Important Features of Telerehabilitation for Musculoskeletal Patients: Applying an Implementation Science Framework to Inform the Selection of Attributes for Discrete Choice Experiments

WANG Kailu[1] (kailuwang@cuhk.edu.hk), CHAN Nga Ting Tammy[1], LAM Olivia[1], WANG Yingxuan Dorothy[1], LEE Wing Yip[2], LEUNG Sze Man[2], WONG Lai-yi Eliza[1]

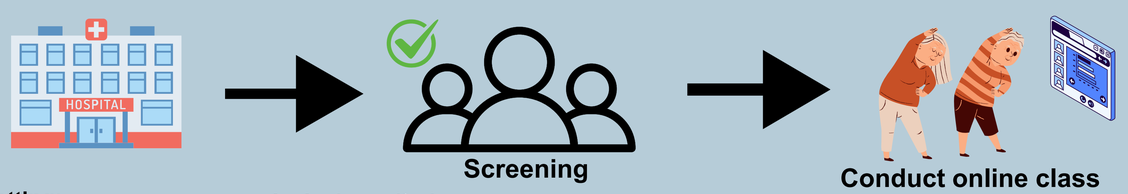
1Centre for Health Systems and Policy Research, JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong, China

2Physiotherapy department, Prince of Wales Hospital, Hong Kong, China

Background

- Telerehabilitation for patients with musculoskeletal conditions was associated with lower healthcare resource consumption. [1][2]
- As there are various features in telerehabilitation design and implementation, these services can benefit from patient engagement in service improvement, to meet their needs and preferences and improve the user adherence to services. [3]
- Therefore, this study aims to identify the features of telerehabilitation that are deemed important to patients to inform future studies and service improvements.

Example of low back pain/ Knee osteoarthritis telerehabilitation service in Public hospitals :



Setting:
- An integrated service team providing telerehabilitation to patients across 3 hospitals

Inclusion criteria:
- At least joined 1 face-to-face session of rehabilitation service
- Able to use smartphone/make payment through HA GO(App for public hospital service users)
- Willing to join telerehabilitation service

Frequency: conduct alternating with face-to-face sessions
- Group class
- Conduct + Monitor by physiotherapist (videoconferencing)
- Exercise similar as face-to-face session
- Have IT support hotline

Objective

- To identify the facilitators and barriers that would influence the perceptions of the patients towards the telerehabilitation programmes and implementation of the telerehabilitation services, particularly the facilitators and barriers attributable to service design and implementation strategy.

Methodology

- Semi-structured individual interviews were conducted among the service providers (n=9) including
  - Physiotherapists
  - Supporting staff
  - Other healthcare workers
- Musculoskeletal patients who used telerehabilitation services (n=32).
- The interviews were guided by the domains of Consolidated Framework for Implementation Research (CFIR)[4][5], namely characteristics of individuals, outer setting, inner setting, intervention characteristics, and process of implementation. Thematic analysis was applied to extract the important features[6].
- Thematic analysis was applied.

Results

- A series of facilitators and barriers to implementing the telerehabilitation services have been identified following CFIR.

	Musculoskeletal patients	Allied health professionals + supporting staff	Other healthcare workers
Facilitators	◦ Appropriate level of difficulty, length, and types of exercises as well as frequency of the classes (intervention characteristics) ◦ Confidence in the quality of public healthcare services provided by the Hospital Authority (inner setting)	◦ Flexibility for patients to select and switch between telerehabilitation and in-person service, with PT assessment available to screen the eligibility and capability of patients to accept telerehabilitation services (process of implementation) ◦ Evidence-based programme development with involvement of frontline PT colleagues (inner setting and intervention characteristics)	◦ Pre-determined principle of telerehabilitation that telerehabilitation should be a replacement for in-person services (intervention characteristics) ◦ Bringing convenience for the patients and saving space, aligning with the organizational agenda (outer setting and inner setting)
Barriers	◦ Patients expecting more interactions and opportunities for asking questions and providing feedback with physiotherapists (intervention characteristics) ◦ Part of the patients feeling not worthy to pay the same amount of money for an online course compared with face-to-face sessions (individual characteristics + intervention characteristics)	◦ Anticipated higher volume of patients in the future, leading to potential accumulation of workload, where extra manpower is not available at the moment of interview (inner setting) ◦ Difficulty in coaching/adjusting the posture + conducting objective assessment via videoconferencing; (intervention characteristics) ◦ Part of the patients feeling not worthy to pay the same amount of money for an online course vs. face-to-face sessions (individual characteristics + intervention characteristics)	◦ Use of artificial intelligence, virtual reality, augmented reality, and other technologies in telerehabilitation should be enhanced and promoted in hospitals to achieve better effectiveness, including how to make the equipment available to the patients (process of implementation + inner setting) ◦ Performance indicators may not be limited to the number of patient attendance

- According to CFIR, themes under inner setting, intervention characteristics, and process of implementation can be translated into attributes of discrete choice experiment (DCE)
- With the facilitators and barriers identified, the attributes can include the features related to the service provider (hospitals/community-based organizations), contents of the services (exercise courses that are similar to in-person service / services + devices enabling remote monitoring), availability of individual interactions with physiotherapists, and willingness-to-pay.

Conclusion

- CFIR enables identifying a comprehensive list of features, involving the frequency of face-to-face services and availability of eligibility assessments and technical support.
- Potential solutions to the barriers including providing materials on postures and adding interactive sessions following the exercises can be explored in future phases.

References
1.Dias JF, Oliveira VC, Borges PRT, Dutra F, Mancini MC, Kirkwood RN, et al. Effectiveness of exercises by telerehabilitation on pain, physical function and quality of life in people with physical disabilities: a systematic review of randomised controlled trials with GRADE recommendations. Br J Sports Med. 2021;55(3):155-62.
2.Cottrell MA, Galea OA, O'Leary SP, Hill AJ, Russell TG. Real-time telerehabilitation for the treatment of musculoskeletal conditions is effective and comparable to standard practice: a systematic review and meta-analysis. Clin Rehabil. 2017;31(5):625-38.
3.Coulibaly LP, Poder TG, Tousignant M. Attributes Underlying Patient Choice for Telerehabilitation Treatment: A mixed-Methods Systematic Review to Support a Discrete Choice Experiment Study Design. Int J Health Policy Manag. 2021.43.Lam H, Quinn M, Cipriano Steffens T, Jayaprakash M, Koebnick E, 4.Randal F, et al. Identifying actionable strategies: using Consolidated Framework for Implementation Research (CFIR) informed interviews to evaluate the implementation of a multilevel intervention to improve colorectal cancer screening. Implement Sci Commun. 2021;2(1):57.
5.Kirk MA, Kelley C, Yankey N, Birken SA, Abadie B, Damschroder L. A systematic review of the use of the Consolidated Framework for Implementation Research. Implement Sci. 2016;11:72.
6.Elo S, Kyngäs H. The qualitative content analysis process. Journal of advanced nursing. 2008 Apr;62(1):107 15.

Acknowledgement
We are grateful to the Health and Medical Research Fund, the Health Bureau, Hong Kong SAR Government for supporting the study (Project #21220981). We also thank the Physiotherapy Department, Prince of Wales Hospital for supporting the fieldwork. The Centre for Health Systems and Policy Research funded by the Tung Foundation is acknowledged for supporting the study. This poster is also supported by the Conference Grant Supported by the Central Budget of The Chinese University of Hong Kong.