



Towards non-reductionistic medical anthropology, medical education and practitioner–patient-interaction: The example of Anthroposophic Medicine

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ABSTRACT

Objective: To develop the hypothesis that reductionism in medical anthropology, professional education and health care influences empathy development, communication and patient satisfaction.

Method: We identified relevant literature and reviewed the material in a structured essay. We reflected our hypothesis by applying it to Anthroposophic Medicine (AM), an example of holistic theory and practice.

Results: Reductionism in medical anthropology such as in conventional medicine seems to lead to a less empathetic and less communicative health care culture than holism such as in CAM disciplines. However, reductionism can be transformed into a systemic, multi-perspective holistic view, when the emergent properties of the physical, living, psychic, spiritual and social levels of human existence and the causal relations between them are more carefully accounted for in epistemology, medical anthropology and professional education. This is shown by the example of AM and its possible benefits for communication with and satisfaction of patients.

Conclusion: A non-reductionistic understanding of the human being may improve communication with patients and enhance patient benefit and satisfaction.

Practice implications: Interdisciplinary qualitative and quantitative studies are warranted to test this hypothesis and to understand the complex relations between epistemology, medical anthropology, education, health care delivery and benefit for patients.

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1. Introduction

Academic medicine is characterized by a peculiar paradox. On the one hand the scientific achievements since the 19th and 20th centuries are unparalleled in history. On the other hand, patients are increasingly dissatisfied: conventional medicine (CON) is often experienced as too reductionistic, with a predominant focus on physical, technical and statistical aspects of disease and treatment and a neglect of psycho-social and existential issues and individual patients needs [1,2]; and more holistic, humanistic and individualized forms of medicine are called for by patients [3,4]. Empirical evidence suggests that this is a main reason for the increasing popularity of complementary and alternative medicine (CAM) [5,6]. Patients usually seek CAM not because they do not esteem the merits of CON, but because they miss certain aspects in it that they expect from CAM. This includes a more empathetic

practitioner–patient relationship, a better consideration of individual needs, more participation in decision making, more comprehensive or holistic strategies and a better inclusion of psycho-social and spiritual needs [7]. Indeed, medical CAM practitioners may have a more intrinsic motivation and a more holistic philosophy than CON practitioners [8], resulting in comparatively more satisfaction of their patients [9]. Therefore we ask if a more holistic philosophy in medical anthropology and professional education may improve communication with patients, the development of empathy, and in this way positively influence patient satisfaction.

2. Method

We identified relevant literature for the topic, reviewed the material in a structured essay, and reflected our basic hypothesis by applying it to the example of Anthroposophic Medicine (AM), known for its holism in medical anthropology and education. Section 3.1 examines the relation between reductionism and the perceived loss of humanness in health care; Section 3.2 relates medical anthropology to education; Section 3.3 proposes a basis for a non-reductionistic view; Sections 3.4 and 3.5 exemplify this

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with AM and its didactic principles; and Section 3.6 reviews evidence for its possible effects on patient satisfaction.

3. Results

3.1. The problem of reductionism in medical anthropology

In 2002 the Swiss Academy for Medical Sciences published the results of a representative survey on the expectations of the Swiss population for the future of health care. 69% of the citizens wished more humanism, 58% more CAM, 27% more family medicine, and only 21% more high tech. Holism was one of the main desired attributes of future health care [10]. The perceived lack of humanistic qualities is increasingly acknowledged as a major problem in modern medicine: “patients are frequently unhappy with medical care because physicians fail to demonstrate humanistic qualities” [11]. Based on empirical evidence that CON is often experienced as too reductionistic [5–10], this development can be interpreted as natural consequence of the reductionistic paradigms in medicine, already well expressed in 1842 by Du-Bois Reymond: “Brücke and I we have sworn to ourselves to enforce the truth that no other forces are acting in the organism than the plain physicochemical ones” [12]. Since then the concentration of research on the elucidation of physicochemical structures and functions has resulted in the enormous progress of modern medicine, but also in the reductionistic conception of medical anthropology. The more it became clear that the phenomena of life and consciousness all *depend* on specific genetic, biochemical, or neurophysiologic processes, the more one believed that they are *caused* by them. The organism is essentially seen as an “intelligent robot of the gene pool” [13], the brain as an “engine of reason” [14], the human mind as a “virtual actor” caused by brain processes [15] or a “cultural construct” [16], but certainly not as a real self-active entity, and freedom of the human will is declared an illusion. In other words, what is subjectively experienced by human individuals as belonging to their human *reality* and what also used to constitute the “humanness” of persons in classical anthropology has been abolished from science or delegated to personal belief systems or philosophies. Consequently, the main focus of medical theory, education and practice lies on the physical issues of medicine, with a corresponding neglect of the more humanistic sides of health care. It is understandable that this can be experienced as a lack of humanism by patients, and that more holistic approaches which include such aspects might be felt to remedy this lack.

3.2. Medical anthropology and professional education

Reductionism has profoundly influenced professional education. The core curriculum is almost exclusively built upon the physical and biological sciences, with a corresponding neglect of psycho-social and existential human issues. The humanities are usually left to the role of add-ons and not acknowledged as an integrated part of the “proper” and “scientific” curriculum [17]. In consequence, medical anthropology is overwhelmingly based on physical and biological concepts.

But the basic understanding of the human being conveyed during education cannot remain without influence on the shaping of conceptions, inner attitudes, professional conduct and concrete actions in health care. Thus it is not surprising that the development of empathy as a competence of future physicians appears to be stunted instead of fostered through our present science based medical training [17,18].

At present, the awareness for this problem seems to be growing. As Halperin recently wrote: “Immersion in science is a necessary part of medical education but not sufficient. Courses in the history

of medicine, the medical narrative in literature, bioethics, medicine and art, and spirituality and medicine will train physicians who will temper technological medicine with a humanistic touch” [11]. For similar reasons “patient-centeredness” has become an important desideratum of good medicine. This necessitates the deliberate cultivation of qualities such as “compassion, empathy, and responsiveness to the needs, values, and expressed preferences of the individual patient” [19].

However, it will not be sufficient to “temper technological medicine with a humanistic touch” by *just adding* humanities to science (which by itself would be an enormous, necessary and highly welcome achievement, of course!). *Science itself* will have to immerse more deeply into the central question of any form of humanism: what constitutes a human being? How, for example, can “holism” be developed, if the “whole” is held to be nothing but the result of its interacting parts, with no ontological value or causal role by itself? How can the “psyche” or the “spiritual” be considered ontologically real if “no other forces are acting in the organism than the plain physico-chemical ones” [12]? How can the human individual become a main focus of patient-centeredness, if ontologically the “individual” or “person” is only seen at the level of biological markers, genetics and molecular biology such as in “personalized medicine”? In his Lancet essay of 2000 John Martin stated: “Perhaps the great problem of the next 100 years in biology will be to understand what makes the human being a human being” [20]. But to understand the human being comprehensively, it will be necessary to go beyond physical sciences and biology.

3.3. “Emergence”, an optional basis for a non-reductionistic medical anthropology

From a factual and epistemological point of view this seems possible when considering the well-known fact of emergence in the systemic build-up of inorganic, organic and human nature. “Emergence” is an expression for the phenomenon that the properties of hierarchically higher levels of a self-organizing complex system are completely new (“emergent”) with respect to the properties of lower levels [21]. An example for this is the appearance of specific new properties through the transitions between elementary particles and atoms, atoms and molecules, macromolecules, organelles, cells, cell systems, organs, organ systems, organisms, and super-organisms. Each of these emergent levels has its own and specific properties.

Epistemologically, higher and lower order properties are equivalent: on each level, certain specific phenomena can be observed, e.g. the white and amorphous powder of sodium as well as the stinking gas of chloride on the lower level, and the fairly transparent cubes of salt crystals on the higher one. And all of these phenomena obey to their specific laws, and not to others. Reductionism has hoped that emergent higher-order properties can be deduced from lower order properties (“strong” reductionism). However, the essential point in the systemic built-up of matter is that this is not possible [21]. As to their phenomenological and lawful content, higher order properties *cannot be logically derived* from those of the lower levels; they are only *compatible* with them (“weak” reductionism). For example, the properties of molecules cannot be logically calculated from the first principles of quantum-mechanics; mathematically, the transition between them can only be operationalized by “asymptotic boundary transitions” [22].

This of course limits the “bottom-up” interpretation of reality in reductionism: ontologically, the “whole” is not just the sum of its parts, but a reality in its own right, equivalent to the reality of its conditional parts [23]. The task of science then is not to “reduce” reality to its smallest particles, but to observe the phenomena of each of its levels separately as well as to find the laws according to

which these levels are structured or function [24], and then to study the relations between the levels: “Each hierarchical level requires an autonomous, non-reducible language which should not be eliminated in favour of an empty ‘universal language’. Mutually exclusive complementary descriptions of nature are not only admissible, but they are equally entitled and necessary. That is, science is necessarily pluralistic” [25].

This is not only true for structural forms of emergence as the ones just described, but also for *functional* forms of emergence in nature. “Functional” emergence refers to the transitions between *different categories* of systemic functions such as the four fundamental processes in nature classically discerned by thinkers such as Aristotle [26], Thomas Aquinas [27], Steiner [28], or Hartmann [29]: (1) inorganic or physical processes, (2) organic or life processes, (3) processes of consciousness or “psychic” functions such as sensations, emotions, and thrives, (4) processes of self-consciousness or spiritual activity such as rational thinking, self-control, insight-based actions, and others, that distinguish humans from animals [30].

All these levels possess their own (albeit specifically different) phenomena, laws, and causal factors. Even though the manifestation of higher order properties *depends* on the presence and availability of specific lower ones, they do not have to be *caused* by them (ontological reductionism). On the contrary: in systems with emerging properties there is not only a “bottom-up” causality originating in the parts, but also a “top-down” causality exerted by the system or emergent “whole” *upon* its parts [31]. Ontologically, this means that the laws operating at the higher systemic levels can be viewed as causally active principles themselves. Philosophically, this can be expressed by the Aristotelian concepts of “formative cause” or “final cause”, as for example in teleonomic organic system processes such as in embryology or wound healing or in conscious and unconscious intentional psychic actions [32]. In this view, substances and processes of lower systemic levels eliciting manifestations of structures or functions on higher systemic levels (e.g. a cytokine inducing specific holistic reactions of a lymphocyte, or caffeine allowing for a better concentration in thinking) are certainly causative, too, but not in a mechanical “bottom-up”-way as a “material cause” or “efficient cause” (in the sense of Aristotle), but only as the necessary material or energy *condition* that elicits the *self-activity* of specific higher-order formative or final causes [28,31]. This view is compatible with what Goldstein more generally called the “supervenience” or *downward-causation* of complex self-organizing systems [33]. In this view, “self-organization” and wholeness in nature is not caused by self-activity of parts, but by self-activity of “wholes”, *under the condition of and in* such parts [34].

3.4. Anthroposophic Medicine, an example of non-reductionistic medical anthropology and health care culture

This conception of emergence and self-organization has substantial consequences for medical anthropology and health care, as can be seen by the example of Anthroposophic Medicine (AM). AM is an occidental form of integrative medicine that has been developed since the 1920s [28], practiced on all continents, but mostly in Europe. It is based on a rational form of holism which is compatible with conventional medicine and forms an extension thereof [35]. AM is well integrated in CON in Central European countries, especially in Germany and Switzerland. It is practiced by conventionally trained physicians with additional training in AM. In Switzerland the certification for AM is acknowledged by the Swiss Medical Association. In Germany, Switzerland, Sweden, The Netherlands, England, and Brazil there are about 20 public or private hospitals which offer AM, all with a regular conventional basis, and most of them as part of the public healthcare system,

reimbursed by the official health insurance system and accredited for the official postgraduate training of physicians. AM is represented with academic chairs and departments at the medical faculties of the Universities of Bern, Switzerland, and Witten/Herdecke, Germany; and research as well as optional courses in AM are carried out at several other universities. A comprehensive health technology assessment report on AM has been published within the framework of the Swiss National Program for the Evaluation of Complementary Medicine in 2005 [12,36], with an update in 2009 [37].

AM is essentially based on a differentiated holistic approach to medicine and health care that accounts for the emergent physical, organic, psychic and spiritual levels of the human being as described above. Steiner worked out an epistemology and methodology that describes how empirical cognition can differentially account for inorganic, organic, psychological and spiritual phenomena, resulting in a comprehensive approach to the “humanness” in human nature (“Anthroposophy”) [24,38,39]. On this basis, Steiner and the physician Ita Wegman had outlined a medical anthropology in which health and disease are not seen as a mere consequence of molecular interactions, but as the result of a harmonious or disharmonious relation of active principles and forces in and between the processes of body, life, soul and spirit in an organ, organ system or the organism as a whole [28]. In practice, natural scientific knowledge about physical functions is complemented by anthroposophic knowledge about the emergent functional levels of life, soul and spirit, aiming at a coherent integrative medical theory and practice called “Anthroposophic Medicine” [35].

Accordingly, AM therapy is addressed at different systemic levels. For example, surgery and radiotherapy are targeted at the physical elimination of tumor tissue, conventional pharmacotherapy or pharmacologically active phytotherapy can be aimed at eliciting processes on different levels (physical, organic, psychic or spiritual), depending on their lawful relations to them. Homeopathically potentized preparations are used to activate life processes, psychological or spiritual forces. Non-pharmacological treatments are also addressed at different systemic levels: physiotherapy to improve physical functions of the musculoskeletal system, therapeutic eurythmy, an anthroposophic mind-body movement concept, is used to exert effects through life processes; psychotherapy or art therapies such as music, painting or modeling affect emotional functions; and cognitive communication strategies are used to support the individuals’ own coping strategies, search for meaning or spiritual resources [35].

AM is intrinsically integrative, its therapy regimens are often multimodal and highly individualized; and its approach to diagnosis and treatment complements the conventional emphasis on the elimination of pathologies by a salutogenetic intention that aims at strengthening the self-active principles at the systemic levels in need, e.g. self-defense and self-healing at the organic level or the activation of internal or external resources at the psychological or spiritual levels [35].

3.5. Medical anthropology and education of health care professionals in Anthroposophic Medicine

Such a comprehensive and integrative form of health care necessitates a corresponding professional education. In AM, basic and advanced training programs for health care professionals are available in several countries. This concerns nationally and in part internationally certified programs in Anthroposophic Medicine, pharmacy, nursing, physiotherapy and external applications, rhythmic massage, therapeutic eurythmy, art therapy (music, painting, sculpture, and recitation), psychotherapy, curative education and social therapy [40]. In Switzerland the certificate

for AM physicians is acknowledged by the Swiss Federation of Physicians [41].

As are other CAM disciplines, AM is gradually becoming part of optional CAM courses for interested students at medical schools in some countries. At a number of universities in Germany, Switzerland and The Netherlands, elective courses in AM are available for medical students; and student clerkships in anthroposophic hospitals are acknowledged within the curricula. At the medical faculties of Bern, Switzerland, and Witten/Herdecke, Germany, chairs for complementary and integrative medicine are installed that include AM [42,43]; and at Witten/Herdecke University an optional track in medical education offering an Integrated Curriculum for Anthroposophic Medicine (ICURAM) within the basic curriculum throughout the six years of medical school as well as a Clinical Education Ward (CEW) in integrative and AM are available. In ICURAM, about 20% of students take part regularly, and up to 60% visit singular courses [44].

These training programs are characterized by didactic methods that specifically account for the comprehensive approach of AM. Among others, this includes basic courses and exercises in epistemology and holistic or multi-perspective thinking [45], a systematic introduction into the basic concepts of integrative and Anthroposophic Medicine and treatment [34,35], and systematic experiential exercises in arts such as sculpture, music, recitation, and eurythmy [46,47]. For example, clay modeling of anatomical or other organic forms and their metamorphoses is used to systematically train the ability to form, to feel and conceptualize holistic three dimensional organic forms and their metamorphoses such as in physiological or pathological growth processes; music exercises are applied to train the awareness for differentiated expressions of soul functions; and exercises with speech and poetry recitation serve to experience expressions of the human spirit [46]. Such basic exercises intend to lay a theoretical and experiential basis for an exact and careful attention to phenomena on different emergent levels of the human being as a whole and thus for attentive and comprehensive communication with patients, a prerequisite for the professional development of empathy.

Such basic exercises are continued with a practical training in a direct encounter with patients. On the CEW at Witten/Herdecke University for example, the concrete and differentiated perception of facts and symptoms relating to the physical, organic, psychological, spiritual and social aspects of pathological processes, their integration into a comprehensive picture and diagnosis, and the rational deduction of an integrative and individualized therapy plan are systematically trained in bedside teaching and clinical case presentations.

In line with the basic concept of the human self as a self-active entity with its potential for inner autonomy and personal development, a central feature of the didactic concepts in the education of anthroposophic health care professionals is an emphasis on self-directed learning and self-development. In the CEW for example, final year medical students are fully integrated in the clinical team and act as “physicians under supervisions”, taking complete medical care of a reduced number of patients, closely supervised by the physicians who remain still responsible for the patients. Patients are referred to this ward are asked about their willingness to be treated by “student-doctors”. Most of them give their consent [48].

3.6. Possible consequences of education and didactics for health care and patient satisfaction

In view of the often expressed patient dissatisfaction with the one-sided physical and technical focus of modern medicine, the

question arises whether an integrative approach to health care such as in AM and the corresponding educational training can improve patient satisfaction. The existing few studies on this topic suggest that this may indeed be the case. As measured by the Picker Inpatient Questionnaire and compared with two matched pair control groups, satisfaction of the patients on the CEW with the general quality of health care and with the patient–physician relationship (including empathy) was slightly higher than satisfaction of other patients of the same department, and significantly higher than that of patients of internal wards in Germany. The latter difference may be due to the integrative care at Herdecke, whereas the former can be associated with the special chances of student care such as more time spent with patients, high motivation and commitment, careful history taking and physical examination, more inquiry into patients’ psychosocial background, more time for patients and relatives to ask questions, better understanding of illness and consequences, more experience of attentiveness and mindfulness, and higher consideration of patients needs [48].

In a comparative national cross-sectional evaluation of complementary medicine in Switzerland with 1946 patients of 71 conventional and 32 AM primary care physicians, patient satisfaction with AM was significantly higher than with conventional medicine as measured with the Europep questionnaire. This concerns physicians’ qualities such as listening to and spending more time for patients, having interest in their personal situation, making it easy for patients tell the physician about their problems, giving patients information and support, and being thorough. Also, AM patients saw their expectations more often completely fulfilled at follow-up, although these patients were more chronically and more severely ill than those of conventional practices [49].

In a study of the Swiss National Foundation Program for complementary medicine (NFP34) examining the effect of the stationary integrative treatment of multimodal and individualized of anthroposophic hospital on quality of life (QoL) of 144 patients with advanced cancer, significant improvements in global, physical, emotional, cognitive, spiritual and social QoL was achieved. In an open follow-up interview four months after hospitalization patients were asked to judge retrospectively what benefit they had drawn from treatment at the AM hospital, and likewise, from conventional cancer treatment (all of them had also been treated in conventional settings). The results of the qualitative analysis showed subjectively perceived benefits of AM for general health, physical well-being and the tumor situation, for emotional and cognitive-spiritual aspects, and they mentioned the quality of human relations and care. In comparison, benefits from conventional cancer treatment were perceived as focused almost exclusively on the tumor situation and somewhat on emotional aspects such as hope [50].

4. Discussion and conclusion

4.1. Discussion

The popularity of CAM seems in part related to the quest for humanism in medicine. From our reflections it can be hypothesized that a reductionistic understanding of the human being such as in CON leads to a less empathetic and less communicative health care culture than a holistic medical anthropology such as in CAM disciplines. However, the reductionistic paradigm can be transformed into a systemic and holistic view, when the emergent properties of the physical, living (salutogenic), psychic, spiritual and social levels of human existence and the causal relations between them are more carefully accounted for in epistemology,

medical anthropology and professional education. This can be shown by the example of AM.

These considerations suggest that a holistic and integrative approach to health care such as in AM, explicitly accounting for physical, organismic, psychic, spiritual and social aspects in medical theory and practice as well as in professional education, may indeed have beneficial effects on the different emerging levels of the human organization as a whole, and thus contribute to improving communication with and benefit for patients in a more humanistic form, corresponding to frequently expressed patients needs. In view of these needs and the increasing popularity of CAM, it seems important to test the basic tenets of this paper, namely the possible impact of basic conceptions in medical anthropology on education, empathy and communication, health care, patient benefit and patient satisfaction.

This paper intends to develop a hypothesis, based on theoretically and empirically based considerations. However, the evidence base for establishing stringent links between epistemology, medical anthropology, education, health care delivery and satisfying benefit for patients is still too narrow. Moreover, more and other examples for holistic methods might be helpful to corroborate the basic hypotheses.

4.2. Conclusion

An integrative health care culture that is based on a holistic understanding of the human being such as in AM may improve communication with and benefit for patients, but more research is necessary to corroborate, test, and confirm this hypothesis.

4.3. Practice implications

In order to test this hypothesis and to understand the complex relations between epistemology, medical anthropology, education, health care delivery and benefit for patients, well designed interdisciplinary qualitative and quantitative studies are warranted.

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Conflict of interest statement

The authors indicated declare to have no potential conflict of interest.

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