Although complex, the exercise of identifying targets and ingredients allowed us to better focus clinically on some treatment components rarely described and consequently underestimated

Brace treatment for idiopathic scoliosis is a complex multimodal intervention: a Delphi study using the Cochrane Rehabilitation "Guide-Rehab" reporting guideline

Conclusions

The targets identified by the experts show that brace treatment is a complex multimodal intervention. Phase II will allow us to describe it completely within our Institute.

Opening the black box of the different brace schools could explain the variety of clinical results with the presence/absence of some treatment components. A similar process with a SOSORT Consensus would define international standards and identify new research areas.

Results

We had 53 (response rate 75%) and 57 (78%) participants in the Delphi Rounds.

We found the following targets:

- aesthetic improvement (53%) – both analyses
- compliance (40%) – both analyses
- psychological well-being and quality of life (36%) – both
- scoliosis reduction (23%) – both analyses
- stabilisation (15%) – both analyses
- postural control (34%) – AI analysis
- fitness and functioning (26%) – AI analysis
- education and self-consciousness (21%) – AI analysis
- therapeutic alliance (25%) – AI analysis.

Background

Current research indicates considerable variation in the effectiveness of brace treatment. Compliance could be a reason, but few studies focused on methods to increase it (1). Understanding of brace treatment in SOSORT grew through qualitative studies: consensus was absent on biomechanical actions (2), but existed on how to manage patients (3), confirming that factors other than "the brace" play a major role. A possible way forward could be considering bracing as a complex intervention (4). Cochrane Rehabilitation developed the Guideline for Interventions Description in Rehabilitation (GUIDE-Rehab) (5) as a tool to open the so-called "black box" of rehabilitation complex interventions that could offer a framework to describe the bracing practice.

Objective

To describe the brace treatment as a complex intervention using GUIDE-Rehab.

Aesthetic improvement				Adherence to treatment				Psychological well-being			
AI analysis		Nominal analysis		AI analysis		Nominal analysis		AI analysis		Nominal analysis	
Construction and design of the brace	52%	Strengthening and postural symmetrical exercises	27%	Patient communication and engagement	40%	Shared decision-making	12%	Psychological and emotional support	25%	Psychological support by the team	14%
Specific exercises	33%	Body-shaped brace construction	21%	Motivation and emotional support	23%	Motivational talks at each encounter with professionals	10%	Empathy and communication	22%	Shared decision-making	10%
Monitoring	27%	Brace symmetry	19%	Education and information	21%	Brace invisibility and comfort	8%	Social involvement and peer support	18%	Psychological treatment	10%
Patient education and awareness	27%			Monitoring and progress feedback	15%	Medical brace check for invisibility, comfort, and correction	8%	Family and community assistance	12%	Attention in keeping maximum invisibility and comfort of the brace	8%
Use and maintenance of the brace	21%			Team and collaboration	15%	Compliance tools	8%	Reducing the aesthetic impact of the brace	6%	Continuation of all daily life and school activities	6%
Motivation and psychological support	19%							Assessment of patient preferences	6%	Sports/physical activity	4%
Effective communication	6%										
Family support	2%										

Study design

This is the first part of a mixed-methods qualitative study within a tertiary-level scoliosis outpatient institute, including Delphi rounds (Part I) and focus groups with final consensus (Part II).

Methods

We inquired all expert physicians, physiotherapists, motor scientists and psychologists working in our Institute (73 potential participants). The whole project includes:

Part I – Delphi Study (December 2024):

- First Round to identify the treatment targets (definition: "*a measurable aspect of the functioning or contextual factors hypothesised to be directly changed by the active ingredients of the intervention*");
- Second Round to identify the 3 most common targets' ingredients (definition: "*a constituent of the intervention responsible alone or with other ingredients for the therapeutic action*").

Part II – Final GUIDE-Rehab description (February 2025):

- Focus Groups to identify all GUIDE-Rehab elements (treatment and components theories; ingredients quantity, tailoring, and quantity changes).
- Consensus Conference.

After each Delphi Round, we grouped the answers through a nominal data analysis and an Artificial Intelligence (AI) analysis using ChatGPT 4.0.

Main ingredients of the 3 main targets proposed by participants and identified by the AI and nominal analyses

Negrini S, Negrini A, Kiekens C, Zaina F and ISICO Guide-Rehab Study Participants

@ProfNegrini stefano.negrini@unimi.it rehabilitation.cochrane.org

UNIVERSITÀ DEGLI STUDI DI MILANO

I.R.C.C.S. Ospedale Galeazzi - Sant'Ambrogio
Gruppo San Donato

Cochrane Rehabilitation, Functioning, and Disability