

The Flat Earth Theory: is Evidence-Based Physiotherapy a Sphere?

Editorial

2020 A.D.; although there was a solid base under the scientific method to suggest that the Planet Earth was a globe, thousands stoke something impossible to prove: The Flat Earth Theory. Based on this raw theory, self-styled influencers took advantage of media approval. This cognitive tendency to interpret, favor, and recall information in order to strengthen one's personal beliefs, is known as 'confirmation bias' [1]. We aim to point out this continuously propagated bias in physiotherapy clinical practice.

Physiotherapy is one of the most growing professions worldwide, although relatively young compared to other medical and health-care professions [2–4]. We have plenty of examples of how this growth deeply impacts clinical research and therapeutic principles. Physiotherapy is continuously modified based mainly on contexts and trends accepting theoretical paradigms, too often unsupported by solid scientific evidence.

The Physiotherapy Science and Fashion

During the time of COVID-19 health emergency a new approach to patient care has emerged: telerehabilitation. Just before the pandemic, telerehabilitation was just a promising addition to traditional intervention offering a new perspective for selected patients. Comparing apples to oranges, telerehabilitation has rapidly become a new and widely discussed revolutionary discovery contributing to the 'evolution' of our profession, replacing office-based physiotherapy, often without proper consideration of risk and liability [5–8]. This is only the latest episode of a long story.

In managing patellofemoral pain, the physical therapy profession trends moved from the 'selective' strengthening of the Vastus Medialis Obliquus muscle [9,10] to taping the patella to correct its position or tracking, to 'change' the femoral bone position by reinforcing the gluteal muscles [11–14] or using motor control strategies [15]. In managing spine disorders we moved from abdominal strengthening, to releasing hypomobile segments, to reinforcing certain muscles 'selected by good' (i.e. transversus abdominis and deep neck flexors) to provide more stability to the spine [16–22]. We lost years in obsessively supporting

clinical prediction rules that are so far from the clinical reasoning process—a core musculoskeletal physiotherapy competence [23–26]. We spent also decades demonstrating how mobilizations were at least as effective as high-velocity low-amplitude thrust manipulations and developing non-informative screening tools to support the anecdotal belief of manipulation risks [27–30]. Most recently, because of an 'overdose' of neuroscience, many pretend to only 'talk' to patients to cure them from persistent spinal pain, without possessing proper skills in that field, and forgetting that touch is an essential aspect of our professional identity [31].

We have lost our direction: physiotherapy knowledge suffers from ups and downs. We have forgotten that what makes our identity as a profession is tailored decisions on which and how much of each intervention must be multi-modally packaged based on the patient's clinical findings, psychosocial profile, socio-cultural background, and evidence. Randomized controlled trials show us as much as they can if one technique is better than another [32]. We need more extensive research to understand what our interventions do—how they work—and how we might improve our patients' outcomes. It is time to acknowledge that our interventions are skill and environment dependent [33,34].

The biopsychosocial model advent rises a new challenge at a patient's management level. Even if not supported by strong evidence, the biopsychosocial model is the best available framework to our knowledge to embrace current literature for application into real clinical practice [35]. But we have not yet learned from previous experiences; we rapidly changed clinical practice without using our proverbial critical sense. The biopsychosocial approach focused our attention on more general aspects of the person's well-being, lifestyle, fitness, and the psycho-social domains [36]; but it is hypostasized that the bio-psycho-social model is misunderstood and ineffectively applied [37] due to a rigid categorization of its domains [38]. In this scenario, for some the 'bio' domain sounds erroneously as the pathoanatomical construct and is trivialized with the 'nonspecific' tag leading to a sterile debate if our physiotherapy intervention has to be hands-on or hands-off [39,40]. However, the complex interactions of the innumerable causal factors that can play a role in musculoskeletal pain should be appreciated as correlations.



Figure 1. The figure was specifically created for this manuscript: no permission needed.

Applying the biopsychosocial model means favoring the uniqueness of the person, where all these factors interact in a non-linear fashion. Such complex causal interactions require a different ontological view of causation—the dispositional theory of causation—where cause is interpreted as a cluster of powers, or dispositions, that lead to different effects depending on time and the causal context [41]. Are we minimizing the biological domain too early?

Lead researchers and social influencers pretend to change real clinical practice but they forget their responsibilities regarding the Figure 1 physiotherapy profession's identity. The new trend is changing our profession into personal trainer or psychologist; but performing hundreds of 'squats' per day, posting one systematic review per week or studying genes is not enough to make a physiotherapist a good clinician [42]. Let's face it: Exercise is one of the most powerful medicines and protective factors [43]; but at the same time is a risk factor for death when its dosage is not appropriate [44–46]. It sounds quirky how most consider exercises immune from placebo, contextual and psychological factors compared to manual therapy [47]. Physiotherapists still don't possess an appropriate expertise on exercise science—how to appropriately exclude who is at risk (e.g. cardiovascular or respiratory parameters evaluation inside the 'bio' domain) and how to translate exercise science knowledge to a symptomatic population [48–52] – and to psychological interventions [53].

We over-focused and froze the social and psychological constructs at a pathological level in persistent pain sufferers, forgetting that ontologically patients experience pain in their body [54]. Our knowledge in that field is based on old-fashioned psychology research findings and intervention (i.e. cognitive-behavior therapy) [55]. Over the past 20 years, psychology has moved to a paradigm shift with the "positive psychology" [56] and the 'psychological wellbeing constructs' [57], which is more appropriate for our professional expertise [58].

The growth of the profession hides a more fragmented reality where clinicians and researchers live in parallel dimensions. However, clinical practice is intimately influenced by research trends that too often provide outdated targets for clinical practice.

This is a call to action for the profession. Based on the fallibility of many scientific constructs we need more solid evidence before substantially modifying clinical practice. We should be more cautious and respectful on changing our models of care.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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