

The Age of Evidence-Based Physiotherapy: the awakening of a new way of being a physiotherapist

A era da Fisioterapia Baseada em Evidências: o despertar de uma nova forma de ser fisioterapeuta

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Have you ever undergone these attention tests available on the Internet? In one, the command is to count how many times three boys pass a soccer ball (hand to hand) to each other. Focused on looking at how many times this happens, most people (including us) do not realize that a chemical toilet in the background disappears little by little! Guided by the given command, the tendency is to focus on the proposed activity and forget about everything else. The consequence is the misinterpretation of reality and a tendency to make bad choices.

What does this have to do with physiotherapy? In their profession, physiotherapists will be exposed daily to lot of information and many stimuli. As it was seen in the previous example, it is possible for this therapist to value some reports, signs, or symptoms to the detriment of others, which may impair their clinical decision-making. It is important to stress that this conclusion is not a question of opinion. Daniel Kahneman devoted part of his life to demonstrating how the human mind alone is bad at making rational decisions,

which even earned him the Nobel Prize for Economics in 2002.

In order to overcome these setbacks, many strategies were and are still being used (Chart 1). Nevertheless, they all carry high speculative content and great possibility to produce skewed results. To avoid these misconceptions, clinicians need to rely on quality scientific research that produces results with less uncertainty and increases the chance of success. It is in this context that Evidence-Based Physiotherapy (EBP) emerged. It all began in 1990 when Gordon Guyatt of McMaster University coined the term Evidence-Based Medicine (EBM). Advancing a little more in time, in 1992, the first working group on EBM was created, in which one of the first aims was to publish the article "Evidence-based medicine: a new approach to teaching the practice of medicine"¹. The international dissemination of the content of this paper and others that followed gives notoriety to this concept, in parts, opening the way to its consolidation that lasted until the present day.

Chart 1. Types of physiotherapy

Basis	Features	Phrase
Authority	Clinical decisions are made based on the credentials of third parties and not on their knowledge	"According to "so-and-so", this conduct is effective"
Ignorance	Unknown information is severely disqualified because considering it exposes a poverty of veiled knowledge	"If I do not know, it does not exist"
Hope	The lack of study/knowledge causes a disconcerting uncertainty, leaving only hope that everything ends well	"It has no evidence, but in my practice it works"
Article	In order to validate a personal belief, one begins in search of the first article that confirms it. In these cases, there is a strong tendency to institute a tyranny of evidence	"It will work, I read in an article that..."
Dogma	Upgrading is something that gives work. It is for this reason that, seeking comfort, some choose to outsource knowledge and come to believe in definitions/concepts without question	"But I always did it that way"
Amount	A solid and blind knowledge in scientific and biostatistical methodology can result in the overvaluation of mathematics (quantitative approach) and undervaluation of preferences of individuals (qualitative approach)	"The numbers are sovereign"

Other areas of health quickly understood the relevance of this new model of clinical decision-making and realized that such concepts could be extrapolated to their realities. These initiatives gave rise to the terms Evidence-Based Practice, Evidence-Based Nursing and EBP. Especially in physical therapy, the creation of the Center for Evidence-Based Physiotherapy (CEBP) in 1999 added voice to this debate and fostered discussion on the use of evidence to aid clinical decisions.

The implementation of this new model of clinical decision-making represents a major transformation in the way of thinking of the physiotherapist, and it is not the first time that a profound paradigm shift like this occurred. Physical therapy started with a technical approach and greatly struggled to become a profession. After this conquest, the different areas and limits of clinical performance began to be

organized. More recently, this area of health has been recognized by consumers, other professionals, and the society, in general. The new paradigm shift has been characterized by the effectiveness of the EBP ideology, which will naturally face numerous barriers and resistances throughout this process.

Characteristics and challenges of the use of EBP

The knowledge and skills of physical therapists in EBCP are similar to those of other professionals². However, many studies worldwide have focused on the profile of these professionals applying EBCP (see EBP) from the analysis of different parameters, as shown in Chart 2. In addition to being informative, this chart can be useful in cases of interest in mapping the profile of a service, team, or student before planning the employment of EBP in clinical or academic settings.

Chart 2. Evaluation of the EBP profile

Parameters	Information	References
General data	Age, sex, level of professional graduation, weekly working hours, number of patients attended, area and place of experience, type of service, and years of experience	3, 4, 5 and 6
Knowledge and behavior	Place of the training in EBP (graduation, post-graduation, extension courses, or autonomously), learning of contents related to the formulation of the clinical question, and search for evidence and critical evaluation of scientific articles	3, 5, 6, 7 and 8
Opinions and beliefs	Need for EBP in clinical routine, EBP as an instrument in improving the quality of care, importance of scientific evidence for practice/clinical choices, and interest in obtaining more knowledge about EBP	3, 5, 6, 7 and 8
Attitudes and abilities	Accessing scientific databases, using scientific articles for clinical decision-making, reading scientific articles in a month or week, and supporting colleagues in the use of EBP	3, 5, 6, 7 and 8
Barriers and limitations	Lack of research skills, difficulty in understanding statistics, lack of time, lack of employer support, lack of support from colleagues, language of scientific publications, and lack of interest and difficulty in generalizing the scientific evidence to the population served by the professional	3, 4, 5, 6, 7 and 8

Especially in Brazil, there is an important movement of students and professionals supporting this “cause.” What used to be rare in the past is becoming increasingly frequent: lectures, courses, and curricular components of “evidence-based” higher education institutions, as well as blogs and social networking profiles with the same focus. In this way, Brazilian physiotherapy provides indications that it is willing to leave the darkness of dogmatism and walk toward the light of scientific uncertainty. However, as in most construction processes, some obstacles become noticeable during this trajectory. Taking into account the exposed ecosystem (Brazilian), we think that priority should be given to investing time and effort in the following:

1) Promote a real and effective culture change in physiotherapists who already have their professional beliefs, routines of work, and deterministic organization of clinical reasoning established and often with little or no space to “re-study” or update.

2) Organize and expand the teaching of EBP in physical therapy schools. Students are often led to believe that there is a dichotomy between science and clinical practice, which creates an abyss between them that should not exist. Through a solid axis of disciplines that work with scientific thinking, scientific methodology, and biostatistics not only oriented to the elaboration of scientific projects but in an integrated way with professional disciplines and curricular internships, this problem can be solved.

The need for such interventions is expressed in classrooms and free courses, at scientific events and professional meetings, and in simple day-to-day conversations among enthusiasts of good physiotherapeutic practices. Fortunately, these impressions based on experience are already beginning to be discussed and validated by the Brazilian scientific community through research, as shown in Chart 3.

Chart 3. Characteristics of EBP in Brazil

Authors	Target audience	Data collection	Main findings
Queiroz PS and dos Santos MJ, 2013 ⁹	67 physiotherapists from the region of Florianópolis (SC)	<ul style="list-style-type: none"> Demographic data Evidence-Based Practice Questionnaire 	<ul style="list-style-type: none"> Support the use of EBP Trust on your search and evidence assessment skills Is interested in increasing your knowledge in EBP Lack of information, time, and ability to generalize the evidence to its patient population was the main barrier in the use of EBP
Silva TM, Costa LCM and Costa LOP, 2015 ³	256 physiotherapists from the state of São Paulo (SP)	<ul style="list-style-type: none"> Demographic data Questionnaire developed by the authors 	<ul style="list-style-type: none"> Support the use of EBP Trust their knowledge and skills in EBP Access to full articles and use of EBP representing higher cost and language of publications were the main barriers in the use of EBP
Santos PS, Soares NS, Assunção G and Melo TA, 2018 ¹⁰	155 senior students from three private institutions in Salvador (BA)	<ul style="list-style-type: none"> Questionnaire developed by the authors 	<ul style="list-style-type: none"> Most have little or no knowledge about EBP They need to improve their skills in searching for and evaluating evidence

Looking more deeply into the scenario described above, it is evident that many physiotherapists believe in the importance and utility of EBP and recognize its limitations for the practical implementation of this knowledge. Nevertheless, the transition from this deterministic paradigm in Brazilian physiotherapy to a probabilistic one will only be sedimented from a joint task force between all involved actors (professionals, physical therapy schools, clinical services, class entities, and society). The good news is that the first step toward this transformation has already been made by identifying the profile and characteristics of EBP and the main issues that hinder or facilitate its applicability and teaching (see Charts 2 and 3).

Strategies for efficient implementation of ebp

Despite the evident prestige that EBP has been acquiring, it is quite true that it is still difficult to separate legitimate attitudes from mere modism. As a rule, when witnessing a debate on this subject, it is possible to notice clearly the existence of a series

of myths and false interpretations of the philosophy behind the use of evidence in decision-making. This all creates a fertile field for the emergence of “gurus” who sell pseudoscientific information. Anyway, this is the onus of popularizing a concept as rich as it is on the agenda. In contrast, this popularization has increased the confidence of physiotherapists and the support of other professionals in the area and society in general. Consequently, there is an acceptable political and media representation that can facilitate and accelerate the process of change that this new way of thinking represents.

Meanwhile, it seems that it is somewhat difficult to efficiently apply the fundamentals of EBP. Although physiotherapists consider it important and need to improve their knowledge on it, they do not feel responsible or fail to achieve success in their application^{3, 7, 11}. As demonstrated in the work of Scurlock-Evans L et al. in 2014⁷, the implementation strategies of EBP are varied. In Chart 4, the results of this work on the approach and effectiveness of these interventions can be analyzed.

Chart 4. Strategies for EBP implementation

Strategy	Approach	Effectiveness of intervention
Psychosocial management intervention using opinion leaders	Opinion-makers are used as leaders for the dissemination of EBP and a point of support for local physiotherapists	Weak
Formative evaluation project including an EBP work-shop	Training of professionals from classes, exercises, and clinical cases and EBP training	Moderate
Multi-faceted intervention using Knowledge Brokers	Intervention of mixed models using individuals who facilitate the collaborative work and understanding between professionals and managers	Strong
Journal Club	Training focused on the construction of clinical situations, clinical question formulation, search strategies, and critical evaluation of the evidence with the support of facilitators	Strong
Presentation-based initiative to highlight local examples of EBP	Activity that highlights the discussion of the EBP focused on the clinical needs studied	Strong

However, before applying these methodologies, it is important to map the team and/or service in question so that the interventions are focused on “modifiable” factors and demonstrate the practical value of using scientific evidence clinical practice⁷. Taking this into account is important because there are discrepancies between countries with regard to professional training, EBP education, and health system¹².

Looking ahead, an important demand is to expand the geographic coverage of the data presented here and in particular to make them more robust and broad, encompassing the diverse possibilities of implementing EBP. Notwithstanding, perhaps, the most important issue to be resolved is the demonstration of the best cost benefit (not just the financial) in adopting this model.

Final message

While these details are unresolved, it becomes an easy task to understand why currently practiced physical therapy is where it is, away from EBP precepts. To do so, it is enough to analyze what Kahneman wrote: “Jumping to conclusions is efficient if the conclusions are likely to be correct and the costs of an occasional mistake acceptable, and if the jump saves much time and effort”¹³. This type of reasoning is still somewhat palpable among physiotherapists globally because of the following:

(I) Comfort. So as not to “give too much work,” they choose to follow the “cake recipe” learned in college or made available by the service. II) Connivance. To please the demands of patients, anything goes, even when it is known that the procedure is unnecessary. III) Fear. In order to feel more secure, the maximum conduct is made for the same outcome in the hope that “doing more” will generate better results.

Nevertheless, regardless of the setbacks associated with the use of the EBP, physiotherapy currently occupies the highest level ever reached and is in rapid evolution. With strides improving the training of new professionals and the quality of services provided, this should be valued! Therefore, this moment must be used to structure solid foundations that will maintain its expansion. In this way, motivated by this desire and seeking to help in its “materialization,” we leave some final messages in the form of sincere requests:

- To EBP authorities: Disclose the EBP with the respect, seriousness, and honesty it deserves. You have the mission to form new authorities because seclusion will not change the national scenario. Be “willing to be upset” when necessary. It is you who should “give face to face.”
- To professionals: The “new” is scary, we know. You are not the first and you will not be the last to feel this way! During graduation and in the professional life several times, we are bothered when a belief that we had is questioned. To change is difficult (even more so after forming), but humility (admit

ignorance about something) should be your guide, and it is in her that your evolution depends.... Speak "I do not know" more often.

- To students: Their concepts are in formation, to continually approach the precepts of science during undergraduate and not to be afraid to question absolute truths imposed. Physiotherapy should not be a dogmatic profession (based on truths that cannot be questioned), and it is your generation that will allow that to change. You will make Evidence-Based Physiotherapy a reality, so we need you to stay true to that purpose.

Contributions of authors

Both Rabelo DR and Goes BT were responsible for intellectual and critical content and wrote, revised and approved the final version of the manuscript.

Conflicts of interest

No financial, legal or political conflict involving third parties (government, business and private foundations, etc.) was declared for any aspect of the work submitted (including but not limited to grants and funding, advisory board, study design, manuscript preparation, statistical analysis, etc.).

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