215

BRACING FOR SUCCESS: COMPARISON OF PATIENT, FAMILY, AND PROFESSIONAL PERSPECTIVES ON BARRIERS AND FACILITATORS FROM 3414 MESSAGES IN A SCOLIOSIS BLOG

Giulia Angela Antonella Rebagliati[1,2], Alessandra Negrini[1], Miralda Colombo[1], Francesco Negrini[1,3,4], Irene Ferrario[1], Alberto Negrini[1], Fabio Zaina[1], Stefano Negrini[5,6,1]

[1]ISICO - Istituto Scientifico Italiano Colonna Vertebrale, Milano, Italy. [2]Ospedale Parini - Ausl VdA, Aosta, Italy. [3]Department of Biotechnology and Life Sciences, University of Insubria, Varese, Italy. [4]Istituti Clinici Scientifici Maugeri IRCCS, Institute of Tradate, Tradate, Italy. [5]Department of Biomedical, Surgical and Dental Sciences, University "La Statale", Milano, Italy. [6]IRCCS Galeazzi – Sant'Ambrogio Hospital, Milano, Italy

Background

Bracing is the main conservative treatment for moderate adolescent idiopathic scoliosis (AIS). Patients' adherence strongly determines brace success. Brace can cause physical discomfort, psychological burden, activity limitations, and impaired social interactions. Family support, effective communication with healthcare providers, psychosocial counselling, and interprofessional care are key facilitators of adherence. Nevertheless, few studies have examined barriers and facilitators to brace adherence, mostly using small focus groups. Comparing perspectives of patients, families, and healthcare providers may better inform practice.

Study Design

This is an observational qualitative study. A mixed-methods approach combined qualitative content analysis with natural language processing to classify and quantify themes across contributor groups. Expert manual auditing validated automated classifications.

Objective (s)

To extract from a large scoliosis blog the most prevalent reported barriers and facilitators of brace adherence, and to compare perspectives of patients, families, and healthcare professionals.

Methods

We performed qualitative content analysis of 3,414 entries contributed by AIS patients, family members, and healthcare professionals. Entries were anonymised, segmented into discrete statements, and stratified by contributor type. We applied qualitative content analysis augmented with natural language processing using ChatGPT to classify statements, extract themes related to barriers and facilitators, and rank themes by frequency and relevance within each group. To ensure validity and reliability, an expert manual audit of a random sample of 100 classified responses was planned; if concordance fell below the pre-specified 95% threshold, corrections would be provided to the model and ChatGPT classification rerun iteratively. Final analyses compared thematic distributions of barriers and facilitators quantitatively and qualitatively across contributor groups.

Results

Of 3,414 posts, 3,240 (95%) mentioned at least one barrier or facilitator. The initial automated classification required correction (20% wrong); after iterative correction, a second audit achieved 95% concordance. Five recurring barriers and four facilitators were identified. Posts citing only barriers represented 41.6% of entries; those citing only facilitators represented 32.8%. Patients most frequently reported emotional impact (30%) and bodily sensation problems (27%). Parents cited emotional impact (25%) and lack of knowledge (19%). Professionals most frequently reported lack of knowledge (14%) and bodily sensation problems (12%). Regarding facilitators, therapy goals and results were most cited by patients (10%) and parents (16%); professionals most frequently cited clinical and technical support (20%).

	Patients	Parents	Professionals	Total	Number
Barriers					
Psycho-Social and Emotional	30%	25%	5%	20%	687
Physical and Device-Related	27%	21%	12%	20%	690
Daily Management and Lifestyle	20%	19%	5%	15%	684
Cognitive and informative	19%	27%	14%	20%	501
Clinical and Institutional	16%	19%	6%	14%	466
Facilitators					
Psycho-Emotional and Relational Resources	19%	20%	14%	18%	608
Perceived Clinical Effectiveness and Results	16%	16%	20%	17%	801
Active Therapy and Adherence	11%	11%	25%	15%	524
Clinical and Technical Support	10%	16%	45%	23%	593

Table 1. Frequency of citing barriers and facilitators to brace adherence across all blog posts (n=3,414).

A single post may cite more than one barrier or facilitator.

Conclusion(s)

This large-scale qualitative analysis revealed group-specific barriers and facilitators influencing brace adherence. Psychological distress, physical discomfort, and knowledge gaps predominated as barriers; observable benefits and clinical support were key facilitators. Interventions should prioritise emotional support, skills-based coping, patient and family education, and interprofessional communication.

Clinical significance

Targeted multidisciplinary programs addressing emotional, physical, and informational needs may improve brace adherence and outcomes. Future work should validate findings in clinical cohorts. Study limitations include self-selection bias, limited clinical detail, and variable expression styles across contributors.