Perspective

Confirmation and confirmation bias: The role of prognostic factor research

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Abstract

Background: Some homoeopathic practitioners fear that prognostic factor research (PFR) of homoeopathic symptoms neglects the context of these symptoms. **Materials and Methods:** The function of repertory and materia medica in the homoeopathic method is discussed. Previous research shows how the repertory can be improved. **Outcome and Discussion:** The homoeopathic procedure can be divided into two stages: an open mind stage to make an inventory of all possible medicines and a confirmatory stage to select the medicine that fits the totality. Closing the open mind stage too soon will cause confirmation bias. PFR is meant to improve the repertory in several aspects. Bayes' theorem provides an algorithm for homoeopathy and the inherent likelihood ratio (LR) a generalisation of Hahnemann's aphorism 153 to a broad differentiation of importance of symptoms arranged by peculiarity and by prevalence in respective medicine populations. **Conclusion:** PFR does not alter the way we select homoeopathic medicines, but it improves the repertory. LR generalises Hahnemann's aphorism 153 to an algorithm that distinguishes a large range of symptoms, peculiar and less peculiar, according to their importance for the choice of a medicine.

Keywords: Aphorism 153, Bayes' theorem, Confirmation bias, Homoeopathic symptom, Repertory

Introduction

Prognostic factor research (PFR) is new in homoeopathy; it assesses the prognostic relationship between symptoms and personal characteristics and outcome of treatment.[1] New techniques and developments still have to prove themselves, and it is only natural that practitioners regard them critically. On the other hand, the instruments of homoeopathy – materia medica and repertory – should also be reviewed. Better materia medica and better repertory render better homoeopathic treatment. These two instruments are used alongside each other and complement each other. Critics of PFR state that the choice of a homoeopathic medicine cannot be improved by assessing symptoms disconnected from the whole context of the patient. That is partly true, but we all know that the repertory also considers symptoms disconnected from their context. We know that the repertory has considerable flaws, but we can still use it. PFR is meant to repair these flaws, but that does not essentially change the use of the repertory. This paper considers the role of the repertory; the discussion about PFR is, in fact, a discussion about the right use of the repertory, about confirmation and confirmation bias.

Prescribing the right homoeopathic medicine is not a process of mere calculating. At the end, it is based on recognising the complete picture: different symptoms confirm each other, and the totality is more than the sum of individual symptoms. At the start of the consultation, however, the practitioner must have an open mind. The first symptoms elicited in this process can still indicate a larger number of medicines, some well-known, some less known to the prescriber. A prematurely restricted choice neglects the richness in nuances of homoeopathic pictures but may also leave essential personal characteristics of the patient unrevealed that may come up after in-depth interrogation. This in-depth interrogation explores the fit of the totality of a limited number of medicines; medicines that are excluded at this stage will not be explored in depth. Roughly speaking, choosing the best homoeopathic medicine consists of two stages: the first open mind stage to make a preliminary selection of possible medicines and the second 'confirmatory' stage to explore which medicine fits the totality the best.

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Materials and Methods

Analysing homoeopathic practice functions of homoeopathic materia medica and repertory can be distinguished. Applying Bayes' theorem shows the structural shortcomings of the repertory. A previous PFR project in the Netherlands shows how the repertory can be improved.[2,3] Recent pilot studies to assess the prevalence of homoeopathic symptoms show some considerations about systematic assessment of homoeopathic symptoms.[4]

Open mind and repertory

In the open mind stage, the practitioner will use the homoeopathic repertory to scan all possible medicines. In this stage, the context of the whole personality is consciously disregarded and this should be filled in later. In this stage, practitioners check modalities, food aversions/desires and a limited number of mental symptoms, among other symptoms in all patients. Many patients are focussed on their complaint and not aware of the fact that they are more chilly than others or use more salt than others because they like it so much. Such symptoms might not be brought forward if not systematically checked in every patient. The systematic enquiry about such symptoms makes a good start for thinking about a limited number of medicines, and then, the confirmation stage can begin by asking more direct questions for confirmation of each medicine. Of course, this is a simplified description of the medicine selection process; if we are not satisfied with our initial selection of medicines, we will re-open our mind for new possibilities, and every practitioner has his own methods in this respect.

The instrument that suits the open mind attitude best is the homoeopathic repertory that arranges medicines according to symptoms, complaints and characteristics. The repertory disregards the complete picture of the medicines, except for a few subrubrics that specify symptoms that are very specific for single medicines. Especially, the disconnectedness of the whole picture helps us to keep an open mind.

Confirmation bias

If our open mind closes too soon, we risk confirmation bias. It is only human that practitioners like to see their pre-existing ideas confirmed.[5] That is what confirmation bias is about: confirmation of pre-existing ideas in new observations. If we enter the confirmation stage too soon, we risk confirmation bias. During the consultation, the practitioner develops ideas about possible medicines guided by the complaints of the patient and the answer to various questions, but these questions are partly guided by previous answers.

Our expectations of a chance of a curative effect of various medicines change with every new symptom or characteristic that comes up during the consultation: a symptom can confirm or contradict specific medicines. The belief before a new symptom comes up is called the prior belief and the belief after the symptom is called the posterior belief. This posterior belief becomes the prior belief before the next symptom and so on.

At a certain point, the practitioner starts asking confirmatory questions guided by the then preferred medicine(s). This selection of questions can lead to confirmation bias, limiting the choice of possible medicines in the wrong direction. You may notice the loquacity of the patient more easily when the patient tells you that tight clothing around the neck is intolerable, indicating medicines such as *Lachesis*. Then, you wonder if the patient is jealous but do you trust a negative answer to that question? People do not easily admit that they are jealous. Possibly you disregard the denial of jealousy and persist on your choice for *Lachesis* but did you consider *Tarentula*? *Tarentula* has both intolerance of clothing around the neck and loquacity. In the original Kent repertory, *Tarentula* is present in the rubric 'loquacity' only in plain type, but in the Dutch prospective assessment of this symptom, loquacity was present in 2 out of 8 patients responding well to *Tarentula*, resulting in a likelihood ratio (LR) = 3.85 (95% confidence interval (CI) 1.16–12.91).[2] This was not much lower than LR of loquacity for *Lachesis*: LR = 5.34 (95% CI 3.43–8.35). Hence, your confirmatory questions should not only consider *Lachesis* but also *Tarentula*.

Intensity of symptoms

It is also possible that confirmation bias influences cut-off values for symptoms: the symptom is regarded as positive if present in a lower intensity. An example: if you consider the medicine *Natrum muriaticum* (N*at-m)* because of the symptoms, you have so far you might consider to ask for the symptom 'recurrent herpes of the lips'. Probably, you will accept a frequency of once in every 2 years as a confirmation for *Nat-m* while a frequency of more than several times a year would be required to start thinking of *Nat-m* in the beginning of the consultation. Hence, confirmation is a normal process in the homoeopathic consultation, but we must be aware that it can lead us in the wrong direction.

Confirmation, materia medica and repertory

When we ask questions to confirm specific medicines, we apply our knowledge of materia medica. This knowledge is partly in books, partly in our heads. Sources for this knowledge are intoxication data, proving data and data from experience in daily practice. There is, however, variation in the occurrence of symptoms in provings and in the practice experience of every individual homoeopathic practitioner. This leads to different opinions about the importance of symptoms regarding homoeopathic medicines.

An example of variation in personal experience of different doctors as a source of confirmation bias. In the Netherlands, a group of homoeopathic doctors attended scheduled consensus meetings regarding best cases of specific medicines.[3] These cases were restricted to long-lasting chronic complaints; the improvement was longer than 1 year and very likely caused by the medicine. This project was called 'materia medica validation'. A meeting concerning best *Sulphur* cases was attended by 20 doctors and they presented a total of 23 best *Sulphur* cases. One doctor presented two *Sulphur* cases and

one of them had the symptom 'fear of death'. None of the other patients had a fear of death. According to the experience of this doctor, 'fear of death' was an indication for *Sulphur* because 50% of his best *Sulphur* patients had that symptom. For the 19 other doctors, 'fear of death' had no relationship with *Sulphur*. The actual prevalence of the symptom 'fear of death' was 4% in 23 patients. Later prospective PFR in 4094 in the Netherlands patients assessing this symptom with 88 *Sulphur* patients showed only one patient with 'fear of death' (1%).

Another example from the Dutch materia medica validation project illustrates the role of confirmation bias in homoeopathic prescribing. Another validated medicine was *Stramonium*. Out of 12 cases, 5 (42%) had the symptom 'fear of the dark'. Faced with that result several other colleagues stated that they never prescribed *Stramonium* if there was no fear the dark in the patient. This leads to clear confirmation bias: those colleagues will never see a *Stramonium* case without fear of the dark and their opinion will never change. This confirmation bias becomes more problematic if these doctors teach materia medica. Their students will learn not to prescribe *Stramonium* if there is no fear of the dark. Practitioners who do not prescribe *Stramonium* if there is no fear of dark will also introduce this confirmation bias in consensus meetings.

Preventing confirmation bias with the repertory

Above is stated that closing the open mind too soon will increase confirmation bias. We must gather as much information as possible without preference for specific medicines and not go to the materia medica too soon to try to confirm specific medicines.

The function of the repertory is that it broadens your scope of possible homoeopathic medicines. It is the opposite of materia medica because it tears all symptoms apart as separate items. Why is this necessary? Suppose the patient tells you that he has a fear of death. Of course, with basic homoeopathic materia medica knowledge, the homoeopathic medicine *Aconitum* comes to mind, but do you also think about, say, *Latrodectus mactans*, or *Veratrum album*? If you had time to read all the 'mind' sections of the materia medica, you would encounter these medicines among many different others. Reading further about these medicines, you might then realise that the patient has chest pain extending to his left axilla or that he has much thirst for cold drinks, leading to *Latrodectus mactans* or *Veratrum album* respectively, but for this, you have to read hundreds of pages of materia medica from A to Z.

Even if we had time enough to read all this materia medica, it would still be hard to keep an open mind about all possible combinations of symptoms leading to numerous different medicines. At this point, the repertorisation of a limited number of symptoms helps us to keep an overview of all symptom-medicine relations. After a complete inventory of these relations, you can start thinking about the whole picture: which medicine fits best the data, your experience and your intuition?

Prognostic factor research and repertory

Of course, the repertory should be correct, but that is not the case. In Kent's original repertory, *Latrodectus mactans* is not mentioned in the rubric 'fear of death', despite the fact that the symptom is very prominent in the materia medica of *Latrodectus mactans*. The medicines *Natrum muriaticum* and *Sulphur*, however, are present in this rubric. These medicines are used very frequently and we might wonder if 'fear of death' is really more frequently present in patients responding well to these medicines than in the remainder of the population. The materia medica does not give us that information because the materia medica does not compare all symptoms with other medicines.

The comparison of each symptom with other medicines can be provided by the repertory. At least, it should do so, but – as explained elsewhere – many repertory rubrics are seriously flawed because medicine entries are based on absolute occurrence while they should be based on relative occurrence (prevalence). A symptom is an indication for a specific medicine only if it occurs more frequently in patient responding well to that medicine than in other patients. In statistical terms, LR should be greater than one. To assess the LR for each medicine for the symptom, we have to count prevalence of the symptom in populations responding well to specific medicines and in the whole population. This research process is called PFR.

From aphorism 153 to likelihood ratio

Hahnemann already recognised the importance of individual symptoms. His aphorism 153 is the most important principle in homoeopathy: more peculiar symptoms are more important. Peculiar means that the prevalence of the symptom in the general population is low. Now look at the formula for LR:

LR = (prevalence in the target (medicine) population)/(prevalence in the remainder of the population)

In homoeopathy, the population responding well to any specific medicine is just a small part of the whole population, so the remainder of the population is nearly the whole population. The smaller the denominator in this formula (prevalence in the remainder of the population), the higher the LR. In other words, a peculiar symptom is identical with high LR: aphorism 153 is identical with a small denominator in the LR formula, i.e., a low prevalence of the symptom in the whole population. The fact that a peculiar symptom, resulting in high LR, increases the chance that the corresponding medicine will work considerably can be understood by looking at Bayes' theorem:

Posterior odds = LR × prior odds (odds = chance/[1-chance]; chance = odds/[1+odds])

Bayes' formula is, after two centuries of struggle, accepted all over the world and present in many computer programs. It describes how we learn from practical experience and is the scientific rectification of Hahnemann's aphorism 153: a more peculiar the symptom renders a higher LR.

An example: the symptom 'nausea from hearing organ music' is very peculiar with a prevalence of probably <1 in thousand. Only one medicine, *Physostigma*, is known for this symptom and the few patients with this symptom will be much more likely to respond to *Physostigma* than to other medicines. Hence, the prevalence of this symptom is much higher in the *Physostigma* population than in the remainder of the population and LR is probably higher than 1000. Suppose that the prior probability that *Physostigma* works is 1%. After the symptom 'nausea from hearing organ music', the posterior probability becomes 91% if the LR = 1000.

LR covers aphorism 153 completely, but aphorism 153 only covers the denominator in the LR formula. LR is more generally applicable because it also comprises the nominator, the prevalence of the symptom in the population responding well to a specific medicine. Peculiar symptoms in homoeopathy have prevalence below, say, 1 in 100. In that case, high LR is predominantly caused by the low prevalence in the denominator, but what if the prevalence in the denominator – in fact in the whole population – is not so low, say, more than 1%? In that case, we do not have a really peculiar symptom and aphorism 153 does not apply, but we know that some medicines are more related to a specific medicine than others. In statistical terms, this means that the prevalence of the symptom is higher in the population responding to medicine A than to medicine B.

An example: in the Dutch assessment of six homoeopathic symptoms, the symptom 'recurrent herpes of the lips' was present in 2 out of 19 *Rhustoxicodendron (Rhus-t)* patients (10.5%) and in 24 out of 156 *Natrum muriaticum (Nat-m)* patients (15%). This results in LR = 2.1 for *Rhus-t* and LR = 3.4 for *Nat-m*. In Kent's repertory, both medicines are in bold type, so no difference can be concluded from the repertory. This difference can only be assessed by PFR showing the differences of the prevalence in the nominator of the LR formula.

Applying LR, we also understand the most important shortcoming of the repertory: large symptom rubrics are unreliable, and especially, frequently used medicines are over represented in those rubrics. This is illustrated by Table 1, based on the above-mentioned Dutch assessment of the symptom 'fear of death' in 4094 patients. Hitherto repertory entries were based on absolute occurrence and we see that there are patients with fear of death responding well to *Natrum muriaticum (Nat-m)* and *Sulphur (Sulph)*, rectifying an entry in this rubric in the old system. Intuitively, we understand that there is a difference between one in 88 patients for *Sulph* and one in four patients for *Cenchris (Cench)*, indicating that fear of death is much more important for *Cench* than for *Sulph*. This difference is shown by the prevalence of the symptom in both populations and the resulting LR by comparing this with the remainder of the population. For clarity, not all data for LR calculations are shown (see Box 1) in Table 1, just the prevalence of the symptom in the medicine population and LR. This shows the relationship between prevalence and LR population.

Table 1: Outcome of assessment of the homeopathic symptom 'Fear of death'. The number of patients responding well to each medicine with the symptom and the total number of patients responding well to each medicine. This renders the prevalence in each population. The prevalence of the symptom in the whole population (n=4094) was 3.9% (158 patients). Hence the LR can be calculated

	Symptom 'fear of death'			
Medicine	Symptom present	Total medicine population	Prevalence (%)	LR positive
Acon	4	10	40	10.61
Am-c	2	9	22.2	5.82
Anac	5	12	41.7	11.12
Arg-n	2	26	7.7	2.01
Ars	6	27	22.2	5.95
Calc	4	75	5.3	1.39
Carc	4	43	9.3	2.45
Caust	2	46	4.3	1.13
Cench	1	4	25	6.51
Gels	1	13	7.7	2.00
Ign	3	33	9.1	2.38
Kali-p	2	16	12.5	3.27
Lac-c	2	8	25	6.55
Lach	4	42	9.5	2.51
Lyc	4	86	4.7	1.21
Mag-c	2	19	10.5	2.75
Naja	1	4	25	6.51
Nat-m	3	156	1.9	0.49
Nux-v	2	40	6	1.30
Phos	4	76	5.3	1.37
Puls	2	59	3.4	0.88
Sep	6	93	6.5	1.70
Sil	2	33	6.1	1.58
Sulph	1	88	1.1	0.29
Tab	1	3	33.3	8.69
Verat	2	6	33.3	8.74
Zinc	1	4	25	6.51

LR: Likelihood ratio

Box 1: The correct LR for each medicine can be calculated as (prevalence in medicine population)/(prevalence in the remainder population. To calculate the prevalence in the remainder population in the case of, say, *Aconitum* from Table 1, you take the following steps:

1. The prevalence of fear of death in the *Aconitum* population = 0.400
2. There are 158 patients with fear of death in the whole population, and 4 in the *Aconitum* population
3. Calculate the number of patients with fear of death in the remainder population: 158 minus 4 *Aconitum* = 154
4. The remainder population is 4094 minus 10 *Aconitum* patients = 4084
5. The prevalence of fear of death in the remainder population is 154/4084=0.0377
6. LR = 0.400/0.0377=10.61

Another systematic shortcoming of the repertory is unreliable polar rubrics: symptoms with opposite expressions, such as aversion/desire, aggravation/amelioration and chilly/hot. *Arsenicum album (Ars)* is generally known for chilly patients, but, due to variation, some *Ars* patients are hot. Therefore, we see *Ars* in the rubric 'chilly' and in the rubric 'sensation of heat', albeit in different degrees; in Italics in 'chilly' and in plain type in 'sensation of heat'. The problem with this is that we look at one rubric only, so you look at the rubric 'sensation of heat' and accept this symptom as a confirmation for *Ars*. Probably, the prevalence of 'sensation of heat', however, is lower in the population responding well to *Ars* than in the remainder of the population and LR <1, not indicating *Ars*. This problem is present in most rubrics of polar symptoms.

There is a solution for the problem of polar symptoms called polarity analysis (PA) in a computer repertory program. This program subtracts the entries of the opposite symptoms from the entries of the chosen symptom. Hence, if you enter 'sensation of heat', the computer subtracts 2 (entry in Italics in 'chilly') from 1 (plain type entry in 'sensation of heat') resulting in minus one and therefore a relative contraindication for *Ars*. This is equal to LR <1, but the actual LR value allows us to calculate how strong this contraindication is.

PA has proven to be successful I the randomised controlled trial on ADHD by the Swiss paediatrician Frei *et al.*[6] In this research, the success of the first prescription mounted from 28% to 48% using PA.

Discussion

Some people fear that new research methods such as PFR are a threat to the core-requisite of homoeopathy; finding the total picture, individual symptoms should confirm the totality of the patient. Such fear is rectified, but we must realise that we already have an instrument disregarding the context of the patient: the homoeopathic repertory. Most practitioners use the repertory to keep an open mind about all possible medicines. For most practitioners, it is impossible to have an oversight in memory of all homoeopathic medicines. If we concentrate ourselves on a limited number of medicines in the beginning of the consultation we risk confirmation bias, we look for and recognise easily the symptoms that fit our pre-existing ideas.

PFR does not change our methods; it merely improves the repertory. There is much to improve regarding the existing homoeopathic repertory because there are several serious and systematic mistakes: entries based on absolute occurrence instead of prevalence and confusing polar symptoms. PFR involves the use of LR as the main constituent of Bayes' theorem. Bayes' theorem provides homoeopathy with a scientific algorithm and LR is a generalisation of Hahnemann's aphorism 153. Aphorism 153 only considers a low prevalence of a symptom in the general population, the denominator of the LR formula. LR also includes different prevalences of symptoms in respective medicine populations, the nominator of the LR formula. At present, the typeface of medicines in symptom rubrics gives an inaccurate idea of the prevalence of the symptom in respective medicine populations. In PFR, we count symptoms in the whole population and in respective medicine populations enabling us to calculate prevalence and LR.

PFR is still in its infancy, and we have to newly develop this method. Checking a symptom in each patient in PFR is quite different from eliciting symptoms in our usual consultations.[4] We must use our clinical judgement to interpret the answers of the patient. We also have to use cut-off values for the intensity of symptoms more consciously. Then, there is the problem of constituting medicine populations; what should be the result and is this result really caused by the medicine?

Every research raises new questions and new doubts, but we have to realise that we hitherto avoided these questions and doubts. We have to improve our instruments to obtain a more effective method that can be more easily understood by other physicians. This will result in better outcome in randomised controlled trials to prove the efficacy homoeopathy. This has already been demonstrated for Polar Analysis.

Conclusion

PFR does not alter the homoeopathic method. The homoeopathic medicine should fit the whole picture of the patient, and individual symptoms must fit in this context. Nevertheless, most practitioners use the homoeopathic repertory indicating medicines by individual symptom to keep an open mind about all possible medicines. The repertory has serious systematic shortcomings, and PFR helps to mend these.

The most important aspect of PFR is assessing the prevalence of symptoms, in the whole population and in populations responding well to specific medicines. This way it is possible to generalise the idea of Hahnemann's aphorism 153 about the importance of peculiar symptoms to an algorithm that distinguishes the importance of both peculiar and less peculiar symptoms for specific homoeopathic medicines.

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Conflicts of interest

None declared.

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पुष्टिकरण और पुष्टिकरण पूर्वाग्रहः शकुन कारक अनुसंधान की भूमिका

सार

पृष्ठभूमिः कुछ होम्योपैथिक चिकित्सकों को यह भय है कि होम्योपैथिक लक्षणों की शकुन कारक अनुसंधान (पीएफआर) इन लक्षणों के संदर्भ की उपेक्षा करते हैं।

सामग्री और विधिः होम्योपैथिक पद्धति में रेपर्ट्री और मटेरिया मेडिका के कार्य पर चर्चा की जाती है। गत अनुसंधान से पता चलता है कि रेपर्टी को कैसे सुधारा जा सकता है।

परिणाम और चर्चाः होम्योपैथिक प्रक्रिया को दो चरणों में विभाजित किया जा सकता है : सभी संभव औषधीयों की एक सूची बनाने के लिए पूर्वाग्रहमुक्तता का चरण तथा संपूर्णता को पूर्ण करने वाली औषधि का चयन करने के लिए एक पुष्टिकारी चरण। पूर्वाग्रहमुक्तत चरण को जल्द ही बद करना पुष्टिकरण पूर्वाग्रह का कारण होता है। पीएफआर का उद्देश्य कई पहलुओं में रेपर्ट्री में सुधार करना है। बवैयज़ प्रमेय होम्योपैथी के लिए एक कलन विधि (एल्गोरिथ्म) प्रदान करता है तथा औषध जनसंख्याओं के संदर्भ में, विशिष्टता और प्रसार द्वारा व्यवस्थित लक्षणों के महत्व के व्यापक अंतर के लिए, निहित संभावना अनुपात (एलआर) हैनिमैन के प्रमेय 153 का सामान्यीकरण करता है।

निष्कर्षः हम जिस प्रकार होम्योपैथिक औषधियों का चयन करते हैं, उसमें पीएफआर कोई बदलाव नहीं करता, लेकिन यह रेपर्ट्री में सुधार लाता है। एलआर, हैनिमैन के प्रेमय 153 को एक एल्गोरिथ्म के साथ सामान्यीकृत करता है जो एक औषधि की पसंद के लिए उनके महत्व के अनुसार लक्षणों को बड़ी रेंज, विशेष और कम विशेष के रुप में अलग करता है।

Bestätigung und Bestätigunsfehler: Die Rolle der prognostischen Faktorforschung

Hintergrund: Einige homöopathische Praktiker befürchten, dass die prognostische Faktorenforschung (PFR) von homöopathischen Symptomen den Kontext dieser Symptome vernachlässigt.

Materialien und Methoden: Es wird die Funktion von Repertorium und Materia Medica in der homöopathischen Methodik diskutiert. Frühere Forschungen zeigen, wie das Repertorium verbessert werden kann.

Ergebnis und Diskussion: Das homöopathische Verfahren kann in zwei Abschnitte unterteilt werden: Eine unvoreingenommene Phase, um alle möglichen Arzneimittel in Betracht ziehen zu können, und eine Phase der Bestätigung, um das Arzneimittel auszuwählen, das zur Symptomentotaliät passt. Ein zu zeitiges Beenden der unvoreingenommenen Phase wird zu Bestätigungsfehlern führen. PFR soll das Repertorium in mehreren Aspekten verbessern. Der Satz von Bayes liefert einen Algorithmus für Homöopathie und das enthaltene Wahrscheinlichkeitsverhältnis (LR), eine Verallgemeinerung von Hahnemanns Paragraph 153 auf eine breite Differenzierung der Symptomenwichtigkeit, die durch die Eigenheit und Prävalenz im entsprechenden Arzneimittelbestand angeordnet sind.

Fazit: PFR ändert nichts an der Art und Weise, wie wir homöopathische Arzneimittel auswählen, aber es verbessert das Repertorium. LR verallgemeinert Hahnemanns Aphorismus auf einen Algorithmus, der eine große Reihe von Symptomen unterscheidet, die je nach ihrer Bedeutung für die Wahl eines Arzneimittels eigentümlich und weniger eigentümlich sind.

Confirmación y sesgo de confirmación: importancia de la investigación de factores pronósticos

Dr. Lex Rutten

Resumen

Fundamentos: Algunos médicos homeópatas temen que la investigación de factores pronósticos (IFP) de los síntomas homeopáticos descuide el contexto de estos síntomas.

Método y materiales: Se discute la función del repertorio y de la materia médica, y se muestra cómo puede mejorarse el repertorio.

Resultados y discusión: El procedimiento homeopático puede dividirse en dos estadios: un estadio de mente abierta para hacer el inventario de todos los posibles medicamentos y un estado confirmatorio para seleccionar el medicamento que cubra la totalidad. Concluir el estadio de mente abierta demasiado pronto provocará un sesgo de confirmación. La IFP tiene por objetivo mejorar el repertorio en varios aspectos. El teorema de Bayes proporciona un algoritmo a la homeopatía y la relación de proabilidades (RP) inherente una generalización del párrafo 153 de Hahnemann para una diferenciación amplia de la importancia de los síntomas dispuestos por su peculiaridad y por la prevalencia de las correspondientes poblaciones de medicamentos.

Conclusiones: La IFP no modifica la manera en que seleccionamos los medicamentos homeopáticos, pero mejora el repertorio. La RP generaliza el párrafo 153 de Hahnemann a un algoritmo que distingue entre una amplio rango de síntomas, peculiares y menos peculiares, conforme a la importancia de la elección de un medicamento.

Confirmation et préjugé de confirmation: Le rôle de la recherche de facteurs pronostiques

Résumé

Contexte: Certains praticiens de l'homéopathie craignent que la recherche de facteurs pronostiques (RFP) des symptômes homéopathiques néglige le contexte de ces symptômes.

Matériels et méthodes: Le rôle du répertoire et de la materia medica dans la méthode homéopathique est analysé. Des recherches antérieures montrent comment le répertoire peut être amélioré.

Résultats et discussion: La procédure homéopathique peut être divisée en deux phases: une phase d'ouverture d'esprit pour dresser un inventaire de tous les médicaments possibles et une phase de confirmation pour choisir le médicament qui correspond à la totalité. La clôture trop rapide de la phase d'ouverture d'esprit mènera au préjugé de confirmation. La RFP est censée améliorer le répertoire de différentes façons. Le théorème de Bayes fournit un algorithme pour l'homéopathie et le rapport de vraisemblance intrinsèque (RV) offre une généralisation de l'aphorisme 153 de Hahnemann conduisant à une large différenciation de l'importance des symptômes organisés selon leur particularité et leur prévalence dans des populations de médicaments respectives.

Conclusion: La RFP ne modifie pas la façon dont nous choisissons les médicaments homéopathiques mais améliore le répertoire. Le RV généralise l'aphorisme 153 de Hahnemann à un algorithme qui fait la distinction au sein d'un large éventail de symptômes particuliers et moins particuliers, selon leur importance, et ainsi permet de choisir un médicament.

確認和確認偏差：預後因素研究的角色

萊克斯・于滕博士

摘要

背景。一些順勢療法醫生擔心順勢療法症狀的預後因素研究 (PFR) 會忽視這些症狀的語境。

方法及材料。討論療劑彙集和療劑綱目在順勢療法方法上的功能。以前展示了療劑彙集可以有所改善。

結果和討論。順勢療法的過程可分為兩個階段：為所有可能的藥物編制目錄的開放思想階段，然後是選擇適合整體藥物的確認階段。過早結束開放思想階段會導致確認時有偏差。PFR是為了改善療劑彙集的幾個方面。貝葉斯定理為順勢療法提供了計算程式，而固有相似比 (LR) 把哈尼曼第153格言歸納成廣泛的症狀重要性分類，按每隻藥物的特點和流行率來排序。

結論。PFR不會改變我們選擇順勢療法藥物的方法，但它改善了療劑彙集。LR歸納哈尼曼第153格言成一種計算程式，按症狀對選擇藥物的重要性區分大量（奇特或不奇特的）症狀。