* Free definition of "homeopathy" and "natural remedies" followed by self-assessment of respondent's level of knowledge about homeopathy, probiotics, dietary supplements, vitamins, phytotherapy, minerals, and anthroposophic medicines (4-point scale: extremely poor, poor, moderate, and excellent). After this, each respondent received a definition of *Homeopathy* and a definition of *Natural Remedies* to ensure that all respondents understood both terms in a consistent way.
5. *Frequency of using natural remedies and homeopathy* compared with conventional/standard medicine.
6. *Attitudes towards prescribing/recommending natural remedies and homeopathy* regarding a list of potential factors and agreement with a list of statements.
7. *Interest in information* about natural remedies and homeopathy, *information behavior*, and *impact of information* about specific topics on the motivation to use natural remedies.

Pilot Interviews

Before starting the main fieldwork, the questionnaire was tested in 11 pilot interviews (2 interviews per country except Colombia, where only 1 interview was held) via telephone in order to test the clarity of the questions and the duration of the interviews.

Statistical Analysis

Descriptive statistics were used to summarize cross-country and country-specific responses to the individual questions. Subgroup comparisons (eg, differences between countries) were analyzed with binomial tests and χ^2 tests. Associations between physician characteristics (demographic features, attitudes, behaviors, knowledge) and frequency of recommending or prescribing homeopathic preparations or phytotherapy (representing the broader class of natural remedies) were identified by significant differences between high users and low users of the respective treatment option.

Table 1. Percentage of Conventional/Standard Drugs, Vitamins/Minerals/Supplements, Phytotherapy, and Homeopathic Prescriptions/Recommendations Given to Pediatric Patients (0-12 Years) in the 12 Months Prior to Study Entry.

Type of Drug	Total (N = 582)	Germany (n = 151)	Spain (n = 150)	Russia (n = 150)	Bulgaria (n = 50)	Colombia (n = 51)	Israel (n = 30)
Conventional/standard drugs ^a	43.3%	42.2%	49.3%	39.1%	39.5%	48.5%	63.9%
Vitamins, minerals, and supplements	24.9%	16.9%	28.7%	26.4%	27.5%	30.2%	27.2%
Extracts of natural vegetal origin (phytotherapy)	16.9%	22.8%	7.8%	20.2%	17.3%	8.6%	6.8%
Homeopathy ^b	15.0%	18.0%	14.2%	14.3%	15.8%	12.7%	2.1%
Total	100%	100%	100%	100%	100%	100%	100%

^aNeither homeopathic drugs nor natural remedies.

^bSingle remedy as well as combinations of different active homeopathic ingredients.

Results

Sample Description

Across all countries, 7766 physicians were contacted and 1145 of them agreed to participate. A total of 563 did not meet the screening criteria (minimum number of pediatric patients and quota on specialty and place of work), and a total of 582 physicians participated to the study (Germany, n = 151; Spain, n = 150; Russia, n = 150; Bulgaria, n = 50; Colombia, n = 51; Israel, n = 30). Eighty percent of the respondents were pediatricians, and 20% were GPs. This distribution was observed in all countries except Russia (pediatricians only) and Bulgaria (86% GPs, 14% pediatricians). (In Russia, only pediatricians treat pediatric diseases, while in Bulgaria mostly GPs do.) The mean age of physicians was 48 years, with an average of 19 years of practicing experience in their specialty. One third of the physicians received a formal training in homeopathy (range: 20% Israel to 46% Bulgaria), and 24% received a formal training in phytotherapy (range: 10% Israel to 28% Russia).

In total, 565 pediatric patients aged 0 to 12 years were treated in the previous 3 months. The prevalence of pediatric conditions in patients aged 0 to 12 treated in the previous 12 months was the highest for *upper respiratory tract infections including cough* (51%), followed by *allergies* (22%), *acute abdominal complains* (22%), *recurrent infections* (22%), *earache* (17%), and *infant colic* (15%).

Usage of Natural Remedies and Homeopathy in Pediatric Patients

Nearly all respondents (99%) recommended or prescribed natural remedies (phytotherapy or vitamins/minerals/supplements [VMS]) to their pediatric patients (0-12 years) in the previous 12 months. The percentage of physicians recommending or prescribing homeopathic drugs was lower, but still remained high: 76%

with significant differences between countries. The highest values were registered in Russia (88%), Bulgaria (82%), and Germany (79%), while lower values were observed in Spain (74%), Colombia (61%), and Israel (27%).

Physicians' personal use of natural remedies or homeopathic preparations was an indicator of their predisposition to recommend/prescribe these treatments to pediatric patients. In the 24 months prior to study entry, more than half of the physicians used phytotherapeutics (53%) or VMS (66%) for themselves. For homeopathic preparations, the personal usage was significantly lower, but still rather high (43%). Among physicians who recommended or prescribed homeopathic preparations for their pediatric patients in the previous 12 months, personal usage was significantly higher (53%) than among those who did not recommend or prescribe it (10%).

Table 1 shows the percentage of conventional/standard drugs, VMS, phytotherapy, or homeopathy in all the prescriptions/recommendations given to pediatric patients (0-12 years) in the 12 months prior to study entry. Across all countries, 17% of the pediatric prescriptions/recommendations referred to phytotherapy, and 15% referred to homeopathic preparations. The use of phytotherapy and homeopathy was highest in Germany (23% and 18%, respectively), closely followed by Russia and Bulgaria, and it was lowest in Israel (7% and 2%, respectively). Spain and Colombia were the only countries in which homeopathy was used more than phytotherapy (Table 1).

Natural remedies and homeopathic preparations were most frequently used as complementary treatment together with conventional/standard drugs for pediatric patients.

The use of natural remedies or homeopathic preparations was associated with specific patients' characteristics. Respondents were asked to select from a list of opposite pairs (eg, severe condition vs less severe condition) the type of patient to whom they would rather recommend natural remedies/homeopathic preparations (with the

Table 2. Patients' Characteristics Associated With the Recommendation of Natural Remedies or Homeopathic Preparations^{a,b}.

Patient Characteristic (Versus Opposite)	Total (N = 544)	Countries With Significant Difference Versus Opposite Characteristic Confirming the Total Across All Countries
Parents concerned about side effects of conventional drugs (vs not concerned)	51% (vs 12%) ^c	All countries (GER, ESP, RUS, BUL, COL, ISR)
Parents preferring natural remedies for themselves (vs preferring conventional drugs)	52% (vs 15%) ^c	All countries (GER, ESP, RUS, BUL, COL, ISR)
Patients with less severe condition (vs severe condition)	33% (vs 5%) ^c	GER, ESP, RUS, BUL
Parents concerned about efficacy of conventional drugs (vs not concerned)	39% (vs 13%) ^c	GER, ESP, RUS, BUL, ISR
Younger pediatric patients 0-6 years (vs 7-12 years)	29% (vs 14%) ^c	GER, ESP, RUS
Parents with higher educational level (vs lower educational level)	21% (vs 9%) ^c	GER, ESP
Patients with chronic disease (vs acute disease)	22% (vs 15%) ^c	RUS, ISR

Abbreviations: BUL, Bulgaria; COL, Colombia; ESP, Spain; GER, Germany; ISR, Israel; RUS, Russia.

^aSelection: Physicians prescribing or recommending natural remedies or homeopathic drugs. Physicians could select either one characteristic of the 2 opposites or answer with "no difference/neither nor."

^bIn Germany, this was asked for homeopathy, in other countries for natural remedies.

^cSignificant difference ($P < .001$).

possibility to select "no difference" or "neither/nor"). The results are displayed in Table 2. Across all countries, significantly more physicians recommended natural remedies/homeopathic preparations to parents concerned about side effects of conventional drugs (51% vs 12% to the opposite), those who prefer natural remedies for themselves (52% vs 15%), those who were concerned about the efficacy of conventional drugs (39% vs 13%), those with higher educational level (21% vs 9%), and to patients with less severe conditions (33% vs 5%), younger patients (0-6 years; 29% vs 14% 7-12 years), or those with chronic diseases (22% vs 15% acute disease; Table 2).

To identify the pediatric conditions where natural remedies and homeopathic preparations are predominantly used, each physician was asked to rate the frequency of using these types of drugs (never, occasionally, or frequently) in 11 indications. Natural remedies were used most frequently in upper respiratory tract infections (53% of physicians responding with "frequently"), infant colic (45%), sleep disturbances (33%), and recurrent infections (34%). These conditions were also the most frequently reported indications for homeopathic preparations. In addition, teething problems emerged as an important indication for homeopathy—37% of the physicians stated a frequent use of homeopathy for this indication.

Talking With Parents/Patients About Natural Remedies

The association between patient's characteristics and recommendation of natural remedies may suggest that

communication with parents plays an important role in the decision whether or not to prescribe natural remedies in pediatric patients. Across all age groups, physicians estimated to have talked about natural remedies to 31% of the patients in the prior 3 months. In particular, in the cases where natural remedies were discussed with the parents, physicians reported that the discussion was proactively initiated by the parents only in 31% of the cases (range: 28% Spain to 40% Israel). In other words, physicians feel from their perspective that they initiated the discussion in the majority of interactions.

Level of Knowledge About Natural Remedies and Homeopathy in Pediatric Patients

Definition of Natural Remedies. Physicians mainly described the term *natural remedies* as follows: (a) produced from natural products or plants and (b) produced naturally without synthetic or chemical engineering process. Production from natural products was mentioned by 37% of the respondents (range: 20% Colombia to 54% Bulgaria), and 1 of 5 (18%) defined it specifically as "produced from plants" (range: 8% Bulgaria to 41% Colombia).

Definition of Homeopathy. The term homeopathy is associated with a broader range of defining features. The primary (most frequently mentioned) features were the following: (a) the use of potentised substances, or high dilution of active ingredients (41% of respondents; range 16% Bulgaria to 51% Russia and Spain) and (b) the law of similar or the principle "like cures like" (32%

Table 3. Self-Estimated Level of Knowledge About Vitamins, Phytotherapeutics, and Homeopathics in Percentage of Physicians Treating Pediatric Patients (Pediatricians, General Practitioners).

Country	Vitamins			Phytotherapeutics			Homeopathics		
	Poor/ Extremely	Moderate	Excellent	Poor/ Extremely	Moderate	Excellent	Poor/ Extremely	Moderate	Excellent
	Poor			Poor			Poor		
Total (N = 582)	6%	54%	40%	38%	44%	18%	52%	39%	9%
Germany (n = 151)	8%	52%	40%	10%	56%	34%	30%	51%	19%
Spain (n = 150)	6%	61%	33%	71%	23%	6%	60%	33%	7%
Russia (n = 150)	4%	51%	45%	14%	67%	19%	52%	43%	5%
Bulgaria (n = 50)	2%	38%	62%	30%	50%	20%	48%	44%	8%
Colombia (n = 51)	4%	63%	33%	80%	18%	2%	78%	16%	6%
Israel (n = 30)	27%	53%	20%	76%	15%	9%	80%	17%	3%

of the respondents; range: 3% Israel to 37% Germany and Russia). Both criteria refer to the principles of homeopathy described by Hahnemann, the founder of homeopathy. Considering physicians who responded either with (a) or (b), 58% mentioned at least one of Hahnemann's criterion (lowest awareness in Bulgaria: 34%), and only 15% mentioned both criteria.

When physicians were asked for the difference between homeopathy and natural remedies, the majority responded correctly by mentioning either criterion (a) or (b) of the definitions previously given for homeopathy and natural remedies. Only 1 out of 5 physicians (21%) either did not know the difference (12%) or replied that there is no difference (9%).

Another indicator considered was the self-awareness of physicians' level of knowledge. Table 3 shows the results for phytotherapeutics and homeopathics; the knowledge level for vitamins is displayed as reference because vitamins belong to the standard education of physicians. The knowledge level for phytotherapeutics was significantly higher (18% excellent and 44% moderate) than for homeopathics (9% excellent and 39% moderate), but lower than for vitamins (40% excellent and 54% moderate). Considering the high number of physicians who reported a poor knowledge (52% for homeopathics and 38% for phytotherapeutics), it can be concluded that physicians' knowledge level is very variable. In particular, the majority of physicians in Colombia (80%), Israel (76%), and Spain (71%) reported a poor level of knowledge about phytotherapeutics (although the majority recommended or prescribed it), whereas the self-estimated knowledge was higher in Germany (34% excellent) and Russia (19% excellent). For homeopathics, in all countries but Spain and Colombia the knowledge level was lower than for phytotherapeutics, and again the self-estimated knowledge was the highest in Germany (9% excellent and 39% moderate; 81%; Table 3).

Attitudes Towards Natural Remedies and Homeopathy in Pediatric Indications

In general, the majority of physicians (80%) agreed to consider all potential therapies for the treatment of pediatric indications, not just conventional medicine (range: 70% Israel to 91% Russia). In all countries but Israel, physicians expressed high interest in natural remedies (phytotherapy, vitamins) and in homeopathy. Nearly half of the physicians (47%) were highly interested in phytotherapy for pediatric conditions, and only 14% had a low interest. For homeopathy the interest was significantly lower (24% of physicians with a low interest), but far more (42%) expressed a high interest in homeopathy. Interest and knowledge showed a significant positive correlation for both treatment options (Pearson's $r = .38$ for natural remedies and $r = .36$ for homeopathy; $P < .0001$ in both cases for $N = 582$). However, 36% of the physicians with high interest in homeopathy reported a poor knowledge of the field, and 23% of the physicians with high interest in phytotherapy reported a poor knowledge of this discipline. Some of the most important topics of interest were the following: to learn more about pediatric indications that may be treated with natural remedies (74% of physicians), complementary use of natural remedies as add-on therapy (72%), and efficacy benefits of natural remedies compared to conventional drugs (72%).

With respect to the management of pediatric patients, 81% of the physicians agreed that they were comfortable discussing complementary forms of treatment with the parents/patients, and 79% considered the use of all potential therapies for pediatric patients, not just conventional medicine. In addition, physicians agreed with the principles of integrative and complementary medicine. Nearly all (95%) agreed that nutrition, relaxation, motor activity, mental stability, and family environment

are relevant factors to avoid outbreak or relapse of pediatric diseases.

The safety orientation reflects the fact that natural remedies and homeopathic preparations are more often recommended for pediatric patients whose parents are concerned about side effects of conventional drugs (see Table 2). Recommenders/prescribers of homeopathy agreed to this statement significantly more frequently (62%) than physicians who did not recommend or prescribe homeopathic drugs (36%). When being asked directly, 70% thought that homeopathy is associated with a lower risk of side effects compared to standard medications, and 51% agreed that homeopathy enhances recovery and symptom relief. The same association with lower risk of side effects and enhanced recovery/symptom relief was observed for natural remedies, but physicians expressed a stronger focus on efficacy: 66% agreed that natural remedies enhance recovery and symptom relief (range: 30% Israel to 85% Russia), and 60% thought that natural remedies are associated with a lower risk of side effects (range: 53% Colombia to 72% Bulgaria).

Treatment with conventional drugs is the most frequently used option for pediatric patients (see Table 1). Physicians were asked to select out of a list of 9 potential barriers the 3 strongest ones against natural remedies and homeopathy. The most frequently reported barriers were the same for natural remedies and homeopathy: (a) lack of proven efficacy (59% for both natural remedies and homeopathy), (b) lack of knowledge on mechanism of action (42% and 43%, respectively), and (c) lack of information about therapeutic indications where natural remedies (homeopathics) may be of benefit (40%; 40%),

Discussion

The results of this survey confirm an interest of physicians in using natural remedies and homeopathic preparations for the treatment of pediatric indications, in particular for upper respiratory tract infections, infant colic, sleep disturbances, and recurrent infections. Across all countries, 17% of the pediatric drug recommendations referred to phytotherapy and 15% to homeopathy. If we compare these data with the current prevalence rates reported by Italia et al,⁴ we observe a similar trend for homeopathy, but not for phytotherapy use in children. A comparison of these data, anyway, seems not completely correct since the prevalence rates from current literature varies widely with respect to country, methodology, and reported recall period. In the 12 months prior to the survey, nearly all physicians prescribed or recommended to their pediatric patients natural remedies (phytotherapy or VMS) and homeopathic

preparations in 76% of the cases. Forty-seven percent of the physicians expressed a high interest in phytotherapy and 42% in homeopathy. Globally, pediatricians and GPs treating pediatric indications agreed to principles of integrative or complementary medicine, for example, the requirement of holistic treatment approaches due to the interaction of body, mind, and environment, and the importance of activating body healing resources to prevent and treat pediatric diseases. Looking at the typical patient's or parent's characteristics, physicians' recommendations were frequently driven by parents' request as a result of their preferences or their concerns about side effects of conventional drugs. The "idea" that natural remedies and homeopathic preparations are associated with a lower risk of side effects compared to conventional drugs is present also in physicians' minds: 70% agreed that homeopathy is associated with a lower risk of side effects, and 60% agreed that this is true for natural remedies as well. Finally, physicians' personal use of phytotherapy (or homeopathy, respectively) was the strongest predictor of high versus low usage of natural remedies (or homeopathy, respectively) in their pediatric patients.

However, it may be shortsighted to conclude that this interest, corresponding to other findings on physicians' belief systems and attitudes towards complementary and integrative medicine,^{6,9,15-17} is a general approach of using natural remedies or homeopathy as an alternative to conventional drugs. Our results show that, first, *natural remedies and homeopathic preparations are most often used together with conventional drugs*. Second, there is evidence of a *varied knowledge level about these treatment options*. Third, there are significant *country differences* indicating that the cultural background influences physicians' treatment decisions.

Natural Remedies and Homeopathic Preparations Are Most Often Used Together With Chemical Drugs

Complementary use together with chemical drugs occurred in two thirds of children treated with natural remedies and in more than half of children treated with homeopathy. This result explains why many physicians expressed an interest in receiving more information in complementary use of natural remedies as add-on therapy. In addition, half of the physicians would be more motivated to use natural remedies if a low interaction with chemical drugs could be proven, and two thirds expressed the need to receive more dosing information on these products to avoid possible side effects. Therefore, it cannot be concluded that natural remedies or phytotherapy are perceived as harmless per se. In

particular, combination of CAM with conventional medicine may become part of physician's education in order to avoid potential risks of natural remedies (eg, due to interactions with conventional drugs, dose, or treatment duration).^{4,13,18-22}

Variable Knowledge Level for Phytotherapy and Homeopathy Among Pediatricians and GPs Treating Pediatric Conditions

As shown in Table 3, there is a high number of physicians who reported a poor level of knowledge about phytotherapy and homeopathy, with large differences between countries and between physicians within each country. The finding of poor knowledge confirms the results of other physicians' surveys.^{6,16,17} The current survey clearly shows that knowledge about VMS, phytotherapy, and homeopathy is different. Missing knowledge mainly refers to efficacy and to the unclear mechanism of action, which are indicated as the main barriers among low users of homeopathy.

In this survey, 66% of the physicians with poor knowledge of homeopathy mention lack of efficacy as a barrier against using it. On the other hand, 42% of the high users of homeopathy report the lack of proven efficacy as a barrier to its recommendation/prescription. For physicians who already use homeopathy and for those who are interested in using it more frequently, more information about efficacy of homeopathy would be therefore very important.¹¹ The efficacy and the mechanism of action of homeopathy based on diluted ingredients is still hotly debated.²³ Theories on the possible explanation of mechanism of action of homeopathy within the context of nanoresearch have been recently published,²⁴ but they are still under discussion.

Country Differences

Using a consistent questionnaire and a consistent method of data analysis across all countries, it was possible to identify country differences regarding usage and attitudes towards natural remedies and homeopathy in general pediatrics. One dimension of country difference is *usage* (Table 1): Germany is the country with the highest use of phytotherapy and homeopathy; conversely, the lowest use has been reported in Israel, where physicians have a clear preference for conventional drugs. Russia and Bulgaria are close to Germany regarding frequency of usage, followed by Spain and Colombia. Interestingly, in the latter countries homeopathic treatment options are more frequently used than phytotherapy, most strongly expressed in Spain. This *preference for homeopathy over phytotherapy* is the second dimension of country

differences and is also reflected in physicians' knowledge level; Spain and Colombia are the only 2 countries where more physicians report a better knowledge of homeopathy than phytotherapy (see Table 3). In addition, in both countries far more physicians received a formal training in homeopathy than in phytotherapy, that is, in both countries we see a plausible relation between education and usage of the 2 treatment options.

Finally, a third dimension of country differences refers to *motivation to use homeopathy irrespective of actual knowledge*. Whereas the polarity between Germany and Israel refers both to usage and knowledge level, physicians in Eastern Europe (Russia, Bulgaria) frequently recommend or prescribe homeopathy although they rarely express an excellent knowledge of homeopathy. In Russia, this corresponds to a higher share of physicians who cannot distinguish between natural remedies and homeopathy, while in Bulgaria only one third knew the correct definition (lowest value compared to other countries). Can we therefore conclude that physicians in Russia and Bulgaria have lower barriers to recommend homeopathic preparations, irrespective of a detailed knowledge level based on self-estimation? This assumption is supported by the result that physicians in both countries agree more frequently than physicians in other countries to consider the use of all potential therapies, not just the conventional ones. In addition, in both countries significantly more physicians agreed to the belief that natural remedies enhance recovery and symptom relief. Obviously, belief systems and general openness to alternative treatment options play an important role in physicians' treatment recommendations. Thus, it can be concluded that the use of natural remedies (in particular, phytotherapy) and homeopathy is associated with cultural differences of belief systems and knowledge levels.

Conclusion

Overall, the results of the survey confirm that, irrespective of some country differences, there is a global approach towards an increased interest and use in natural remedies and homeopathic preparations in children. However, this does not apply to all countries. For example, in Israel physicians are mainly oriented on conventional therapies. The interest of physicians in using natural remedies and homeopathic preparations in children is mainly driven by parents' request and by the belief that these treatment options are associated with a lower risk of side effects. In addition, a higher prescription/recommendation of phytotherapy or homeopathic remedies is associated with a higher level of knowledge of physicians, personal usage of these therapies, or

available data that may prove their efficacy. Despite the increasing interest over natural remedies and homeopathy, there is considerable variability in physicians' level of knowledge. For this reason, it may be important to provide physicians with more information about efficacy data on natural remedies and about possible side effects/interactions when using these treatments together with conventional drugs.

Author Contributions

AMB contributed to analysis and interpretation; drafted manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

IB contributed to analysis and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

SB contributed to analysis and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

BK contributed to analysis and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

AP contributed to analysis and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

DP contributed to analysis and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

MPRH contributed to analysis and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

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MO contributed to analysis and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

Authors' Note

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