

## Supplementary Materials

### Search strings

Table S1: Search string of Web of Science (search date 18/05/2022, updated on 02/10/2023).

Number	Type of search term	Search term
#1	TS	telerehab*
#2	TS	tele-rehab*
#3	TS	erehab*
#4	TS	e-rehab*
#5	TS	virtual* NEAR/5 rehab*
#6	TS	remote* NEAR/5 rehab*
#7	TS	digital* NEAR/5 rehab*
#8	TS	online NEAR/5 rehab*
#9	TS	mobile NEAR/5 rehab*
#10	TS	web-based NEAR/5 rehab*
#11	TS	computer-based NEAR/5 rehab*
#12	TS	internet-based NEAR/5 rehab*
#13	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12	
#14	TS	influnc*
#15	TS	barrier*
#16	TS	inhibit*
#17	TS	imped*
#18	TS	hinder*
#19	TS	hindrance*
#20	TS	facilitat*
#21	TS	promot*
#22	#14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21	
#23	TS	diffusion of innovation
#24	TS	implement*
#25	TS	adopt*
#26	TS	realis*
#27	TS	realiz*
#28	#23 OR #24 OR #25 OR #26 OR #27	
#29	#13 AND #22 AND #28 AND (LA="GERMAN" OR "ENGLISH") AND (Timespan: 2012-05-18 to 2023-10-02)	

**Table S2: Search string of MEDLINE (Search date 18/05/2022, updated on 02/10/2023).**

Number	Type of search term	Search term
#1	MeSH	telerehabilitation
#2	Titel/Abstract	telerehab*
#3	Titel/Abstract	tele-rehab*
#4	Titel/Abstract	erehab*
#5	Titel/Abstract	e-rehab*
#6	#1 OR #2 OR #3 OR #4 OR #5	
#7	Titel/Abstract	virtual*
#8	Titel/Abstract	remote*
#9	Titel/Abstract	digital*
#10	Titel/Abstract	online
#11	Titel/Abstract	mobile
#12	Titel/Abstract	web-based
#13	Titel/Abstract	computer-based
#14	Titel/Abstract	internet-based
#15	Titel/Abstract	rehab*
#16	(#7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #14) AND #15	
#17	#6 OR #16	
#18	Titel/Abstract	influenc*
#19	Titel/Abstract	barrier*
#20	Titel/Abstract	inhibit*
#21	Titel/Abstract	imped*
#22	Titel/Abstract	hinder*
#23	Titel/Abstract	hindrance*
#24	Titel/Abstract	facilitat*
#25	Titel/Abstract	promot*
#26	#18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25	
#27	MeSH	diffusion of innovation
#28	Titel/Abstract	diffusion of innovation
#29	Titel/Abstract	implement*
#30	Titel/Abstract	adopt*
#31	Titel/Abstract	realis*
#32	Titel/Abstract	realiz*
#33	#27 OR #28 OR #29 OR #30 OR #31 OR #32	
#34	(#17 AND #26 AND #33) AND ((y_10[Filter]) AND (english[Filter] OR german[Filter]))	

**Table S3: Search string of Embase (Search date 18/05/2022, updated on 02/10/2023).**

Number	Type of search term	Search term
#1	exp	telerehabilitation
#2	ab,ti	tele rehab*
#3	ab,ti	telerehab*
#4	ab,ti	erehab*
#5	ab,ti	e-rehab*
#6	ab,ti	virtual* NEXT/5 rehab*
#7	ab,ti	remote* NEXT/5 rehab*
#8	ab,ti	digital* NEXT/5 rehab*
#9	ab,ti	online NEXT/5 rehab*
#10	ab,ti	mobile NEXT/5 rehab*
#11	ab,ti	web based NEXT/5 rehab*
#12	ab,ti	computer based NEXT/5 rehab*
#13	ab,ti	internet based NEXT/5 rehab*
#14	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13	
#15	ab,ti	influencc*
#16	ab,ti	barrier*
#17	ab,ti	inhibit*
#18	ab,ti	imped*
#19	ab,ti	hinder*
#20	ab,ti	hindrance*
#21	ab,ti	facilitat*
#22	ab,ti	promot*
#23	#15 OR #16 OR #17 OR #18 OR #19 OR #20 #21 OR #22	
#24	exp	diffusion of innovation
#25	ab,ti	diffusion of innovation
#26	ab,ti	implement*
#27	ab,ti	adopt*
#28	ab,ti	realis*
#29	ab,ti	realiz*
#30	#24 OR #25 OR #26 OR #27 OR #28 OR #29	
#31	(#14 AND #23 AND #30) AND ([english]/lim OR [german]/lim) AND [2012-2023]/py	

**Table S4. Search string of Psyn dex (Search date 18/05/2022, updated on 02/10/2023).**

<b>Number</b>	<b>Search term</b>
#1	telerehab*
#2	tele-rehabilitation
#3	e-rehabilitation
#4	eRehab*
#5	virtual* N5 rehab*
#6	remote* N5 rehab*
#7	digital* N5 rehab*
#8	online N5 rehab*
#9	mobile N5 rehab*
#10	web-based N5 rehab*
#11	computer-based N5 rehab*
#12	internet-based N5 rehab*
#13	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12
#14	influenc*
#15	barrier*
#16	inhibit*
#17	imped*
#18	hinder*
#19	hindrance*
#20	facilitat*
#21	promot*
#22	#14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21
#23	diffusion of innovation
#24	implement*
#25	adopt*
#26	realis*
#27	realiz*
#28	#23 OR #24 OR #25 OR #26 OR #27
#29	(#13 AND #22 AND #28) AND (LA=deu OR LA=eng) AND (PY>=2012 AND PY<=2023)

**Table S5. Study characteristics.**

First author, year,	Country	Study design	Study population (patients)	Study population (health professionals)	Diagnosis group	Type of TR	Status of implementation / experiences	Implementation framework
Ahonle (2021) [44]	USA	Qualitative design: semi-structured interviews (cross-sectional)	N/A	Rehabilitation specialists (n = 3)	Various disabilities	Teleconsultation, community-based rehabilitation for veterans (video-based)	After implementation in routine care	N/A
Aloyuni (2020) [50]	Saudi Arabia	Quantitative design: online-survey (cross-sectional)	N/A	PTs (n = 347)	Various diagnostic groups	Image-based TR (videoconferences), sensor-based TR (tilt switches, gyroscope, accelerometers), VR	19.9% of respondents use TR at work	N/A
Auger (2023) [29]	Canada	Descriptive qualitative design: focus group, semi-structured interviews were conducted after the implementation phase (cross-sectional)	N/A	OTs, social workers, SLPs, PTs, others (n = 9)	Stroke	TR in post-stroke, videoconference	During implementation	CFIR
Bairapareddy (2021) [25]	India	Quantitative study (feasibility study): online survey (cross-sectional)	COPD patients (n = 30)	Pulmonary care physicians, rehabilitation nurses, PTs (n = 52)	COPD	Smartphone-based TR for COPD management	Before implementation in routine care (A few HPs (n = 4) already implemented TR; patients had a minimum level of experience with TR)	N/A
Banerjee-Guenette (2019) [30]	Canada	Mixed-methods-design: questionnaires, tracking of VR-usage	N/A	PTs, OTs, one rehabilitation assistant (n = 11)	Various paediatric diseases	Variety of VR/AVR, e.g., Nintendo Wii® and WiiFit®	Before implementation	DTBT

Table S5. Study characteristics.

First author, year,	Country	Study design	Study population (patients)	Study population (health professionals)	Diagnosis group	Type of TR	Status of implementation / experiences	Implementation framework
		(pre- and post-follow-up)						
<b>Brouns 2020 [51]</b>	Netherlands	Quantitative study: online-survey (cross-sectional)	N/A	BHP (n = 99), DHP (n = 105)	Stroke	eRehabilitation: e.g. physical and cognitive exercises, education and communication, not further described	44% with and 66% without experiences	Framework of Grol
<b>Caughlin et al. (2019) 31</b>	Canada	Summary of six studies: (feasibility, pre and post-design, pilot trials, randomised controlled trials (RCTs), and observational studies)	Stroke patients: 1) (n = 44) 2) (n = 11) 3) (n = 7) 4) (n = 126) 5) (n = 74) 6) (n = 51)	2) PTs, OTs, SLPs, managers, technical support: (n = 11)	Stroke	1) to 5): Different remote services for stroke patients, e. g., speech therapy, memory training, self-management, (e. g. via videoconference) 6) VR for upper limb training	Before implementation or in an early phase of implementation in routine care.	General model of stroke rehabilitation
<b>Cottrell (2017) [39]</b>	Australia	Qualitative descriptive study: semi-structured interviews (cross-sectional)	N/A	PTs (n = 26)	Chronic musculoskeletal diseases	TR in general	Before implementation in routine care	N/A
<b>Cox (2017) [40]</b>	Australia	Quantitative study (implementation study): online-survey (pre-and post-design)	N/A	PTs, OTs (n = 31 to 26)	Neurologic, ageing or musculoskeletal disabilities:	Group education (videoconferences) for children and adults	During implementation in routine care	TDF
<b>Damhus et al. (2018) [48]</b>	Denmark	Qualitative design: semi-structured interviews, focus	N/A	HPs (n = 25)	COPD	Online-exercise sessions to patients with COPD, real-time video	With experiences (n = 4 focus groups), without experiences, (n = 2	TDF

**Table S5. Study characteristics.**

First author, year,	Country	Study design	Study population (patients)	Study population (health professionals)	Diagnosis group	Type of TR	Status of implementation / experiences	Implementation framework
		groups (cross-sectional)				telemedical technology	focus groups, n = 3 interviews)	
<b>Duran 2023 [45]</b>	USA	Qualitative design: (improvement study): interviews, design workshops, usability testing (user-centred-design)	CR patients (n=3)	Provider- and system-level stakeholders (n = 9) design workshops (n = 20), clinicians (n = 2)	Cardiac diseases	Development of a TR-prototype: (e.g. telemonitoring, educational videos); hybrid	Before implementation in routine care	TDF and CFIR
<b>Farzad (2023) [32]</b>	Canada	Qualitative descriptive study: semi-structured interviews (cross-sectional)	N/A	PTs, OTs (n = 14)	Hand diseases	Online hand therapy in general (video-conference, videos)	With experiences in providing TR	N/A
<b>Ferreira-Correia (2018) [49]</b>	South Africa	Qualitative descriptive design: semi-structured interviews, field notes (pre-and post-design)/a TR intervention was carried out	Patients with HIV (n = 4), patients with schizophrenia (n = 5)	N/A	HIV, schizophrenia	CogMed Working Memory Training Programme	Before implementation in routine care	N/A
<b>Gorzelitz (2022) [46]</b>	USA	Qualitative design: semi-structured interviews (cross-sectional)	N/A	Program-representatives (n = 24)	Cancer	Different TR exercise programmes (video-based)	After implementation in routine care	CFIR
<b>Hale-Gallardo (2020) [47]</b>	USA	Qualitative design: semi-structured interviews (pre-and post-design)	N/A	Programme managers and medical directors (n = 10)	Various disabilities	National TR programme for veterans, video technology	During first 18 month of implementation	RE-AIM framework
<b>Hurtubise (2022) [33]</b>	Canada	Qualitative design: focus groups, interviews (participatory research design)	Parents of children with motor difficulties (n=4)	Clinicians (n = 9), health care managers (n = 5) IT-consultants (n = 2)	Motor difficulties (children)	TR platform for children, not yet developed	Before implementation in routine care	A logic model for a new primary care TR intervention was developed

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First author, year,	Country	Study design	Study population (patients)	Study population (health professionals)	Diagnosis group	Type of TR	Status of implementation / experiences	Implementation framework
<b>Jiancaro (2023) [34]</b>	Canada	Qualitative descriptive study: communication with patients and team, in-person meetings, documents (cognitive work analysis)	Patients with HIV (n = 33)	Members of the implementation team (n = 10)	HIV	Tele-coaching exercise, online exercise class, wireless physical activity monitor (e. g. via videoconference)	During initial implementation phase	Cognitive work analysis approach
<b>Kairy (2014) [35]</b>	Canada	Qualitative design: focus groups, semi-structured interviews, project documents (case study)	Patients (n = 5), family members (n = 5)	HPs (n = 16), managers (n = 8)	Traumatic brain injuries, spinal cord injuries	Interprofessional care plans with HPs and patients, TR services (videoconference), patient education	Particularly successful incorporated into routine care	Giddens' theory of structuration
<b>Kraaijkamp (2023) [52]</b>	Switzerland	Quantitative study: multicentre online survey (cross-sectional)	N/A	HPs from 16 countries (n = 513)	Geriatric diseases	Different technologies, most apps and video conferencing	>50 percent had experience with eHealth, 20% integrated eHealth in daily practice	N/A
<b>Lau (2017) [41]</b>	Australia	Mixed-methods design (feasibility study): observation reports, issues log, emails, interviews; a TR intervention was carried out (case study)	Patients after a rotator cuff surgery (n = 9)	Clinicians (n = not mentioned)	Orthopaedic disorders	Patient-facing app using the Healthy.me platform, exercise videos	Before implementation in routine care	N/A
<b>Munce et al. (2023) [36]</b>	Canada	Qualitative descriptive design: interviews, focus groups (cross-sectional)	N/A	Physicians, OTs, PTs (n = 22)	Neurological and cardiac disorders, long-term care	Toronto Rehab Telerehab Toolkit; TR technology not further described	After implementation in routine care	N/A
<b>Pitt (2018) [42]</b>	Australia	Qualitative design (feasibility study): semi-structured interviews were conducted after the	N/A	SLPs (n = 3)	Aphasia	TR Group Aphasia Intervention and Networking (TeleGAIN) (via videoconference)	Before implementation in routine care, different	N/A



**Table S5. Study characteristics.**

First author, year,	Country	Study design	Study population (patients)	Study population (health professionals)	Diagnosis group	Type of TR	Status of implementation / experiences	Implementation framework
		intervention phase (cross-sectional) /					experiences with TR	
<b>Pol (2023) [37]</b>	Canada	Qualitative study: (exploratory study): focus groups (cross-sectional)	N/A	Rehabilitation professionals from (a) Netherlands (n = 5) and (b) Canada (n = 9)	Neurological and orthopaedic disorders, geriatric rehabilitation	Evidence-based sensor monitoring intervention (SMI) for older adults	Group (a) with experience, group (b) no experience, but introduced	MRC
<b>Rabanifar (2022) [26]</b>	Iran	Qualitative design: semi- structured interviews (cross-sectional)	N/A	Managers, policy makers and service providers (n = 26)	Different diagnoses	TR in general	All with TR background (experiences in receiving or providing TR)	N/A
<b>Ross (2022) [43]</b>	Australia	Qualitative design: semi- structured interviews (cross-sectional)	N/A	Physiotherapists (n = 25)	Musculoskeletal diseases, paediatric diseases, pelvic diseases	TR in general	After implementation in routine care	N/A
<b>Teriö et al. (2019) [27]</b>	Uganda	Mixed methods design (feasibility study): Semi-structured interviews, quantitative process data (single-case)	N/A	HPs (n = 12)	Stroke	Mobile phone-supported and family-centred rehabilitation intervention to increase daily activities	Before implementation in routine care	i-PARIHS framework
<b>Yang et al. (2021) [38]</b>	Canada	Mixed-methods-design: questionnaires, additional data, (pre-and post-design)	Patients with stroke (n = 9)	N/A	Stroke	GRASP for individuals with stroke— video-conference software	During implementation, the organisation continued to offer the programme	RE-AIMframework
<b>Yosef (2022) [53]</b>	Israel	Mixed-methods-design (feasibility study): focus groups, questionnaire (cross-sectional)	N/A	OTs (n = 10)	Chronic health conditions: neurological and orthopaedic disorders (older adults)	In-home TR service for older adults with chronic health conditions (videoconference)	Before Implementation in routine care	N/A

\*N/A: not applicable, TR: Telerehabilitation, VR: Virtual Reality, AVR: Active Video Gaming, COPD: Chronic Obstructive Pulmonary Disease, CR: Cardiac Rehabilitation, PT: Physiotherapists, SLPs: Speech-Language Pathologists, OTs: Occupational Therapists, HPs: Health Professionals, BHP: Brazilian Healthcare Professionals, DHP: Dutch Healthcare Professionals, CFIR: Consolidated Framework

for Implementation research, RE-AIM: Reach, Effectiveness, Adoption, Implementation, Maintenance Framework, MRC: Medical Research Council Framework, i-PARIHS: The Promoting Action on Research Implementation in Health Services Framework, TDF: The Theoretical Domains Framework, DTPB: Decomposed Theory of Planned Behavior, GRASP: Graded Repetitive Arm Supplementary Programme