

Effectiveness of traditional pharmaceutical biomedicine versus complementary and alternative medicine in a physician's general practice

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Abstract

Holistic, complementary and alternative medicine (CAM) is non-drug medicine where no pharmaceuticals are prescribed. CAM uses the placebo effect i.e. the patient's own consciousness and self-insight to heal: the examination is the cure. The only necessary tools are talking and therapeutic touch. A CAM treatment does not need a firm diagnosis, the treatment can start right away, and the treatment be applied on all patients. Mind-body medicine, the most efficient type of CAM, cures according to a number of recent studies about 50% of the patients in one year for physical, mental, psychological, existential and sexual health problems, and work-related problems can also be solved (NNT=2). CAM harms only one in 64.000 (NNH_{total}=64.000). In pharmaceutical medicine (biomedical drugs) the patients need to be ill, their illness needs firstly to be diagnosed correctly and secondly to be curable with drugs and, and thirdly patients need to be compliant with the treatment plan. Only one patient in 667 (True NNT=667 (196-24,242) and one chronic patient in 20.000 (True NNT=20.000 (333-200.000)) are being helped or cured in a biomedical general practice. In Denmark every second patient receives a drug; as drugs harm one in three patients (total of side effects for most drugs: NNH_{total}=3) one patient in 6 visiting the GP is harmed. CAM is compared to biomedicine about 300 times as efficient and 10,000 times less harmful. We therefore recommend a shift towards non-drug medicine as the primary health service. All general practitioners must be trained in non-drug medicine.

Keywords: Complementary and alternative medicine, integrative medicine, general practice.

Introduction

The last two decades has seen more research in holistic medicine (CAM) than the two preceding centuries. For the first time we are therefore able to say something substantial about the efficacy and harm

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of non-drug CAM compared to treatment with biomedical drugs in general practice.

According to Hippocrates, the father of classical holistic “clinical medicine”, *examination is the cure* (1). Together with the patient, the physician or therapist was responsible for examining and exploring the patient’s mind, body, spirit, whole existence, and outer reality, to help the patient get self-insight in his or her problems and “step into character” (2). The realization of one’s own resources and talents helps the patient to return to a constructive, happy, and healthy state of being, where the patient creates value in all relationships by active, conscious use of all physical, mental, and spiritual talents. Basically the idea of “clinical medicine” is to use *improvement of quality of life as medicine*, or more profoundly the rehabilitation of the patient’s *sense of coherence* (3,4). In psychoanalytic language, this form of medicine is about integrating the repressed content of a patient’s subconscious onto the patient’s consciousness. In modern coaching language, this approach is about “personal development”.

This kind of medicine is also known as “holistic medicine”, “character medicine”, “non-drug complementary and alternative medicine (CAM)”, or “mind-body medicine”. Only two tools are used for therapy: talking and therapeutic touch (5). Because the examination of the patient together with the patient is what brings the cure, practically every single patient can immediately be treated, which is extremely efficient in general practice (6-8). No diagnosis is needed. While many contemporary physicians find this approach less scientific, recent reviews have found that holistic mind body medicine is surprisingly effective (NNT=2(1-3)) (5-12). Most importantly, this number comes from *intention to treat analyses*, meaning that all patients entering the clinic with a problem are counted in the study. Holistic, clinical medicine has (13) been shown to be almost completely without side effects (NNH=64,000 (5-14). Comparatively, biomedicine has been estimated to help between one in five and one in fifty of patients, often one in twenty (NNT=20(5-50)) (15). Unlike holistic medicine, pharmaceuticals have numerous side effects. When the likelihood of getting one side effect is counted, drugs often harm one in three patients (NNH_{total}=3(1-10) (16).

The real difference between biomedical drugs and holistic CAM lies in its practicality. As physicians, we all know that before giving a drug, we must be sure that the diagnosis is correct. Once we have correctly identified the diagnosis and determined the appropriate prescription, we need the patient to comply with the treatment, which is to take the drugs as prescribed.

Most patients cannot be treated without a long and complicated examination, involving dozens of biological tests (i.e. blood and tissue samples, expert evaluation of test results, etc). In this paper, we want to analyze the clinical significance of this complicated practice of biomedicine and compare it to non-drug CAM.

Estimating the true NNT for biomedicine from an intention to treat analysis of a biomedical general practice

About half the patients that come to a general practitioner (GP) in Denmark suffer from sexual, psychological, existential, or work-related problems that are not seen as physical or mental (psychiatric) health problems. Table 1 lists the major problems that brought new patients to our holistic medical clinic in 2004-2005 (17-22). From our experience in other general practices in Denmark, this seems to be the general pattern; at least every second patient shows up with a problem that is not related to a physical or mental health problem. For all of the patients who are not physically or mentally sick, there is little meaning to treat them with biomedicine and pharmaceuticals.

Of the remaining half of patients presenting with a real health problem, about two third of them (or 33% of the total number of patient) presented with a chronic pain condition; only about one in six of these patients had an organic (biologic) reason for the pain (e.g. an infection), while most of these patients had pain with no known cause (e.g. low back pain from muscular tension, stomach pain from anxiety, primary vulvodynia, and tension head ache). These pain conditions are most likely to be psychosomatic (23-25), and they are not successfully treated with drugs.

Table 1. Patients major problems (% of all major problems) (17-22)

	N	Relative %
Physical health issues	31	11.4%
Mental health issues	54	19.9%
Sexual problems	48	17.7%
Existential problems (related to general quality of life)	55	20.3%
Minor psychological problems (self esteem problems)	43	15.9%
Working or studying problems	40	14.8%
Total	271	100.0%

About 25% of the whole Danish population has a chronic pain condition in spite of free socialized biomedicine (26). A substantial fraction of minor non-pain health issues which made patients visit the physician (e.g. constipations) also had obvious psychosocial causes; we estimate the number to be 50%. Of the remaining 25% of patients with physical health conditions, half of them presented wounds, influenza, and other small minor issues that normally would heal spontaneously. Treating these patients with pharmaceuticals would subject them to a risk of adverse effects with no therapeutic benefit.

Of the remaining 12.5% of the patients who could potentially benefit from biomedicine, about half of the patients were old and got a severe health issue that was known to be incurable with biomedicine, (e.g. metastatic cancer, coronary heart disease and dementia). The therapies used were palliative in nature, not able to cure. Thus, biomedicine is normally of little help with this group of patients (16). Younger patients with diseases like arthritis often felt helped but remained chronic patients. We need to recall that most drugs do not cure but only improve some specific symptoms while they also have adverse effects. Since the primary goal of medicine is recovery of health, these chronic patients should not be counted when we make a comparative study of the curing efficacy of CAM and biomedicine.

The remaining 6% of patients, who were had a curable health issue and actually needed treatment, must have a correct diagnosis to be treated appropriately. It is well known (e.g.. from autopsy (27-29)) that about 33% of all biomedical somatic diagnoses are wrong (see also 30-35); we also know that in psychiatry the variation of the diagnosis from one psychiatrist to the other is about the same size. A precondition for a drug to work is that it is given on

the right indication (30). False positive and false negative tests contribute to this, about 5% being false negative and 5% being false positive in most biological tests, reducing the possibility of a right diagnosis further by 10% (36).

Of the about 4% of patients who are diagnosed correctly, about 10% are given the wrong drug or the wrong dose (37). Of the remaining 3.6% of patients, about one in two do not comply with the treatment regime(38-43), reducing the number of patients who can be helped by biomedicine further to 1.8% of the total number of patients (see table 2 for the exact estimate). Now we need to look at the number needed to treat (NNT), and with a mean NNT of 20, we know that only $1.8\%:20=0.09\%$ of patients are likely to be cured by biomedicine.

Based on this intention to treat analysis, we have the True NNT = 1000 for biomedicine (outcome: "Cured"), while True NNT remained two for non-drug CAM (outcome: "Cured"). The same number for the outcome "improved, not cured" is about 500 for biomedicine and 1 for the most efficient types of non-drug CAM (5)! The observant and ethical physician who makes this analysis for each patient will only give drugs to the 2% that really needs them; but this is not how drugs are used in Denmark in general. Estimated from numbers of patients visiting the physician each year and the prescription of drugs in Denmark, it seems that at least every second patient get drugs from his or her doctor (drugs like contraceptives not given as treatment excluded). When we have a NNH=3 we know that one in six, or 17% of all the visiting patients, are harmed by the pharmaceutical drugs.

When we analyze the True NNT and True NNH on an intention to treat basis for biomedicine and holistic non-drug CAM, we find for biomedicine:

True NNT=1,000, and True NNH=6, while for non-drug CAM we find: True NNT=2 and True NNH=64,000.

Table 2 shows how this analysis varies according to the different sources. The most optimistic estimates give a True NNT for biomedical general practice of 100 (1% of patients cured or improved) while the most pessimistic estimate is 500,000 (0.002% of patients cured or improved). A moderate estimate gives True NNT=1,000, or one patient out of 1,000 cured or improved.

The “dilution” of biomedical efficacy is well illustrated this way, using the moderate numbers established in Table 2: First about 50% of the patients coming to the GP is not physically or mentally ill but

suffering from social, financial, sexual, psychological, spiritual or existential problems. Half of the ill patients are suffering from psychosomatic or developmental problems (i.e. psychosomatic, non-organic pain). Of the 25% of patients left, half of these are ill with a disease incurable by biomedicine, leaving 12.5% to be cured with drugs. Of these 12.5% a substantial fraction is wrongly diagnosed, presumably about 50%. Of the correctly diagnosed remaining 6.3% of patients about 50% does not have compliance. Of the about 3% that are compliant, only one in 20 (NNT=20 (5-50)) are cured or improved, meaning that only 0.15% are cured, or about one in thousand.

Table 2. Analysis of True NNT (outcome: “Cured”) in general practice with the variation that comes from the different sources. “Rel. Min” is the most optimistic and “Rel. Max” the most pessimistic estimates from the different sources. Taken all together this sums up to a factor 5000 clearly indicating out lack of precise knowledge in this area

Patients coming to GP	%Absolute number	% Rel. Max	% Rel. Fair estimate	% Rel. Min
Patients not physically or mentally ill but suffering from social, financial, sexual, psychological, spiritual or existential problems.	50.0%	67%	50%	33%
Patients ill from psychosomatic or developmental problems (i.e. psychosomatic pain)(non organic)	25%	75%	50%	25%
Patients ill but disease incurable by biomedicine	12.5%	90%	50%	50%
Patients ill, curable but wrongly diagnosed 6.25%	6.25%	67%	50%	33%
Patients ill and curable, correctly diagnosed, in need of cure but without compliance	3.18%	90%	50%	40%
<i>Ill patients, curable, in need of cure, correctly diagnosed and compliant</i>	<i>3.18%</i>	<i>0.001%</i>	<i>1.6%</i>	<i>10.1%</i>
Patients cured or improved by biomedicine (NNT=20 (5-50))	0.15%	2x10 ⁻⁴ %	0.008%	0.51%
True NNT (Outcome: “Cured” or “improved”)	667	24.242	667	196

Table 3. Analysis of True NNT (outcome: “Cured”) in general practice for chronic mentally or physically ill patients. “Rel. Min” is the most optimistic and “Rel. Max” the most pessimistic estimates from the different sources

Chronic patients coming to GP	%Absolute number	% Rel. Max	% Rel. Fair estimate	% Rel. Min
Patients chronically ill but disease curable by biomedicine.	10%	5%	10%	25%
Ill patients, curable, correctly diagnosed	1%	5%	10%	50%
Patients ill and curable, correctly diagnosed, in need of cure but without compliance	0.1%	5%	10%	50%
<i>Ill patients, curable, in need of cure, correctly diagnosed and compliant</i>	<i>0.1%</i>	<i>0.001%</i>	<i>0.1%</i>	<i>6.2%</i>
Chronic patients helped or cured by biomedicine (NNT=20 (10-50))	0.005%	5.0x10 ⁻⁵ %	0.005%	0.3%
True NNT (Outcome: “Improved” or “Cured”)	20.000	200.000	20.000	333

Table 3 presents the same analysis for chronically physically and mentally ill patients. Of these patients a substantial fraction has been incurable by biomedicine as all patients have been treated with at least one and often 10 different pharmaceutical drugs. The likelihood of next drug being efficient is therefore small. It is very likely that 90% of these patients never will be helped by a drug. Of the patients that are curable, a large majority, presumably 90%, have been wrongly diagnosed, and as these diagnoses often follows the patient, the diagnosis is not likely to be correct in the future. This leaves us with 1% of patients being curable and correctly diagnosed. Sadly most chronic patients are severely dis-encouraged, they often start doubting in the doctor and losing hope and their compliance is bad, falling down to presumed 10%. Finally the NNT for this group is presumably much lower than for the normal patients (NNT=50?), but as we don't have numbers we use the NNT=20 here also in our calculation. We find that only 0.005% or one in 20,000 (True NNT=20.000) of the chronic patients are helped or cured by biomedicine – which is why they are chronic and most often stay that way for their whole life.

Discussion

We are making an important analysis in an area where there is little knowledge. We are using estimates and data of limited quality, but in spite of this we have been able to complete the analysis and obtain a result that we find to be trustworthy. It might be that a more accurate analysis shows a different result, but we find it most likely in that case to be a much smaller number of patients that are helped by biomedicine.

There are some kinds of CAM that are ineffective (5), so we recommend that mind-body medicine, which seems to be the most efficient kind of CAM, be used as reference in such studies. If you use ineffective CAM, you can always show that biomedicine is effective. This is precisely what has happened in the test of biomedicine versus placebo, where the placebo effect intentionally has been reduced to zero in industrial trials (44), elimination the most important element of placebo: the close relationship between the physician and his patient (45). Non-drug CAM is nothing but placebo used

effectively, and it cures one in two patients, even for coronary heart disease (46,47). So we need to respect this traditional kind of medicine.

We have defined the therapeutic value TV as NNH_{total}/NNT ; estimated from this we have $TV=3/1000=0.003$. Compared to this the therapeutic value of holistic clinical medicine (non-drug CAM) is thus around $TV=64.000/2=32.000$, or 10 mill as high. "TV" is not yet an established factor in medical science, but we think it should be as it clearly shows the difference in value between the two different types of medical interventions, biomedicine versus non-pharmaceutical CAM.

Conclusion

If we just look at the positive effect, we found that while clinical medicine helps one in two patients, biomedicine in general practice helps only one in 667 (True NNT= 667 (196-24,242)) patients. If the patients were chronically physically or mentally ill, these numbers fell down to 20.000 (True NNT=20.000 (333-200.000)). As at least every second patient were treated with a pharmaceutical drug (NNH=3) we know that one in six of these patients had an adverse effect, meaning that about 100 patients are harmed for one patient to be helped or cured (Therapeutic Value $TV=NNH/NNT=0.01$).

In general practice, CAM helps or cures one in two, and is thus about 300 times more effective than biomedicine. When we look at the negative effect of drugs, we find that True NNH_{total} for biomedicine is about six, and for CAM about 64,000 (13). Biomedicine is thus 10,000 more harmful than non-drug CAM. One in six of the patients going to a biomedical general practitioner in Denmark are harmed while one in 64,000 going to a holistic general practitioner in Denmark is harmed.

When we compare this to the patients helped, we see that biomedicine in reality helps almost nobody while it harms a large fraction of its patients, whereas non-drug CAM helps half the patients and harm practically nobody. This is why we recommend that non-drug CAM is the practice of choice for all patients, and only when CAM cannot cure the patients, should pharmaceuticals be tried.

If we presume that the prize of biomedicine and CAM is about the same, we can tell that non-drug CAM gives about 300 times as much health for the money, without harming the patients which also is costly (consistent with more detailed analyses (9,10,48)).

We also easily understand why half the Danish population remains chronically ill in spite of free, socialized biomedicine: The drugs simply don't cure them. Biomedicine cannot keep a nation healthy. We therefore recommend that all nations shift their primary health care to holistic, clinical medicine, where talk and therapeutic touch are the primary medical tools. All general practitioners should be trained in holistic clinical medicine, the original type of medicine, highly successful ever since the days of Hippocrates 400 BCE. Drugs should only be used when non-drug intervention fail to help.

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