

Supplementary Material S1. Coding framework and cross-professional thematic matrix for professional discussion groups

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This supplementary table presents the coding framework used to analyse the two semi-structured professional discussion groups conducted with psychologists and physiotherapists involved in REDOCVR delivery. The initial coding domains were derived from the discussion guides and refined inductively when relevant implementation issues emerged from the transcripts. The matrix was used to compare convergent and profession-specific implementation requirements and to translate professional feedback into software redesign and delivery model refinements.

Domain	Code	Psychology RBEC findings	Physiotherapy findings	Cross-professional interpretation	Redesign or implementation implication
Perceived clinical value	Attention and engagement	XR helped patients connect faster with the task, reduced external stimuli and supported attention, concentration and motivation.	AR exercises helped patients focus on activity rather than pain, fear or performance.	XR acted as an attentional scaffold, through immersive focus in psychology and action-based focus in physiotherapy.	Use XR selectively when attentional anchoring adds therapeutic value.
Therapeutic fit	Complementary tool, not core intervention	XR was described as useful but not indispensable; the group could function without it.	XR supported physiotherapy objectives but did not replace therapeutic exercise or professional supervision.	Both groups positioned XR as an enabling layer rather than the intervention itself.	Present REDOCVR as a professional support tool within the group programme.
Therapeutic limits	Possible interference with body connection	XR could be less appropriate when the objective was direct body awareness or interoception; body scan was considered better delivered without headset.	XR could distract from movement quality if professional supervision was insufficient.	XR should be matched to the therapeutic objective, not applied by default.	Concentrate XR in selected sessions rather than across the full programme.
Patient profile	Patients with attentional, emotional or movement-related barriers	Greater value was identified for patients with rumination, resistance to relaxation, difficulty concentrating or difficulty disengaging from worries.	Greater value was identified for patients with kinesiophobia, avoidance, low activation or excessive focus on pain or performance.	XR was considered useful for patients who struggle to enter the therapeutic task through conventional methods.	Define indications according to patient barrier: rumination and attentional difficulty in psychology, kinesiophobia and avoidance in physiotherapy.
Timing of use	Flexible use according to group evolution	Professionals could not always decide at the start; suitability depended on how the group evolved.	XR was viewed as suitable as a planned but adaptable component, especially around movement exposure.	XR requires structured availability with clinical flexibility.	Avoid rigid protocol language; use selective integration or clinician-guided deployment.
Content selection	Priority modules	"Haciendo las paces con el dolor" and RAIN were considered most relevant. Autocompassion could be retained. Body scan was usually preferred as a professional-led exercise without XR.	Interactive AR exercises, object-touching tasks, movement games and graded activation were considered most relevant.	Psychology and physiotherapy contents had different value profiles.	Organise the unified application into separate exercise and emotional regulation modules.
Workflow barriers	Setup and session disruption	Device setup, recentring, tablet connection and troubleshooting interrupted the therapeutic rhythm.	Charging, transporting, storing and preparing headsets were major barriers. Larger groups increased setup demands.	The main barrier was operational friction rather than clinical rejection.	Reduce setup steps, simplify navigation and provide local storage and charging routines.
Professional autonomy	Dependence on innovation support	Professionals could avoid use if technical support was unavailable. Professionals needed to avoid searching across different applications, languages or menus during sessions.	Managing the group and multiple headsets alone was considered difficult or unfeasible in some contexts.	Scalability requires reducing dependence on the innovation team.	Add simplified workflows, practical training and early implementation support.
Usability and interaction	Navigation and content access		Exercise names needed to be concrete and immediately understandable.	Naming and navigation must support use under time pressure.	Use one main menu, clear labels and direct module access.
Device management	Hardware logistics	Headset orientation, scene positioning and connection issues generated delays and uncertainty.	Charging, storage and device transport were central barriers; storage close to the session room was considered a practical condition.	Device logistics are part of implementation, not a minor technical issue.	Include storage, charging procedures and automatic recentring in the implementation plan.
Software redesign	Unified architecture	A single access point was needed for psychology modules, exercises and language options.	Direct access to exercises, fewer menus and clearer exercise organisation were requested.	A unified REDOCVR application was justified by both professional groups.	Develop a unified application with exercise and emotional regulation blocks.
Adoption condition	Minimum conditions for routine use	Selective use, technical reliability and simple access were considered necessary.	Local storage, training, early support and fewer setup demands were considered necessary.	Adoption depends on autonomy, reliability and fit with group workflow.	Implement a four-session selective model supported by software simplification.

Note: The matrix summarises professional discussion group findings and was used for pragmatic implementation analysis. It was developed for pragmatic implementation analysis rather than formal theory-generating qualitative research. XR, extended reality; AR, augmented reality; RBEC, emotional well-being and community health programme.