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Transdisciplinary Innovation in Health Care: An Essay

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***Abstract*—** *This article on transdisciplinary innovation in health care aims to address the various factors that might enable to treat the patient in an holistic way (soul, mind, body),* as well as *save on financial resources in medical practice.*

***Keywords*—** *Transdisciplinary innovation in health care, Maximize the quality of the medical services, Save on financial resources in health care, A generic model of integrative medicine.*

I. Introduction

The theme of this article on transdisciplinary innovation in health care aims to succinctly describe the various factors that might contribute to more effectively deal with goal #3, ("Ensure healthy lives and promote well-being for all ages") of the Sustainable Development Goals (SDG) of the United Nations (UN) 2030 Agenda, taking into account the several challenges that might arise in its application.

Thus, transdisciplinary innovation in health care has the purpose to maximize the quality of the medical services provided to the patient, while seeking to save on financial resources in health care. So, some models of integrative medicine have emerged with the purpose of achieving these goals more easily (e.g. McLean, 2017).

Integrative medicine is a medical practice developed in the second half of the XX century in Western culture by Andrew Weil, David Einsenberg, Helene Langevin, among others, and in Eastern culture by Ram Vishwakarma, Tadashi Yano, among others (e.g. Phalen, 2012). For example, in the Eastern culture, the Indian Government (e.g. India (2016-2017) has created an integrated health care system that combines the practices of traditional Indian medicine (e.g. Mukhopadhyaya, 1999) (abbreviated by AYUSH) with the practices of conventional medicine (e.g. Ross, 2009). Furthermore, in the Western culture, the Samueli Institute has done reports that show that in the United States there has been an increase in the number of hospitals that use the practices of conventional medicine together with the practices of traditional medicine (Ayurveda and traditional Chinese medicine) (e.g. Bellanti and Boyd and Khorsan et al, 2016).

II. Methods

For this article on transdisciplinary innovation in health care, I collected and analyzed the main scientific books and technical articles that are available in academic libraries, on this subject. Thus, I selected the 30 most appropriate references on this topic in order to be useful to the reader who aims to have just an idea of this subject, but maintaining the scientific rigor of my research.

III. Results and Discussion

In this section, I will present the results and the most relevant aspects of my research work on the transdisciplinary innovation in health care.

A. Transdisciplinary innovation in health care: Part I

The World Health Organization (e.g. WHO, 1946) said that "*health is the complete state of physical, mental social well-being and not merely the absence of disease or infirmity*". So, the medical practical should treat the various dimensions of the patient, namely, the physical (through conventional curative medicine), psychological (through complementary preventive medicine) and quality of life (through social and spiritual programs). Thus, the transdisciplinary innovation in health care has sought to find models of medicine that might deal with these various dimensions of the human being. In this regard, I have to mention that one of the advantages of the models of integrative medicine applied to health care (e.g. Snyderman and Weil, 2002) is that they might allow maximize the quality of the medical services rendered to the patient. For example, a benefit of transdisciplinary innovation in health care is the strengthening of the physician-patient relationship because the factors between health, spirituality and quality of life are taken into account in the process of diagnosis and treatment (e.g. Panzini and Bandeira, 2007). In fact, there are some researches on this area of health care that suggest that this kind of transdisciplinary approach might reduce the patient´s convalescence time or give him dignity in a terminal phase of life (e.g. Koenig and Rosmarin, 2012).

However, some patients self-diagnose and self-medicate through the internet (the well-known "Dr. Google") (e.g. Anglin, 2018), usually due to financial or logistical issues, replacing the preferential physician-patient contact (e.g. Groopman, 2008).

Furthermore, transdisciplinary innovation in health care also aims to find the most appropriate methods of diagnosis and treatment proposed by conventional medicine (curative medicine) and traditional medicine (preventive medicine) - Ayurveda and Traditional Chinese Medicine - in order to allow the construction of a model in integrative medicine (e.g. Martins, 2019).

In this regard, I have to mention that the methods of diagnosis in Ayurveda and conventional medicine are very

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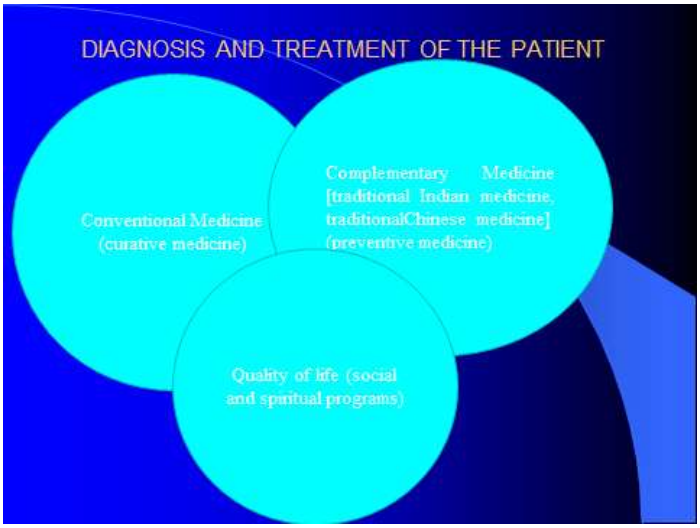
different between them. For example, Ayurveda makes the examination of the patient's mental and emotional pattern in order to interconnect it with the illness of the body. For this the physician makes the "examination of the eight bases of the body" (referred to as "doshas") – the patient´s pulse, urine, faeces, tongue, eyes, general appearance, voice, skin (e.g. Lad, 2007). For its part, conventional medicine uses almost exclusively "scientific methods" of diagnosis, such as, tests (urine, blood), X-rays, CTA&MRI scan, ecographies (e.g. AMA, 2004) and "data science" (computational cross-referencing of the patient´s clinical data).

On the other hand, I have to refer that the methods of treatment in Ayurveda and conventional medicine are also very different between them. For example, in Ayurveda the mind plays an important role in the process of self-healing (through positive motivation, meditation) interconnected with a healthy body (through massage) and a right diet (through the reduction of tobacco, alcohol, refined sugar), supplemented by herbal medicine (e.g. Lad, 2012). For its part, conventional medicine has as its main target the exclusive healing of the patient´s body through surgery, radiation (e.g. AMA, 2004) complemented by chemical drugs. It also uses "scientific methods" of treatment, such as nanotechnologies (for specific treatments for the destruction of diseased cells), artificial intelligence (for complex robotic surgeries) and biological engineering (for replacement of parts of the diseased body by laboratory-created organs) (e.g. IFMBE, 1963-2018).

B. Transdisciplinary innovation in health care: Part II

Another important aspect on transdisciplinary innovation in health care is to be able to save on financial resources in health care through the motto: "*Infinite needs versus finite resources*" (e.g. Kissick, 1994). For example, the Wellcome Trust (U.K.) (e.g. Simons, 1993) and Bill&Melinda Gates Foundation (U.S.A.) (e.g. Gates, 2019) support the idea that the connection between science (medicine, education) and the humanities (psychology, philosophy) might introduce a model in medical care more adjusted to the needs of contemporary society (e.g. Weil, 2017). For example, the "Urbact" Program (e.g. EU, 2019) seeks to promote physical and mental health through the practice of sport in the urban centers of various countries while allowing different cultures to be incorporated into society. Furthermore, the transdisciplinary innovation in health care also supports the "Choosing Wisely" Program (e.g. SMS, 2012) that seeks to minimize waste in medical care (excess revenues from allopathic medication, unnecessary exams and surgeries, etc). In fact, the Health Regulatory Authority (e.g. ERS, 2018) claims that the Portuguese National Health System (NHS) could save many euros per year, if it increase the efficiency in the management of financial resources of Government for medical health care which is a key factor for contemporary society due to the increase in the life expectancy of the population. However, the implementation of the innovative transdisciplinary aspects in health care system might face some challenges because some companies (pharmaceutical and health insurers) might not support the medical practices defended by the models of integrative medicine (e.g. Maizes and Koffler and Fleishman, 2002).

IV. Scheme of a Generic Model of Integrative Medicine



V. Conclusions

Transdisciplinary innovation in health care is an area of research that requires a more in-depth study, namely in the search for a new model of integrative medicine (generally described in section IV) (e.g. Otani and de Barros, 2011) that might fit the needs of contemporary society and therefore for goal #3 of the SDG of the UN 2030 Agenda. For example, a model of integrative medicine that might link conventional medicine practices with traditional medical practices (Ayurveda, traditional Chinese medicine) could provide a cheaper and more effective aid (without so many side effects) in primary health care (e.g. Templeman, 2011). In fact, the use of some complementary methods of Eastern medicine which are less invasive (meditation, Yoga, proper nutrition), non-toxic, cheaper might allow the patient to recover faster and save on health insurance (e.g. Médis, 2019), although I will have to investigate whether some benefits of traditional medicine are due to placebo effect, such as homeopathic medication. It´s also necessary to investigate the benefits of allopathic medicines in relation to their side effects, and which continue to be prescribed by conventional medicine.

In fact, the paradigm of conventional medicine, based on the «Cartesian Paradigm» of separation of mind (exclusive domain of Philosophy, Religion) with the body (domain of Science, Medicine) (e.g. Martins, 2018), in which the body is treated as a "machine", does not explain certain clinical occurrences, such as "spontaneous" cures (e.g. Martins, 2019a)), for which the models of integrative medicine fit in a more appropriate way.

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