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A Review of Side Effects and Adverse Events of Non-Drug Medicine (Nonpharmaceutical Complementary and Alternative Medicine): Psychotherapy, Mind-Body Medicine and Clinical Holistic Medicine

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A Review of Side Effects and Adverse Events of Non-Drug Medicine (Nonpharmaceutical Complementary and Alternative Medicine): Psychotherapy, Mind-Body Medicine and Clinical Holistic Medicine*

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Abstract

Background: Review of side effects of psychotherapy, bodywork (without high-energy manipulations), mind-body medicine, body-psychotherapy, sexology, clinical holistic medicine and complementary and alternative medicine (CAM).

Method: We reviewed 857 records from a combined Medline/PubMed and PsycINFO search on "psychotherapy AND side effects" We also searched for "mind-body medicine," "bodywork," "body-psychotherapy," "clinical holistic medicine," "CAM," "sexology," "sexological examination," "physiotherapy," and specific side effects like "psychosis," "re-traumatization," "suicide," "hypomania," "depersonalisation," "derealization" and the drugs Lysergic acid diethylamide (LSD-25), "psilosybin," "mescaline," "Peyote" and MDMA (3,4-methylenedioxy-N-methamphetamine (MDMA) for searches. We looked for all case reports 1950-2009 and studies that included data on side effects and negative events.

Results: Non-drug medicine did not have significant side effects (NNH (number needed to harm)>

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18,000) and the only severe side effect was rare, brief reactive psychosis, a temporary illness with full recovery (NNH >65,000). Non-drug therapy did not significantly cause re-traumatization, implanted memories, or induction of suicide (NNH>100,000). The most intensive psychotherapy enhanced with psychotropic (hallucinogenic) drugs had serious, but rare side effects and only for the mentally ill, psychiatric patients: brief reactive psychosis (NNH=556), suicide attempts (NNH=833), and suicide (NNH=2,500).

Conclusions: Non-drug (non-pharmaceutical) medicine seems to be safe even for seriously physically and mentally ill patients and, whenever efficient, therefore recommended as treatment of choice.

KEYWORDS: side effects, adverse effects, psychotherapy, bodywork, complementary and alternative medicine (CAM), integrative medicine, psychosocial medicine, body-psychotherapy, clinical holistic medicine, complementary medicine

Introduction

Nonpharmaceutical medicine, also called non-drug therapy, and non-drug CAM (complementary and alternative medicine), intervene on the patient's body, mind and/or spirit. It can work on the mind only as in psychotherapy; on the body as in bodywork and physical therapy, on mind and body as in mind-body medicine (acupuncture, acupressure, homeopathy, and body-psychotherapy i.e. biodynamic, Reichian), much clinical medicine (i.e. vaginal acupressure), and sexology (i.e. the sexological examination). It can work only on the spiritual level - in the development of a positive philosophy of life, or in energy medicine, spiritual healing, and prayer. Finally it can work on body, mind and spirit at the same time in what we call holistic medicine.

The classical holistic medicine is the Hippocratic character medicine [1] that has been used by European physicians ever since Hippocrates 400 BCE. This has developed into psychoanalysis, holistic sexology, clinical holistic medicine, holistic breath work ("rebirthing", "holotropic breath work") and many more modern therapies. Holistic medicine is closely related to traditional, shamanistic healing known from all continents, which often uses hallucinogenic LSD-like drugs or plants like "magic mushrooms" (psilosybine), peyotecactus (mescaline) and Ayahuasca (LSD-like), which have been developed into intensive types of therapy like LSD-and NMDA-psychotherapy believed to have more side effects than holistic non-drug medicine.

Non-drug medicine has become increasingly popular worldwide as a consequence of a growing public awareness of its efficacy, the many disorders that can be treated [2-5] and its low cost. Mind-body medicine is taught at most universities in the USA [6] and Europe has a master degree program in CAM (EU-Msc-CAM) [7]. Review of the literature indicated that 33-90% (NNT=1-3) of most physical, mental and sexual health problems could be solved with non-drug therapy [2-5]. At the same time patients are becoming aware of the relative inefficiency of drug-treatments (typical NNT=5-50), and of the many, often-serous adverse effects of pharmacological drugs (typical NNH=1-5), which combined turns many patients believing in "the magic bullet" of biomedicine into chronic patients.

The most efficient non-drug therapies combine bodywork, psychotherapy and philosophical intervention to an intensive, holistic therapy that induces *salutogenesis* (existential healing) and improves *physical and mental health*, *general ability, global quality of life* and *sense of coherence* [8,9]. The advanced treatments often focus on the patients' feelings, relations, and sexuality. Holistic body-psychotherapy has gained popularity in the United Kingdom and Germany, because of Gerda Boysen's therapeutic work [10-13], and in Denmark, Norway and the United States Reichian body-psychotherapy, clinical holistic medicine and

sexological bodywork have become common possibly due to the work of Wilhelm Reich and other therapists and sexologists in these countries [14-20].

Non-drug therapy is really placebo-cures that intervene on the patient's consciousness [21,22] and negative effects - "nocebo" effects [23-27]) - are therefore a theoretical possibility. The types of CAM that uses herbs, essential oils, or for example needles, are known to have some side effects like allergies [28], but these types of treatment are not the subjects for this review.

A researcher concluded in JAMA that mind-body medicine has no side effects at all and is highly cost-effective [29]. A recent review in the British Medical Journal concluded that bodywork and massage therapy were efficient and practically without side effects [4]. It was even found that young psychiatric patient, children and teenagers, the most vulnerable of patients, benefited from complementary bodywork with no significant side effects reported [30].

If non-drug medicine is efficient and not harmful it is indeed the treatment of choice. Our research question is therefore if non-drug CAM, even the most intensive of it, really is totally harmless, or if there are side effects and negative events.

Methods

To review the side effects of psychotherapy and CAM we searched for "side effects" AND psychotherapy in Medline (PubMed) and PsycINFO, which resulted in 798 and 59 records respectively. We used these records to identify the different types of side effects and made new searches for the specific side effects found, to establish their prevalence if possible. We also used the concepts "bodywork", "mind-body medicine", "body-psychotherapy", "clinical holistic medicine", "CAM", "sexology", "sexological examination", "physiotherapy", and the specific side effects like "psychosis", "re-traumatization", "suicide", "hypomania", "depersonalisation", "derealization", and the drugs "LSD-25", "psilosybin", "mescaline", "Peyote" and "MDMA" for searches. If therapy using these enhancing drugs is fairly safe, then therapy that is not enhanced is likely to be even safer.

We looked for all casuistic reports and for all studies including data on side effects and negative events. A total of 1,600 records were examined. We excluded harm to patients done intentionally, like hypnosis abused for criminal purposes, and adverse effects from ethical misconduct like sexual abuse of patients [31,32]. We also excluded high-energy manipulations like chiropractice that is known to have some side effects.. We intended to exclude negative (adverse) events and side (adverse) effects from therapeutic errors, but found none.

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To specifically investigate the side effects of the most intensive therapy with the most vulnerable patients, we looked into the tradition of psychodynamic treatment of schizophrenia, and of LSD-25, mescaline, and MDMA psychotherapy with mentally ill patients [33].

Table 1. Side effects/adverse effects caused by psychotherapy, bodywork (i.e. massage therapy), mind-body medicine (i.e. acupressure), sexology (i.e. vaginal acupressure), and holistic medicine (i.e. clinical holistic medicine). (* Hypomania and developmental crises are considered part of the treatment in holistic medicine)

Psychotherapy

1. Re-traumatization
2. Brief reactive psychosis
3. Flash backs
4. Depression and hypomania*
5. Depersonalisation and derealization
6. Implanted memories and implanted philosophy
7. Iatrogenic disturbances
8. Negative effects of hospitalisation
9. Studies with no side effects, or side effects less than the side effects of drugs
10. Paradoxal findings: Psychotherapy diminished side effects
11. Suicide and suicide attempts.

Physical therapy and bodywork

1. Brief reactive psychosis
2. High-energy manipulations of the body in chiropractics can cause damage to the spine of vulnerable patients.
3. Damage to the body if the therapist are unaware of illnesses, fractures etc.
4. Suicide and suicide attempts

Psychotherapy and bodywork & holistic medicine (i.e. manual sexology (the sexological examination), clinical holistic medicine (CHM) and holotropic breath work)

1. Brief reactive psychosis
2. Implanted memories and implanted philosophy
3. Developmental crises*
4. Suicide and suicide attempts

Results

Table 1 lists the categories of significant side effects and adverse events identified from the 857 records.

Psychotherapy

1. Re-traumatization

The concept of re-traumatization has been quite confusing in psychotherapy; it literally means, "to give a patient a new trauma similar to an old trauma", but the meaning in psychotherapy is often much milder, i.e. causing the patient emotional problems from contacting the trauma without fully integrating it. Naturally, a patient who remembers a trauma, i.e. sexual or non-sexual violation, will fear to get a new, similar trauma [34-38], especially as re-victimization for psychodynamic reasons is likely to be the victim's reality [37-40]. This fear is almost always transferred to the therapist, when the trauma is approached and re-actualised in the therapy [38]. The therapist's reaction to this is partly coming from re-activation of conscious or unconscious memory of own similar traumas [39] and partly from introjecting the patient's fear [40]. The countertransference is of course a fear of causing re-traumatization [41-49].

Holistic medicine, today called CAM, has for millennia used the "principle of similarity" [1], now part of the EU-master's curriculum [50-54]; the fear of retraumatisation seems rational, as the patients are re-exposed in the therapy to what originally made them ill, but no recordings of patients harmed this way exists.

A search for "re-traumatization" in Medline/PubMed and PsycINFO resulted in 48 records and 106 records respectively; but hardly a single case of actual, well-documented re-traumatization (see [40,41,45] for rare examples) was found, a fact that we found worth reflecting upon. Many therapists recommend to avoid re-traumatization [46-49,55], but we did not find one single study, that convincingly documented that re-traumatization actually takes place in psychotherapy or holistic medicine.. A study of people that had intensively re-exposure to a trauma in a non-therapeutic context found no signs of substantial re-traumatization and concluded that re-traumatization might be non-existing [56, see also 57-62]. Early animal models did not reveal the heightened vulnerability to a similar trauma after the first trauma [63], but such studies might be difficult to relate to humans. Most interestingly it has been found that the degree to which patients experience re-traumatization is directly proportional to the therapists fear of inducing it [40,41], again indicating that re-traumatization is an artefact and not

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a real problem in therapy. This is not in conflict with the sad fact that traumatized people in general are more vulnerable to new traumas than non-traumatized people [64-65]. One possible interpretation is that the vulnerability is general and not specifically connected to the subject of the trauma.

All this strongly indicates that the concept of re-traumatization is merely a product countertransference to the well-known patient resistance [66-68] and not a biological or psychological reality. This does not mean that re-activation of a trauma cannot inflict severe emotional problems to a patient [69].

The conclusion is not that healing from traumas is pain free, but that this pain is a natural part of the healing, not something that is unhealthy for the patient [70-71]. It has been documented that the use of force in psychiatry with seclusion and restraint actually can re-traumatize and re-victimize the patients [73-74]. We conclude that the literature search indicated that re-traumatization was not a significant side effect of psychotherapy.

2. Brief reactive psychosis

The most serious problem with psychotherapy seems to be the possibility of provoking the patient into psychosis. This side effect has been observed in different types of therapy from soft, non-provocative therapy like sensitivity training [75], to more radical methods like Erhard Seminars Training [76-78]. There are very few cases and most fortunately these psychotic crises are normally connected with fast and complete recovery [79].

We found brief reactive psychosis to be associated with many different stimuli, like hard training [80], intensive seminars and workshops [81], challenging work [82], religious activities [83] and psychotherapy [75-78]. Judged from the very limited number of cases found in the databases it seems that brief reactive psychosis is very rare. One study [80] found 1.43 cases per 100,000 Air Force recruits per year, as the training is often both physically and mentally hard.

An analysis of 24 patients [81] showed that most of the patients had a mental disease that was not discovered, which explained the patient's symptoms. The validity of the diagnosis has been disputed [79,84]. We believe that it is likely that what was diagnosed as brief reactive psychosis often is a healing crisis (see below) that actually might help the patient, if the patient is allowed to go through it in a psychodynamically well-supported way with sufficient holding, but this needs further research for clarification.

As there are millions of people in psychotherapy every year and the reported numbers of patients that enter brief reactive psychosis so small we conclude that the phenomena is either so harmless that people find no reason to report it, or there are so few cases that it is a highly unlikely side effect of psychotherapy (estimated NNH>65.000).

3. Depression and hypomania

It has been suggested that intensive psychotherapy that did not lead to a complete integrations of the trauma [72] could give problems similar to the flash backs of LSD, but such cases seem to be extremely rare, and none were found in this search.

4. Depression and hypomania

Kingdone [91] found that hypomania might follow cognitive therapy, but the phenomena of therapy inducing unwanted shifts in moods have rarely been described as a side effect.

5. Depersonalisation and derealization

This has been described, but only in very rare cases. The practice of "altered states of consciousness" have been connected with depersonalisation and derealization [92,93], as have meditation [94], but extremely few examples were found and it is not likely that meditation or altered states of consciousness were causing the personality deficits. It is more likely the patients had an unidentified mental illness already.

6. Implanted memories and implanted philosophy

Among the most complicated side effects are the implanted memories and implanted philosophies [95-99]. We know that the nocebo effect is powerful, yet we found no studies documenting the negative effect of implanted memories or implanted philosophy, in spite of many papers discussing the issue and also seemingly agreeing about the reality of the problem. It might be more of a social and legal problem associated with recovered memories of for example earlier incest than a factual, harmful side effect of psychotherapy. It seems that implanted philosophy could be a serious problem in psychotherapy, but we found no studies investigating this side effect or documenting its size.

It is also possible that what has been called "implanted memories of incest" is actually a necessary and natural step in the therapy, if the patient has a very strong Oedipus complex to dissolute (please see the discussion of this below). If this is the case, such "implanted memories" and "implanted philosophies" of incest are not really implanted, but coming from the patient's own unconsciousness. More research on this topic is needed.

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7. Iatrogenic disturbances

DeBerry [100] and other researchers described different kinds of iatrogenic effects on patients, but little was found in the literature.

8. Negative effects of hospitalization

Hospitalisation in itself had been connected with severe side effects [101], and we found it likely that hospitalisation, stigmatisation, and marginalization sometimes following mental care were indeed associated with severe side effects [99], but we found no studies to support this suspicion.

9. Psychotherapy has no side effects

Most clinical studies reported a complete lack of side effects of psychotherapy [102,103] and related therapies, like cognitive-behavioural treatments [104], also in schizophrenia [105], behavioural treatments [106,107], hypnotherapy [108], hypnosis [109], alcoholics anonymous [110,111], physical exercise [112], pelvic physical therapy [3,113], pelvic floor exercises [114], yoga, acupuncture, massage, relaxation techniques [115,116], interpersonal therapy (IPT), aerobic exercise, acupuncture [117], biofeedback therapy [118,119], the training program "OBELDICKS" for obese children and adolescents[120], clinical holistic medicine [22], energy medicine [121] and always when a drug treatment was compared to psychotherapy the former had more side effects [i.e. 99,122-128]. In other words conversation therapy had less side effects than drugs [129]. A systematic review of the literature showed positive effects and no side effects of the psychodynamic psychotherapy of Jung [130], Adler [131], Abraham [132], Federn [133], Harry Stack Sullivan and Frida Fromm Reichmann (with methods further developed by Will [134]), Schilder [135], Rosenfeld [136], Segal [137], Fairbairn [138], Guntrip [139], Perry [140], Lidz [141], Kernberg [142,143], Volkan [144], Sechehaye [145], Rosen [146], Eissler [147], Arlow and Brenner [148], Giovacchini [149], Arieti [150], Bellak [151], Gendlin [152], Prouty [153], Gunderson and Mosher [154], see also Karon and VandenBos for a review [155]. Harold Searles could in one study cure 33% of the most ill schizophrenic patients without harming any of the patients [156, see the introduction].

10. Paradoxal findings: Psychotherapy diminishes side effects

A number of the studies found associated paradoxically psychotherapy to the reduction of side effects of other treatments [see 157,158]. This indicates that psychotherapy in general is balancing the patient and helping the patient with

physical, mental, existential and sexual problems. This is in accordance with the fact that most studies showed that psychotherapy did not have side effects.

11. Suicide and suicide attempts.

Suicide is normal in the mentally ill population, but there is no documentation that psychotherapy provokes suicide; quite contrary it seems therapy with intimacy and closeness between therapist and patient can prevent suicide (see below).

Bodywork including massage and physiotherapy (excluding high energy manipulations like chiropractice)

In general bodywork and massage therapy has no significant side effects [2-5]; the physiotherapy most likely to give side effects is genital and pelvic physiotherapy, but a review of about 50 randomised clinical trials (RTCs) has shown that this kind of therapy does not have any significant side effects [3].

1. Brief reactive psychosis

We found no records of this kind of psychosis provoked by bodywork. Genital physiotherapy (vaginal acupressure), and manual sexology have not been reported to provoke brief reactive psychosis [3,85,90]. We believe that bodywork is as provocative as psychotherapy in this regard, as anything sufficiently stressing seems to be able to provoke it, thus giving an estimate of NNH>65.000. It seems fair to compare the most intensive body therapy with military training [70], making this estimate fair.

2. High-energy manipulations of the body in chiropractics can cause damage to the spine of vulnerable patients

Pathological cervical fracture after spinal manipulation [159] is a severe side effect, but extremely rare. Most body workers all over the world abstain from treating children below two years of age with high energy bodywork out of the conviction, that the spines of infants are too vulnerable for this treatment, but babies can receive soft massage without problems. High energy manipulations are known to have side effects, but this is not the focus of this study.

3. Damage to the body if the therapist are unaware of illnesses, fractures etc

It should be well known to all therapists that free airways is a necessity for survival, but one patient suffocated by accident in attachment therapy [160]. Relaxation training was also found to be harmful in one study [161].

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4. Suicide and suicide attempts

The literature did not have any cases where suicide or suicide attempts was provoked by bodywork.

Bodypsychotherapy (Psychotherapy and bodywork combined e.g.. in manual sexology (sexological examination), clinical holistic medicine (CHM) and holotropic breath work)

1. Brief reactive psychosis

We found no records of this kind of psychosis provoked by the combination of psychotherapy and bodywork, nor by holistic sexology, including the sexological examination, clinical holistic medicine, including the most provocative exercises with physical and sexual violation [2,10-16,85-90,162]. Holistic medicine, mind-body medicine, and bodypsychotherapy have not been reported to provoke brief reactive psychosis in spite of over 4,000 patients treated [162,163], but it was documented in treatments with LSD-25 (NNH=556) [164]. We do not believe that psychotherapy and bodywork combined is more provocative than psychotherapy or bodywork alone, as the therapy normally will switch from one kind of therapy to the other, thus giving the estimate of NNH>65,000. Data from the treatment of 18.000 patients in Denmark, Sweden, Great Britain and Germany [85-90,162,163] has documented mind-body medicine (clinical holistic medicine) to be without side effects at all. One psychiatric patient in mind-body medicine in Sweden had an episode similar to a brief reactive psychosis, but this was explainable from her mental disorder [162]. We therefore choose to give the empirically found number NNH>18.000 for side effects. For holistic manual sexology we only have data from the treatment of 500 patients, neither of which had a short reactive psychosis or other significant side effects; we have thus empirically found NNH>500 for holistic manual sexology [32]. As we only have data from one study in holistic sexology (vaginal acupressure) [90] and from personal communication with a general practitioner with experience from 25 patients without any side effects [165], but genital physiotherapy has been tested in over 50 RCTs including over 1,000 patients without side effects [see 3 for a review]. We thus estimate NNH>1,000 for pelvic physiotherapy and manual sexology. If we had sufficient data to estimate the true number, we would expect NNH>65,000 for the above mentioned treatments.

2. Implanted memories and implanted philosophy

We believe that implanted memories and implanted philosophy can cause some side effects also in holistic therapy, but the existing studies indicated that this is rare and clinical holistic medicine has a strategy to prevent this [166]. It is important to notice that Freud found that women with a strong Oedipus complex very often would remember to be abused by their father sexually, when their childhood was investigated for sexual traumas [167, page 419]. Most often the dissolution of the Oedipus complex [168] will also reframe the interpretation of what happened and often it turned out to be the girl's own strong sexual fantasies of seducing her father, that needs to be integrated in order to to heal and implanted memories should be seen as a part of the healing process.

3. Developmental crises

Crises are seen [169], but judged form the literature they are mostly lasting less than 24 hours and when supported during this period of no danger to the patient or others [99]. It is important not to confuse developmental crises with brief reactive psychosis, as developmental crises are taking the patient back to difficult times early in life that needs to be integrated.

4. Suicide

Sometimes, although rarely, mentally patients did commit suicide during psychotherapeutic treatment caused by their mental illness not their therapy [137]. Holistic medicine recognizes the presuicidal syndrome [170], and has been shown to prevent suicides even in patients that already had decided to commit suicide before entering therapy [162]. In comparison, psychiatric treatment with drugs is known to provoke suicide in 2% in the beginning of treatment [171].

Non-drug therapy with side effects: Behavioural therapy and ECT

One exception from the rule that non-drug therapy has no side effects was reports of severe side effects following behavioural therapy [172], especially when used for treatment of anorexia [173]. Noncontingent reinforcement has negative side effects, when used for severe behaviour problems [174]. ECT (electro convulsive treatment) is known to have many severe side effects, but no structural damage was found [175]. We recommend that behavioural therapy and ECT be used only, when all other relevant interventions have failed.

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Discussion

Side effects from regression

Regression is an important healing element in many different therapeutic systems like Gestalt therapy, using “reparenting” [176]. Some therapists have thought that regression could be malignant [177,178], while many more believed regression to be the golden path to healing [172-198]. Regression is known to be an important part of pre-modern cultural rituals of transition, and some scientists has found regression possible back to birth, the womb, and even earlier lives. We searched for “regression” in PsycINFO or "regression-defence-mechanism" resulting in 786 records, but actual cases of documented harm inflicted by regression was extremely rare (see [177]). Regression is a well-known defence mechanism making it even less likely to be dangerous [199-201]. It is well known that regression is induced by all processes that enhances mind, including dreams [202,203] and hallucinogenic drugs [204-217] and that the experience most often is unpleasant though healing. It seems to be an important part of all creative and religious processes [218]. Most interestingly, touching and physical holding seems to be an important need for patients in regression in order to heal from traumatic experiences [3-8,219].

Experiences from LSD-25, mescaline-, and MDMA-psychotherapy

The healing rituals of premodern cultures using Ayahuasca, ibogaine, psilosybin, mescaline and Peyote [220-223] have been mimiced by contemporary therapists using it for LSD- and MDMA (Ecstacy) psychotherapy. After public concern in the Western World about their popularity among young people, these drugs were criminalized in the 1960s and 1970s [224], in spite of several thousand scientific publications including more than 30,000 patients documenting both their safety and usefulness in therapy [see 225 for a review]. In spite of the legal scene these hallucinogenic drugs are today used by a large fraction of young people in many developed countries, and this use have only rarely been associated with negative side effects like brief reactive psychoses and induced new, chronic mental illnesses are almost never seen indicating a NNH>1,000,000 doses for unsupervised, recreative use.. Research has identified “acute adverse reactions” to such drugs [226-229], panic disorder [230], neuroleptic malignant syndrome [231], but research in LSD-psychotherapy has documented that the serious side effects are in fact extremely rare and mild side effects, mostly flash-backs [232,233], mania [234] and intellectual disorientation [205] are only temporary. A number of anecdotal, serious cases are being referred by the media, like people on LSD jumping out of the window and killing themselves by accident, because they

believed they could fly, but such reports are rare in the medical literature [195-216]. Even the most critical research like Cohen [163] found after analysing 5,000 LSD and mescaline subjects (healthy subjects) who received the drugs 25,000 times (LSD dose 25-1,500 micrograms) with no suicide attempts but rare, brief reactive psychosis (NNH=1,250); in patients he found both brief reactive psychosis (NNH=556), suicide attempts (NNH=833), and suicide (NNH=2,500). Many researchers did not find LSD to cause suicide attempts at all but believed LSD actually prevented mentally ill patient's suicide in stead. As we need to be conservative in our estimate we accept the figures, which we believe also goes for the native rituals with Ayahuasca, ibogaine, psilosybin, mescaline and Peyote (sides effect/session), in spite of the literature almost never mentioning side effects of native rituals. The hallucinogen drugs have a bad reputation among the public because of stories told by the media about induced suicide, but the research document them actually to be very safe, especially when used in therapy or in native rituals.

Neither has therapy with Ecstasy (MDMA) [235] been associated with the many serious side effects that the media convey. MDMA might be associated with as tendency to cause dependency [236], but insufficient data makes this conclusion not yet final. Judged from the rarity of severe side effects due to common recreational use we estimate NNH>100,000.

Holotropic breath work developed by Grof from LSD-psychotherapy are today practiced by hundreds of therapists in Denmark alone, and does seemingly not have side effects [33]. Intensive therapy with regression to the womb can be done without LSD in holistic breath work [33], hypnosis, or clinical holistic therapy [237,238] and other methods [185-192], but this is seemingly not connected with significant side effects.

CAM or biomedicine?

If the true NNH-number of psychotherapy, bodywork, manual sexology, CAM and holistic therapy is 1,000, 10,000 or 100,000 are impossible to tell for sure from the existing data. Side effects of psychotherapy and bodywork simply have not been a concern in most studies, obviously because everybody already considered it harmless. And harmless it is, at least compared to the massive occurrence of the severe and all-too-common negative side effects we find associated with drugs and surgery. When drug and non-drug treatment has been compared, e.g. for the mental illness [239-241], non-drug therapy has often been more efficient. Compared to the likelihood of having significant side effects with psychopharmacologic drugs (NNH=2) [242] the likelihood of significant side effects with the traditional methods are insignificantly small. High efficacy and no

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side effects of non-drug therapy make us strongly recommend *always trying a drug-free treatment alternative first*.

Conclusions

It is strange that medical experts sometimes give the public the impression that the traditional medical methods inherited from Hippocrates and his students are dangerous and thus obsolete, while the modern methods are safe and working much better. From the present analysis, quite the opposite seems to be the case.

We have documented that all kinds of non-drug medicine – bodywork, psychotherapy, mind-body medicine, body-psychotherapy, clinical holistic medicine and sexology – are completely safe and without side effects including adverse events. We know already that it is extremely cost-effective [243]. We believe there are useful pharmacological cures for some specific diseases like penicillin for syphilis, where CAM is not very useful, but there are non-drug CAM cures for many diseases and health problems known to man. Almost all pharmaceutical drugs have some severe side effects and adverse events; if there is an effective non-drug treatment for a physical, mental, or sexual health problem – which there is in most cases [2-5, see also 244-246] - this treatment should always be treatment of choice.

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