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Review

Research methods in complementary and alternative medicine: an integrative review

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ABSTRACT

The scientific literature presents a modest amount of evidence in the use of complementary and alternative medicine (CAM). On the other hand, in practice, relevant results are common. The debates among CAM practitioners about the quality and execution of scientific research are important. Therefore, the aim of this review is to gather, synthesize and describe the differentiated methodological models that encompass the complexity of therapeutic interventions. The process of bringing evidence-based medicine into clinical practice in CAM is essential for the growth and strengthening of complementary medicines worldwide.

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1. Introduction

Complementary and alternative medicine (CAM) encompasses several millennia of therapeutic systems such as Ayurvedic medicine and traditional Chinese medicine (TCM), as well as contemporary systems like anthroposophical medicine, naturopathic medicine, chiropractic medicine and homeopathy. CAM is usually associated with specific medical systems that include a form of diagnosis and a treatment within their own specific rationale [1]. These medical systems hold an individualized and essentially not reductionist approach in both diagnosis and in treatment; this is exemplified in a complex nonlinear intervention that operates both in independent and in interdependent forms [2–7].

In the year 2000, with the emergence of evidence-based medicine (EBM), which states that clinical practice should follow an assessment of the best evidence possible, the need for scientific data in the health field has increased [8]. This movement generated debate among CAM practitioners, as the complexity of the interventions leads to difficulty in collecting standardized data [9,10]. This issue was shared among professionals and researchers who concluded that research into these systems was necessary [11].

Alternative methods in the field of clinical research in health were sought, and some differentiated methodological directives were defined, such as whole systems research (WSR) [12] and nonlinear dynamics system (NLDS) [13]. Under these directives, the researchers investigate not only the chain of interactions but also systems dynamics, focusing on change and/or movement in patterns [14] and verifying that in nonlinear systems the macroscopic level has a perspective that derives from multidimensional interactions [15].

Thus, it must be stressed that although conventional research methods have their function and are very well established, the WSR needs further attention. This integrative review of the literature allowed for systematic data collection with the goal of improving the understanding of WSR and similar methodologic models.

2. Methods

Structured integrative review of the literature [16] was carried out between June 2015 and July 2016. This research aimed at gathering, describing and synthesizing the differentiated methodological models in the CAM field. Three data bases were used: PubMed, Lilacs and Embase, along with the indexing tool of Academic Google, and articles in English, Spanish, German and Portuguese were included. The search strategy displayed relevant articles published between 1986 and 2016 (up to July 2016). There was no period restriction, so the largest possible number of publications might be included in this review. A specific search strategy based on the concept descriptors was used for each of the databases, as well as a manual complementary search of references.

The search strategy used for PubMed was ((((((“Comparative effectiveness research”[Mesh]) OR “Outcome assessment (health

care)”[Mesh]) OR “Nonlinear dynamics”[Mesh]) OR “Evaluation studies”[Publication Type]) OR “Whole system research”)) AND (((“Complementary therapies”[Mesh]) AND (“Methods”[Mesh])). All the descriptors used with the three databases are listed below (Table 1).

Publications that were included in the review presented: (1) theoretical basis that included investigations, analysis, discussions, proposals or declarations about research in CAM; (2) description of methodology (for clinical trials); (3) priorities or priority definition for research in CAM, in the format of published articles and/or books. All publications included were part of the analysis of a complete text.

The eligibility of publications was also examined regarding the exclusion criteria. These criteria were: (1) presenting only one case study or a summary; (2) reporting mainly a specific study project or assessment tool.

No article evaluation scale was used to test the quality of the publications that were included. This allowed opinion articles, letters, editorials, and debates to be included in the review whenever they presented a relevant content concerning methodologies in CAM therapies.

The document selection was first carried out according to their title. Next, a previous reading of the abstracts was performed to verify the eligibility criteria. Whenever these abstracts were not clarifying, the articles were read in full. The selection of original papers was mainly favored, but opinion articles were also included when a contribution to the theme was found. Then, all the articles meeting the criteria were read, and the descriptive process of the gathered material was started. The data related to this phase are displayed in Table 2. Duplicated articles were excluded.

Two researchers were in charge of evaluating the relevance of titles and abstracts obtained through electronic search and the selection criteria were applied independently for each of the potentially relevant studies. Then, the title and abstract of the publication were discussed until an agreement about whether or not to include it was reached.

3. Results

The literature survey initially identified 2588 documents. After applying eligibility criteria analysis 101 documents were included in the qualitative synthesis (Fig. 1).

Two categories of publications, study designs and result analysis systems were found [12–54]. Their characteristics are described in Table 2 since they provide methodological possibilities for research on CAM therapies.

3.1. Important methodological alternatives

3.1.1. Whole system research, mixed methods and outcome study

One of the main criticisms of integral treatment systems within conventional research on clinical conduct complete packages has

Table 1
Descriptors used in the databases consulted.

Research descriptor	Complementary and alternative medicine descriptor	Method descriptor
Whole system research	Complementary	Methodology
Nonlinear system	Integrative and complementary practices	Methods
Nonlinear dynamics	Medicine, alternative	Procedures, parameters and devices
Comparative effectiveness	Complementary medicine	
Outcome assessment	Medicine, complementary	
Outcomes research	Alternative medicine	
Evaluation study	Alternative therapies	
	Complementary and integrative health practices	
	Integrative and complementary health practices	
	Integrative and complementary medicine	

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