(11) How Scientific Is Complementary Medicine?

Description

Meet The Deer in the Forest of Papers

There are always claims that complementary medicine is not particularly scientific, while conventional medicine is scientific and well proven. Young bloggers in particular sometimes argue this way, but also journalists and colleagues from the university environment.

In my observation, the adjective “scientific” is used in at least three senses in such disputes:

Fundamentally religious:
By “scientific” is then meant a certain world view that includes certain basic assumptions that are believed to be an indispensable part of science. **If one thinks more carefully, one realizes relatively quickly that these basic assumptions have arisen from certain historical forms of science or certain sub-disciplines of science – but they are not part of science per se.** These are the assumptions of a general materialism in the sense that one assumes that only matter is real, and everything else is derived from it. This statement itself is a philosophical or religious one, but not a scientific one.
Often authors confuse the presuppositions that a certain form of science makes – and must make – with the results and with the possibilities of science per se. Whether complementary medicine is “scientific” in this sense or not is not settled. One can certainly make a materialistic reduction of most claims made in complementary medicine. **Mostly, however, such a use of the term “scientific” turns out to be crypto-religious. It is scientistic in the true sense**: the method of science is elevated to a world view. Husserl already pointed out the problems and dangers of such an approach [1]. In any case, one should realize that such a use of the term science has nothing to do with science itself.

Methodological:
The belief is that complementary medicine is not empirically tested well enough in terms of methodology. The claim is based on the fact that modern pharmacological interventions have to be evaluated by double-blind studies for licensing reasons alone and therefore have a comparatively solid data basis, at least on average and most of the time. This is not always the case with complementary medicine interventions. Mostly they are older and traditionally handed down and therefore have a certain edge in the sense of a general “empirical medicine” and legally a different status.
That these procedures also need to be scientifically investigated thoroughly is something most proponents of complementary medicine agree on. This is complex, as everyone knows. **However, despite the methodological difficulties, acupuncture for pain syndromes, for example, is probably more thoroughly studied and more effective than many pharmacological interventions** [2,3]. A recent analysis of the database of cardiology guidelines says that a median of only 11% is well proven [4], and in oncology it is barely 7% [5]. I suspect that if one were to examine in an unbiased manner, the “scientificity” of complementary medicine in the methodological sense would not be so badly off.

Social:
Often “unscientific” is used to mean “violating the consensus of the majority of experts”. Even if this is rarely mentioned explicitly, this meaning usually resonates. In a way, this makes sense, because the social

dimension is also important in science. For example, science journalists often use “warrantors” of scientificity in their articles to prove their opinions or interpretations. “Scientificity” is then defined by the proxy parameter of “prominence” in the scientific community or something similar, a social criterion in other words.
I will now turn to the operationalisation of such a social criterion and ask: Is it true that in this social sense complementary medicine is “unscientific”, i.e. socially little received and respected? I base this on the international community, because it is the reference point.

The Hirsch factor as a scientometric index

A simple, approximate and perhaps somewhat superficial method is to interrogate a scientometric index called the “Hirsch index” [6]. **This index is a dimensionless number that indicates how often, in relation to the number of publications, a scientist’s work is taken up by other scientists worldwide.** It offsets, so to speak, an author’s productivity with his or her resonance in the community. Someone who writes a lot but is not read has just as low a Hirsch factor as someone who writes relatively little and is received moderately well. His influence remains marginal. On the other hand, someone who writes very little but who appears in widely read and cited journals such as “Science” and “Nature” has a relatively high Hirsch factor. The same can be achieved by writing a lot that is picked up moderately often.

Furthermore, you can see from the citation frequency which field and which topic is “hot” at the moment, i.e. what many other researchers are also concerned about. For example, if someone is researching the meaning of certain phrasings in Akkadian texts of the 2nd millennium BC, even if he works extremely well and carefully, he will perhaps reach a small group of maybe 50 specialists worldwide. Thus his maximum reach is always limited. In this respect, the Hirsch factor is of course also a very rough measure of social integration. It does not represent specialized and marginal areas well. Therefore, even in fields where many scientists work, where there is a lot of novelty and a lot of output, one can come to prominence much more quickly than in others. Science is a big crowd. Everyone wants to be heard, everyone wants to be in front, everyone wants prizes, everyone thinks their work is the most important. In the Hirsch factor, the self-organising efforts of the social community of science are reflected. What interests the others, what seems useful to them, what they find exciting and reasonable, that’s what they cite. The rest sinks into the archives and databases. **This social attention is not always without bias. On the contrary, likes and dislikes are reflected in it. Nevertheless, the analysis of the Hirsch factor is useful.**

Therefore, I have taken the liberty of doing this little exercise once with researchers from the complementary medicine scene and with those who are gladly and often used by journalists as critics and as experts or who style themselves as such in their blogs. For this purpose, I used a freely available programme that can work with various online databases (http://www.harzing.com). The programme works with Google-Scholar. This is fair in that it reflects the usage behaviour of the “community” well, and because a broader database than in the less accessible citation indices of the publishers is collected here [7]. Moreover, this analysis has the advantage that it can be easily replicated, expanded or updated by anyone.

I proceed as follows: I present in a table the characteristic values of some prominent “sceptics” who like to claim that they are “scientific”. They also like to position themselves in public as the voice of science. Then I present some representatives of mainstream science who seem to me to be above reproach because they a) hold good positions (e.g. heads of Max Planck Institutes, professors); b) hold some kind of leadership position within their community (e.g. head and founder of scientific societies or institutions, prominent position in the public; director of clinics); and c) stand for fields that are generally seen as important and “scientific” (brain research, philosophy of mind, medicine). I also take a pragmatic approach in that I choose names that do not appear twice or more often so that there is no overlap. And I choose names of people I know or of whom I know that they are prominent. This selection is certainly subjective and really only serves to “calibrate” the findings.

Finally, in a third table I present prominent representatives of complementary medicine research.

Tab. 1 – Hirsch factor of some prominent “sceptics” or grantors of “sceptical” journalists

Name	Hirsch Factor	Number of publications	Number of years	Number of citations
Jürgen Windeler	13	90	29	1042
Ulrich Berger	6	12	14	170
Martin Lambeck	3	11	49	58
Florian Freistetter	4	15	13	54

Tab. 2 – Hirsch factor of some prominent German and international “mainstream researchers”

Name	Hirsch factor	Number of publications	Number of years	number of citations
Tania Singer	27	81	20	5581
Karl Max Einhäupl	15	23	27	928
Thomas Metzinger	21	134	31	2945
Daniel Kahnemann	105	448	51	148’244
Volker Sommer	22	180	27	1’259
Franz Daschner	30	116	38	2561
Hans Christoph Diener	55	489	38	16’322
John P. A. Ioannidis	67	364	17	22’475
Sonu Shamdasani	11	76	23	735

Tab. 3 – Hirsch factor of some prominent complementary medicine researchers and authors

Name	Hirsch Factor	Number of publications	number of years	number of citations
George Lewith	21	154	32	2004
Aviad Haramati	19	76	33	1193
Claudia Witt	25	169	22	3266
Andreas Michalsen	20	90	21	1204
Benno Brinkhaus	22	72	16	2643
Gustav Dobos	23	131	27	1684
Wayne B. Jonas	31	173	22	4739
Dieter Melchart	26	169	33	5007
Harald Walach	29	283	26	4210

You can see very quickly from this data:
The social dimension of science clearly shows that the “sceptics” who like to position themselves as the epithet of science in the public eye are actually, scientifically-socially speaking, marginal figures. The variance in the reception of mainstream science is huge. An author like Daniel Kahnemann, psychologist and Nobel Prize winner for economics is enormously received and therefore also has a large Hirsch factor of over 100. But even a highly respected mainstream scientist like my friend and colleague Volker Sommer, who is a well-known evolutionary biologist, holds a professorship at University-College London for evolutionary anthropology and is also responsible for research strategy in the university management, has a Hirsch factor in

the middle range. Another friend of mine, the internationally highly renowned C. G. Jung researcher Sonu Shamdasani, also a professor at University College London but representative of a rather small community of medical historians achieves an H-factor of 11, which shows that the number is very relative depending on the field one is in. My former boss, mentor and supporter Franz Daschner, former head of the institute in Freiburg with a lot of prestige, prizes and a wide international reputation, achieved a Hirsch factor of 30 in the course of his long career. That exceeds the value of the current head of the Charité, Max Einhäupl, by quite a bit. A prominent neurologist like Diener can surpass these values. Others, such as Tania Singer, the still young head of the Max Planck Institute for "Social Neuroscience" in Leipzig, or the philosopher Thomas Metzinger are in a range that certainly signals general international recognition and reception. John Ioannidis was chosen by me because he represents a kind of flare in the methodological sky. He has written enormously widely considered works that are much cited and taken up. An H-factor of 67 signals this.

Comparing the scores of prominent sceptics with this data, it must be said clearly: the sceptics may think of themselves as representing "the science". In reality, what they do and publish is little received. Nor does it have any significant resonance in science.

Prominent representatives of complementary medicine are far better off. **This proves what has been said many times before: complementary medicine has arrived in the mainstream** [8]. The values do not differ much within the scene and lie between 20 and 30, exactly in the range in which we also find those of internationally respected mainstream researchers. The scores of German complementary medicine researchers also compare well internationally: I have cited two comparative scores, that of Wayne Jonas, former head of the Office of Alternative Medicine and current director of the Samueli Institute, and that of Aviad Haramati, head of the Consortium of US Institutions and course director at the renowned Georgetown University in Washington.

The German colleagues do not have to hide. Nor do they have to hide from their mainstream colleagues, and certainly not from those who, as critics, like to claim that they represent "scientificity". **When you look at how science actually works, the self-image of the "sceptics" appears to be pure illusion and self-deception. Apparently, the supposedly critical mind does little to advance to the point of self-criticism.**

So if we define "scientific" pragmatically, socially and in the way science works, we can state: Complementary medicine is more scientific than the claims of some of those who see themselves as paragons of "the science". Complementary medicine is science. That may annoy some people. But as I have shown here, it can be proven objectively.

Sources and Literature

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