Intervention mapping of a mobility outcomes monitoring system for geriatric patients

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Purpose Evidence suggests that providing training and follow-up for older adults with mobility limitations after mobility device provision can improve adherence to device use and function (Best et al., 2016), but there is a lack of systematic and coordinated services. To address this gap, a theoretically informed digital intervention called MOvIT+™ was designed to provide remote monitoring and support for older adults and their caregivers (Auger et al., 2022). This paper explicitly describes how, using intervention mapping (Eldredge et al., 2016) and a novel approach to a collective decision-making method, the features of the intervention were linked with intervention users' needs and program outcomes for older adults using mobility assistive technology, their caregivers, and health professionals. **Method** A user-centered design grounded in a 6-step intervention mapping approach (Eldredge et al., 2016). Older adults and their caregivers were involved in the co-design process to ensure the intervention addressed their needs. **Results and Discussion** In step 1, a logic model was created, a governance structure for the project was established, and 66 potential functionalities were identified. For step 2, a novel modified TRIAGE approach was used to prioritize 36 intervention features (Table 1). Step 3 consisted of establishing a theoretical framework and creating 28 use-case scenarios for all intervention users (assistive technology users, caregivers, clinicians, managers, and research staff). In step 4, the digital infrastructure for the monitoring intervention was constructed and more than 130 training resources were gathered to address an array of potential problems with the use of assistive technologies. In step 5, an iterative implementation plan was devised with the steering committee and improved continuously by the participating sites' feedback. Lastly, for step 6, an evaluation protocol was finalized. In conclusion, by utilizing an intervention mapping approach, the complexities of a multi-component digital intervention were manageable due to the stepwise approach and the resulting logic model. The systematic and collaborative approach used ensures the intervention features will meet targeted objectives. Furthermore, the explicit links between intervention features and behavior changes will assist evaluation in future studies.

References

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Table 1. Component ranking by user needs

	Component	Rank
Monitoring	Self-report questionnaires - Online	2
	Self-report questionnaires - Interactive voice-response system	4
	Self-report questionnaires – Text messages	6
	Sensors recording assistive technology use	7
Expert	Clinician support by telephone	3
	Clinician support by video conferencing	8
	Clinical alerts	12
	Clinician report	14
	Clinician support by email (asynchronous)	16
	Ask an expert section (asynchronous)	26
	Technical support by phone	28
	Technical support by email	35
Resources & Training	Skill-based videos	1
	Decision aids	5
	Data base of accessible public places	9
	Written educational material	11
	Educational videos	15
	Interactive and thematic classes	17
	Written caregiver tips	19
	Resource directory	21
	List of relevant web links	29
	Frequently asked questions (FAQ) section	31
	Videos with testimonials	33
	Instant library	35
	Facebook and Twitter links	35
	Reminders	36

Notes: components excluded by the TRIAGE process not shown