Practical lessons on using digital health tools and technology with older adults in Sri Lanka (Guideline and materials)

Authors

Esther Liyanage - University of Peradeniya, Sri Lanka
Surangika Wadugodapitiya- University of Peradeniya, Sri Lanka
Birgit Jocham- University of Applied Sciences FH JOANNEUM, Austria
Hannes Aftenberger- University of Applied Sciences FH JOANNEUM, Austria

Consortium CAPAGE

1. University of Applied Sciences FH JOANNEUM, Austria
2. JAMK University of Applied Sciences, Finland
3. Santa Maria Health School, Portugal
4. University of A Coruña, Spain
5. Eastern University of Sri Lanka
6. General Sir John Kotelawala Defence University, Sri Lanka
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8. University of Jaffna, Sri Lanka
9. University of Peradeniya, Sri Lanka
10. University of Ruhuna, Sri Lanka

Content

1. Introduction to this guide

This document is designed to assist educators in the implementation of practical exercises that focus on the application of technology in physiotherapy for older adults in Sri Lanka. The material provided is intended to support the delivery of eight teaching units. The ideal format for these lessons would be in small groups.

Topic	Teaching hours	Materials
Teletherapy for older adults- Literature search	1	Assignment (see 2.)
Teletherapy with older adults	4	Assignment (see 3.) Patient cases (see Appendix A) Guiding Questions (see 3.) Implementation of teletherapy (see **Appendix B**) Blended therapy checklist (see **Appendix C**)
Applying mHealth	3	Assignment (see 4.) Patient cases (see Appendix A) Mobile Application Rating Scale (see **Appendix D**)

2. Teletherapy for older adults – Literature search

For this exercise, please form groups of two. Each group should select a patient case to work with. Then, research current literature related to teletherapy or telerehabilitation for older adults, or literature that is relevant to the chosen patient example.

After reviewing the literature, select one study to focus on. Please record your chosen study in the Etherpad to avoid duplicate selections among groups.

When analyzing the study, pay particular attention to the Introduction, Methodology, Results, and Discussion sections.

Each group will then present their selected study to the plenary session in a short presentation lasting 5–8 minutes. A PowerPoint presentation is optional but may be used to support your summary.

3. Teletherapy with older adults

For this exercise, form groups of two participants. Use a teletherapy or video conversation platform, such as Zoom. (Please note: Zoom may only be used for training purposes and not for actual patient interactions, as data protection is not guaranteed. Within each group, they take turns roleplaying as a patient (based on a provided patient case) and a therapist.

Task 1: Simulate a part of a teletherapy session. Begin with a short anamnesis (patient history) interview, followed by instructing and performing 1–2 therapeutic exercises. After completing this, switch roles so that each participant experiences both the patient and therapist perspectives.

Task 2: Following the roleplay, engage in a group discussion using the following guiding questions:
What did you notice when instructing the therapy content?
What are possible differences between online and face-to-face?
What worked well?
What did not work so well?
What suggestions for improvement do you have for next time?
What problems can occur with older adults with varying (digital) health literacy levels?
What problems can occur specific to teletherapy with the older adults? e.g.: technical issues, hearing and cognitive difficulties.
How can you modify your communication style to meet the needs of an older adult? E.g.: slower speech, simpler language and terms
Can there be any generational or cultural values you need to be sensitive to?

4. Applying mHealth

For this exercise, please form small groups consisting of 3–4 students. Each group should either create a new persona or select an existing patient case to work with. Based on the needs and characteristics of the chosen person, select a mobile health application (MHA) that would be suitable for them.
Each group member will then independently evaluate the selected MHA using the Mobile Application Rating Scale (MARS) (Appendix D). After completing the evaluations, discuss your results within the group.
During the discussion, consider the following questions:

- Are there differences in your individual ratings?
- Is the selected MHA appropriate for the chosen persona?
- What are the advantages and disadvantages of using this application for your patient case?

Following your group discussion, create a presentation that includes:

- An introduction of your persona and the selected MHA
- A summary of the results from your group discussion
- Reflections on the role of physiotherapists in using and recommending MHAs

Each group will present their findings to the class in a presentation lasting approximately 15 minutes.

Literature/References

FH Compus Wien, (n.d.). *Einsatz von Teletherapie in Zeiten von Covid-19 - FH Campus Wien*. https://www.fh-campuswien.ac.at/departments/gesundheitswissenschaften/einsatz-von-teletherapie-in-zeiten-von-covid-19.html

Kloek, C. J. J., Janssen, J., & Veenhof, C. (2020). Development of a Checklist to Assist Physiotherapists in Determination of Patients' Suitability for a Blended Treatment. *Telemedicine journal and e-health : the official journal of the American Telemedicine Association*, *26*(8), 1051–1065. https://doi.org/10.1089/tmj.2019.0143

Guidance on Communication - Sundhed fagperson. (2024, January 12). Sundhed I Region Midtjylland for Fagpersoner. https://www.fagperson.sundhed.rm.dk/til-ansatte-og-samarbejdspartnere/telemedicin/in-english/guide-to-a-succesful-video-consultation/guidance-on-communication/

Stoyanov, S. R., Hides, L., Kavanagh, D. J., Zelenko, O., Tjondronegoro, D., & Mani, M. (2015). Mobile app rating scale: a new tool for assessing the quality of health mobile apps. JMIR mHealth and uHealth, 3(1), e3422. 10.2196/mhealth.3422

Appendix A

Case Scenario 01- Practice Teletherapy session

Patient Information

- **Name:** Mr. Perera
- **Age:** 72

- **Marital Status:** Widower (wife passed away 5 years ago)
- **Current Work:** Retired bank manager; does occasional financial consulting from home

Reason for Coming (Patient's expectation)

He was referred by his primary care physician and physiotherapist due to increasing psychological distress and functional limitations from chronic pain in both knees due to osteoarthritis. He reports feeling anxious, "low on energy," and wants support in coping better emotionally and staying active.
Patient's expectation: to be relieved of pain in both knees and to stay active.

Cognition & Health Information

- Fully oriented to time, place, and person
- Mild forgetfulness (age-related); no signs of cognitive impairment
- Has good insight into his condition but limited understanding of long-term management beyond painkillers
- Often uses online sources for information but struggles to evaluate reliability

Somatic Aspects

- **Diagnosis:** Bilateral knee osteoarthritis, confirmed by X-ray
- **Duration:** >3 years
- **Origin:** Likely age-related degeneration, worsened by being overweight (BMI: 30) and history of sedentary lifestyle
- **Functional Disorders:**
  Difficulty with prolonged standing, walking >10 minutes
  Needs to use a cane on bad days
  Trouble getting out of bed or a chair without support

Limitation of Activities

- Avoids walking to the local market (used to be daily habit)
- No longer participates in the senior citizens' club due to mobility pain
- Struggles with stair climbing; avoids visiting his daughter's duplex house
- Can perform self-care, but with effort

Complaints Over Time

- Pain has progressively worsened over the last 3 years
- Recent increase in morning stiffness (up to 30–40 minutes)

Intensity & Triggers

- Pain intensity: **6–8/10** on most days
- Worse in the evening or after walking more than 15–20 minutes
- Aggravated by cold weather, overexertion, climbing stairs
- Relieved temporarily by warm compresses, pain kiler, rest

Additional Complaints

- Mild lower back pain from altered gait
- Occasional disturbed sleep due to pain
- Reports feeling "sluggish and grumpy" in the mornings

Previous Treatments

- Oral NSAIDs (caused gastritis, discontinued)
- Physiotherapy (irregular attendance due to transportation difficulties)
- Advised for weight loss; hasn't followed through
- Currently taking pain killers as needed and calcium supplements

Emotions & Behavioural Consequences

- Feels frustrated, sad, and dependent
- Mild signs of depressive symptoms (flat affect, low motivation)
- Reports "snapping" at family due to irritability
- Hesitant to ask for help; values independence

Current Health Behaviour

- Sedentary most of the day
- Eats erratically
- Sleeps 5–6 hours per night, often broken
- Engages in occasional light stretching on his daughter's encouragement
- No regular exercise, often forgets home exercise plan

Health Promotion Barriers & Supports

- **Barriers:**
  - Pain and fear of falling
  - Poor motivation and mild depressive symptoms
  - Lack of structured routine post-retirement
  - Skeptical about non-medication treatments
- **Supports:**
  - Daughter lives nearby, visits twice a week
  - Has a close friend (former colleague) he talks to weekly
  - Respects his family doctor's advice
  - Willing to try structured, guided therapy

Objective Findings (via Teletherapy Observation)

Limited ROM, pain

Instructions how to play like a client

- You make little or no eye contact
- You have a closed body posture
- You doubt when giving answers
- You wait a while before answering

- You are open-minded to use digital tools, when possible
- You are bit ashamed about your body weight
- Patient lacks skills in communicating with the physiotherapist

Role of Physiotherapist

Giving Information

Use plain language and supporting materials, like pictures to explain the condition

Treatment Options and Risks

1. Lifestyle changes:
   - What is the patient's understanding?
   - What are the advantages and disadvantages?
   - What can be the results and what problems can the client encounter?

2. Pain Medication/ Injections:
   - What can be the benefits and what can be the side effects?
   - What are the advantages and disadvantages of hyaluronic acid injection?

3. Comparing treatment options (surgical vs non-surgical)

4. Personal decision making: What is important to the client and support the decision making

Please note that you use communication skills for clients with limited HL

CASE SCENARIO 02- Mobile Health App (MHA)

Patient Information

- **Name:** Mrs. Savitri Rao
- **Age:** 76
- **Marital Status:** Married, husband is 80 years old

Reason for Coming

Referred by pulmonologist for emotional support and behavioural counseling after repeated COPD exacerbations. She reports feeling anxious, fatigued, and frustrated with her declining health and wants to better manage breathlessness and fear of flare-ups.

Cognition & Health Information

- Cognitively intact; excellent memory and orientation
- Well-informed about her diagnosis but struggles to implement daily health recommendations consistently
- Frequently reads about COPD management online and watches health videos

Somatic Aspects

- **Diagnosis:** Chronic Obstructive Pulmonary Disease (moderate to severe; GOLD stage III)
- **Duration:** Diagnosed 10 years ago
- **Origin:** Long history of indoor air pollution exposure (cooked with firewood for decades) and passive smoking (husband was a smoker)
- **Functional Disorders:**
  - Chronic productive cough, wheezing, and exertional dyspnea
  - Reduced FEV1, oxygen saturation at rest: 92%; drops to 88% on exertion

Limitation of Activities

- Can walk indoors but avoids stairs or outdoor walking
- Struggles with household chores—laundry, cooking
- Relies on a part-time maid
- Avoids family events fearing embarrassment due to coughing or needing oxygen

Complaints Over Time

- Increasing breathlessness over the past 3 years
- Frequent exacerbations: 3 ER visits in the past year
- Persistent cough, especially early morning and night
- Daytime fatigue and unrefreshing sleep

Intensity & Triggers

- Breathlessness severity: 7/10 when walking or climbing stairs
- Aggravated by:
  - Humid or cold weather
  - Dust, incense, and strong smells
  - Emotional stress or talking for too long
- Relieved by:
  - Rest, pursed-lip breathing, inhalers
  - Using her portable oxygen during flare-ups

Additional Complaints

- Occasional mild ankle swelling
- Feelings of chest tightness and panic during dyspnea episodes
- Insomnia and early morning awakening
- Mild weight loss in recent months

Previous Treatments

- Long-acting bronchodilators, inhaled corticosteroids
- Nebulization during exacerbations
- Uses portable oxygen concentrator intermittently
- Advised pulmonary rehabilitation—completed one round, but unable to continue due to transportation issues

Emotions & Behavioural Consequences

- Frequently feels helpless and anxious
- Avoids exertion due to fear of breathlessness
- Reports occasional crying spells
- Expresses guilt over being a "burden" to her family
- Declining motivation to stay active or engaged socially

Current Health Behaviour

- Inconsistent with breathing exercises
- Takes medications as prescribed but often forgets peak flow monitoring
- Avoids outdoor physical activity
- Sleeps late and naps often during the day
- Limited water intake due to fear of coughing at night

Health Promotion Barriers & Supports

- **Barriers:**
  - Emotional distress and fear of symptom worsening
  - Limited physical mobility
  - Social withdrawal and low motivation
  - Uncertainty about pulmonary rehab benefits
- **Supports:**
  - Daughter (a nurse) visits on weekends and helps with care planning
  - Caring husband, though dependent himself
  - Reluctantly open to virtual therapy if it's "not too tiring"

Social Consequences

- Feels increasingly socially isolated
- Rarely attends religious gatherings or sees neighbors
- Misses teaching children in the neighborhood—gave it up due to fatigue
- Family gatherings make her anxious due to coughing and oxygen use

Appendix B: Checklist Implementation of teletherapy

Checklist: Implementation of teletherapy

These topics are important to think about when you are planning to use teletherapy: Preparation, Greeting, Documentation, Language and Body Language, Screen Sharing, Ending the Online Consultation.

Preparation:

- Signed consent from the patient, as explicit agreement is necessary to transmit health-related data via technical tools.
- Before the first online consultation, practice with an acquaintance to manage technical challenges or specific implementation steps for your first therapy session.
- Stable internet connection (at least 5 Mbps without interruption should be maintained)
- Headset and external webcam improve transmission
- Pay attention to privacy

Immediate Preparation:

- Quiet room, no access by others during therapy
- Check if consent form has been signed
- Have all (therapy) materials within reach
- Close all unnecessary programs on the computer
- Keep mobile phone away from the computer as it could interfere with the connection
- Avoid clothing with stripes or checkered patterns (causes flickering!)
- Ensure a calm, distraction-free background.

Greeting:

- Greet the patient as soon as they join the video conference
- Verify that it is indeed the invited person
- Ask if the connection is good and if they can hear and see well
- Ask how it feels to meet this way
- Ensure that the patient is ready to conduct therapy through this method
- State that you are alone in the room
- Inform the patient to ensure that no one is present on their side who should not observe the therapy

Documentation:

- If you take notes, inform the patient about this. Looking away from the screen could otherwise be interpreted as disinterest or lack of attention.
- Document the therapy session. Additionally, note any interruptions or technical problems, that it was a teleconsultation, and which tool was used.
- When taking notes on the computer, inform the other person about keyboard sounds
- Store connection logs or recordings on encrypted hard drives and obtain consent

Language and Body Language:

- Pay increased attention to the patient's facial expressions and body language
- Ask for clarification if signals cannot be interpreted correctly
- Eye contact: Look into the device's camera, not at the screen
- Speak somewhat slower and more deliberately; take short pauses in between. NOTE: slight time delay in transmission
- Ask if there are questions. Allow time to answer
- Maintain calm body posture, avoid abrupt movements
- For demonstrations: The image appears mirrored
- Have patients repeat instructions to ensure everything was understood correctly

Screen Sharing:

- Most software tools allow sharing your screen with your patient. Through this function, you can show images or discuss documents explaining exercises together.

Ending the Online Consultation:

- At the end of the therapy session, clarify if there are any open questions
- Ask again how it felt to conduct therapy this way
- Schedule the next appointment
- Say goodbye to the patient
- Inform them that you are now leaving the meeting

Resources:

https://www.fagperson.sundhed.rm.dk/til-ansatte-og-samarbejdspartnere/telemedicin/in-english/guide-to-a-succesful-video-consultation/guidance-on-communication/
https://www.fh-campuswien.ac.at/departments/gesundheitswissenschaften/einsatz-von-teletherapie-in-zeiten-von-covid-19.html

Appendix C: Dutch Blended Therapy Checklist

Dutch Blended Therapy Checklist
(Kloek et al., 2020)

It is important for physiotherapists to find out whether a blended therapy concept can be chosen with patients to support treatment. Kloek et al, 2020 have created a checklist for this purpose. This checklist consists of 8 items: motivation, safety, equipment, digital skills, health literacy, self-management, time, and financial factors.

This checklist aims to assist physiotherapists in their clinical reasoning process while setting up a personalized blended treatment, in which synchronous contact with a physiotherapist is integrated with a digital application which facilitates unguided rehabilitation.

Part A: Prerequisite patient characteristics for being suitable for blended physiotherapy.
Note: if one or more items are answered with "no", the patient is probably not suitable for blended physiotherapy.

1. **Motivation**
   Can you motivate the patient for blended treatment?
   Example: Positive attitude for digital applications, experience with blended care, beliefs about the added value of the digital application

2. **Safety**
   Is it safe for the patient to rehabilitate unsupervised by using the digital application?
   Example: Physical ability of the patient, contra-indication for unsupervised activities

3. **Equipment**
   Does the patient have the required digital application?
   Example: Access to the internet, a smartphone, a tablet, PC

4. **Digital skills**
   Is it possible to teach the patient how to use the required digital application?
   Example: Operate the digital application

5. **Health literacy**
   Is the patient able to interpret text, video and/or audio files as presented the digital application?
   Example: Health literacy, language, cognition

Part B: Consideration while setting up a blended physiotherapy treatment.
Note: These patient characteristics can influence patients' appropriate ratios between physiotherapeutic guidance and digital application.

6. Self-management

Discuss patients' ability to perform assignments as provided by the digital application without supervision.

Example: Self-management and self-direction

7. Time

Discuss whether the time investigation for physiotherapy should be taken into account.

Example: Patients' available time in general, traveling time to clinic

8. Financial factors

Discuss financial factors which should be taken into account.

Example: Health insurance, travelling costs and costs of digital applications

References:

Kloek, C. J. J., Janssen, J., & Veenhof, C. (2020). Development of a Checklist to Assist Physiotherapists in Determination of Patients' Suitability for a Blended Treatment. *Telemedicine journal and e-health : the official journal of the American Telemedicine Association*, *26*(8), 1051–1065. https://doi.org/10.1089/tmj.2019.0143

Appendix D: Mobile Application Rating Scale

Mobile Application Rating Scale (MARS)

App Classification

The Classification section is used to collect descriptive and technical information about the app. Please review the app description in iTunes / Google Play to access this information.

App Name: _____

Rating this version: _____ **Rating all versions:** _____

Developer: _____

N ratings this version: _____ **N ratings all versions:** _____

Version: _____ **Last update:** _____

Cost - basic version: _____ **Cost - upgrade version:** _____

Platform: □ iPhone □ iPad □ Android

Brief description: _____

Focus: what the app targets (select all that apply)

- □ Increase Happiness/Well-being
- □ Mindfulness/Meditation/Relaxation
- □ Reduce negative emotions
- □ Depression
- □ Anxiety/Stress
- □ Anger
- □ Behaviour Change
- □ Alcohol /Substance Use
- □ Goal Setting
- □ Entertainment
- □ Relationships
- □ Physical health
- □ Other _____

Theoretical background/Strategies (all that apply)

- □ Assessment
- □ Feedback
- □ Information/Education
- □ Monitoring/Tracking
- □ Goal setting
- □ Advice /Tips /Strategies /Skills training
- □ CBT - Behavioural (positive events)
- □ CBT – Cognitive (thought challenging)
- □ ACT - Acceptance commitment therapy
- □ Mindfulness/Meditation
- □ Relaxation
- □ Gratitude
- □ Strengths based
- □ Other _____

Affiliations:

□ Unknown □ Commercial □ Government □ NGO □ University

Age group (all that apply)

□ Children (under 12)
□ Adolescents (13-17)
□ Young Adults (18-25)
□ Adults
□ General

Technical aspects of app (all that apply)

□ Allows sharing (Facebook, Twitter, etc.)
□ Has an app community
□ Allows password-protection
□ Requires login
□ Sends reminders
□ Needs Web access to function

App Quality Ratings

The Rating scale assesses app quality on four dimensions. All items are rated on a 5-point scale from "1.Inadequate" to "5.Excellent". Circle the number that most accurately represents the quality of the app component you are rating. Please use the descriptors provided for each response category.

SSECTION A

Engagement – fun, interesting, customisable, interactive (e.g. sends alerts, messages, reminders, feedback, enables sharing), well-targeted to audience

1. Entertainment: Is the app fun/entertaining to use? Does it use any strategies to increase engagement through entertainment (e.g. through gamification)?
   1 Dull, not fun or entertaining at all
   2 Mostly boring
   3 OK, fun enough to entertain user for a brief time (< 5 minutes)
   4 Moderately fun and entertaining, would entertain user for some time (5-10 minutes total)
   5 Highly entertaining and fun, would stimulate repeat use

2. Interest: Is the app interesting to use? Does it use any strategies to increase engagement by presenting its content in an interesting way?
   1 Not interesting at all
   2 Mostly uninteresting
   3 OK, neither interesting nor uninteresting; would engage user for a brief time (< 5 minutes)
   4 Moderately interesting; would engage user for some time (5-10 minutes total)
   5 Very interesting, would engage user in repeat use

3. Customisation: Does it provide/retain all necessary settings/preferences for apps features (e.g. sound, content, notifications, etc.)?
   1 Does not allow any customisation or requires setting to be input every time
   2 Allows insufficient customisation limiting functions
   3 Allows basic customisation to function adequately
   4 Allows numerous options for customisation
   5 Allows complete tailoring to the individual's characteristics/preferences, retains all settings

4. Interactivity: Does it allow user input, provide feedback, contain prompts (reminders, sharing options, notifications, etc.)? Note: these functions need to be customisable and not overwhelming in order to be perfect.
   1 No interactive features and/or no response to user interaction
   2 Insufficient interactivity, or feedback, or user input options, limiting functions
   3 Basic interactive features to function adequately
   4 Offers a variety of interactive features/feedback/user input options
   5 Very high level of responsiveness through interactive features/feedback/user input options

5. Target group: Is the app content (visual information, language, design) appropriate for your target audience?
   1 Completely inappropriate/unclear/confusing
   2 Mostly inappropriate/unclear/confusing
   3 Acceptable but not targeted. May be inappropriate/unclear/confusing
   4 Well-targeted, with negligible issues
   5 Perfectly targeted, no issues found

A. Engagement mean score = _____

SSECTION B

Functionality – app functioning, easy to learn, navigation, flow logic, and gestural design of app

6. Performance: How accurately/fast do the app features (functions) and components (buttons/menus) work?
   1 App is broken; no/insufficient/inaccurate response (e.g. crashes/bugs/broken features, etc.)
   2 Some functions work, but lagging or contains major technical problems
   3 App works overall. Some technical problems need fixing/Slow at times
   4 Mostly functional with minor/negligible problems
   5 Perfect/timely response; no technical bugs found/contains a 'loading time left' indicator

7. Ease of use: How easy is it to learn how to use the app; how clear are the menu labels/icons and instructions?
   1 No/limited instructions; menu labels/icons are confusing; complicated
   2 Useable after a lot of time/effort
   3 Useable after some time/effort
   4 Easy to learn how to use the app (or has clear instructions)
   5 Able to use app immediately; intuitive; simple

8. Navigation: Is moving between screens logical/accurate/appropriate/ uninterrupted; are all necessary screen links present?
   1 Different sections within the app seem logically disconnected and random/confusing/navigation is difficult
   2 Usable after a lot of time/effort
   3 Usable after some time/effort
   4 Easy to use or missing a negligible link
   5 Perfectly logical, easy, clear and intuitive screen flow throughout, or offers shortcuts

9. Gestural design: Are interactions (taps/swipes/pinches/scrolls) consistent and intuitive across all components/screens?
   1 Completely inconsistent/confusing
   2 Often inconsistent/confusing
   3 OK with some inconsistencies/confusing elements
   4 Mostly consistent/intuitive with negligible problems
   5 Perfectly consistent and intuitive

B. Functionality mean score = _____

SSECTION C

Aesthetics – graphic design, overall visual appeal, colour scheme, and stylistic consistency

10. Layout: Is arrangement and size of buttons/icons/menus/content on the screen appropriate or zoomable if needed?
   1 Very bad design, cluttered, some options impossible to select/locate/see/read device display not optimised

2 Bad design, random, unclear, some options difficult to select/locate/see/read
3 Satisfactory, few problems with selecting/locating/seeing/reading items or with minor screen- size problems
4 Mostly clear, able to select/locate/see/read items
5 Professional, simple, clear, orderly, logically organised, device display optimised. Every design component has a purpose

11. Graphics: How high is the quality/resolution of graphics used for buttons/icons/menus/content?
1 Graphics appear amateur, very poor visual design - disproportionate, completely stylistically inconsistent
2 Low quality/low resolution graphics; low quality visual design – disproportionate, stylistically inconsistent
3 Moderate quality graphics and visual design (generally consistent in style)
4 High quality/resolution graphics and visual design – mostly proportionate, stylistically consistent
5 Very high quality/resolution graphics and visual design - proportionate, stylistically consistent throughout

12. Visual appeal: How good does the app look?
1 No visual appeal, unpleasant to look at, poorly designed, clashing/mismatched colours
2 Little visual appeal – poorly designed, bad use of colour, visually boring
3 Some visual appeal – average, neither pleasant, nor unpleasant
4 High level of visual appeal – seamless graphics – consistent and professionally designed
5 As above + very attractive, memorable, stands out; use of colour enhances app features/menus

C. Aesthetics mean score =

SSECTION D

Information – Contains high quality information (e.g. text, feedback, measures, references) from a credible source. Select N/A if the app component is irrelevant.

13. Accuracy of app description (in app store): Does app contain what is described?
    1 Misleading. App does not contain the described components/functions. Or has no description
    2 Inaccurate. App contains very few of the described components/functions
    3 OK. App contains some of the described components/functions
    4 Accurate. App contains most of the described components/functions
    5 Highly accurate description of the app components/functions

14. Goals: Does app have specific, measurable and achievable goals (specified in app store description or within the app itself)?
    N/A Description does not list goals, or app goals are irrelevant to research goal (e.g. using a game for educational purposes)
    1 App has no chance of achieving its stated goals
    2 Description lists some goals, but app has very little chance of achieving them
    3 OK. App has clear goals, which may be achievable.
    4 App has clearly specified goals, which are measurable and achievable
    5 App has specific and measurable goals, which are highly likely to be achieved

15. Quality of information: Is app content correct, well written, and relevant to the goal/topic of the app?
    N/A There is no information within the app
    1 Irrelevant**/**inappropriate/incoherent/incorrect
    2 Poor. Barely relevant/appropriate/coherent**/**may be incorrect
    3 Moderately relevant/appropriate/coherent**/**and appears correct
    4 Relevant**/**appropriate/coherent/correct
    5 Highly relevant, appropriate, coherent, and correct

16. Quantity of information: Is the extent coverage within the scope of the app; and comprehensive but concise?
    N/A There is no information within the app
    1 Minimal or overwhelming
    2 Insufficient or possibly overwhelming
    3 OK but not comprehensive or concise
    4 Offers a broad range of information, has some gaps or unnecessary detail; or has no links to more information and resources
    5 Comprehensive and concise; contains links to more information and resources

17. Visual information: Is visual explanation of concepts – through charts/graphs/images/videos, etc. – clear, logical, correct?
    N/A There is no visual information within the app (e.g. it only contains audio, or text)
    1 Completely unclear/confusing/wrong or necessary but missing

2 Mostly unclear/confusing/wrong
3 OK but often unclear/confusing/wrong
4 Mostly clear/logical/correct with negligible issues
5 Perfectly clear/logical/correct

18. Credibility: Does the app come from a legitimate source (specified in app store description or within the app itself)?

1 Source identified but legitimacy/trustworthiness of source is questionable (e.g. commercial business with vested interest)
2 Appears to come from a legitimate source, but it cannot be verified (e.g. has no webpage)
3 Developed by small NGO/institution (hospital/centre, etc.) /specialised commercial business, funding body
4 Developed by government, university or as above but larger in scale
5 Developed using nationally competitive government or research funding (e.g. Australian Research Council, NHMRC)

19. Evidence base: Has the app been trialled/tested; must be verified by evidence (in published scientific literature)?

N/A The app has not been trialled/tested
1 The evidence suggests the app does not work
2 App has been trialled (e.g., acceptability, usability, satisfaction ratings) and has partially positive outcomes in studies that are not randomised controlled trials (RCTs), or there is little or no contradictory evidence.
3 App has been trialled (e.g., acceptability, usability, satisfaction ratings) and has positive outcomes in studies that are not RCTs, and there is no contradictory evidence.
4 App has been trialled and outcome tested in 1-2 RCTs indicating positive results
5 App has been trialled and outcome tested in $\geq$ 3 high quality RCTs indicating positive results

D. Information mean score = *

* Exclude questions rated as “N/A” from the mean score calculation.

20. Quantity of information: Is the extent coverage within the scope of the app; and comprehensive but concise?

N/A There is no information within the app

1 Minimal or overwhelming
2 Insufficient or possibly overwhelming
3 OK but not comprehensive or concise
4 Offers a broad range of information, has some gaps or unnecessary detail; or has no links to more information and resources
5 Comprehensive and concise; contains links to more information and resources

21. Visual information: Is visual explanation of concepts – through charts/graphs/images/videos, etc. – clear, logical, correct?

N/A There is no visual information within the app (e.g. it only contains audio, or text)

1 Completely unclear/confusing/wrong or necessary but missing
2 Mostly unclear/confusing/wrong
3 OK but often unclear/confusing/wrong
4 Mostly clear/logical/correct with negligible issues
5 Perfectly clear/logical/correct

22. Credibility: Does the app come from a legitimate source (specified in app store description or within the app itself)?

1 Source identified but legitimacy/trustworthiness of source is questionable (e.g. commercial business with vested interest)
2 Appears to come from a legitimate source, but it cannot be verified (e.g. has no webpage)
3 Developed by small NGO/institution (hospital/centre, etc.) /specialised commercial business, funding body
4 Developed by government, university or as above but larger in scale
5 Developed using nationally competitive government or research funding (e.g. Australian Research Council, NHMRC)

23. Evidence base: Has the app been trialled/tested; must be verified by evidence (in published scientific literature)?

N/A The app has not been trialled/tested

1 The evidence suggests the app does not work
2 App has been trialled (e.g., acceptability, usability, satisfaction ratings) and has partially positive outcomes in studies that are not randomised controlled trials (RCTs), or there is little or no contradictory evidence.
3 App has been trialled (e.g., acceptability, usability, satisfaction ratings) and has positive outcomes in studies that are not RCTs, and there is no contradictory evidence.
4 App has been trialled and outcome tested in 1-2 RCTs indicating positive results
5 App has been trialled and outcome tested in $\geq$ 3 high quality RCTs indicating positive results

E. Information mean score = _____ *

***** Exclude questions rated as "N/A" from the mean score calculation.

App subjective quality

SSECTION E

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24. Would you recommend this app to people who might benefit from it?

1	**Not at all**	I would not recommend this app to anyone
2		There are very few people I would recommend this app to
3	**Maybe**	There are several people whom I would recommend it to
4		There are many people I would recommend this app to
5	**Definitely**	I would recommend this app to everyone

25. How many times do you think you would use this app in the next 12 months if it was relevant to you?

1 **None**
2 1-2
3 3-10
4 10-50
5 >50

26. Would you pay for this app?

1 No
3 Maybe
5 Yes

27. What is your overall star rating of the app?

1	*	One of the worst apps I've used
2	**	
3	***	Average
4	****	
5	*****	One of the best apps I've used

Scoring

App quality scores for

SECTION

A: Engagement Mean Score = _____

B: Functionality Mean Score = _____

C: Aesthetics Mean Score = _____

D: Information Mean Score = _____

App quality mean Score= _____

App subjective quality Score = _____

App-specific

These added items can be adjusted and used to assess the perceived impact of the app on the user's knowledge, attitudes, intentions to change as well as the likelihood of actual change in the target health behaviour.

SSECTION F

1. Awareness: This app is likely to increase awareness of the importance of addressing [insert target health behaviour]

Strongly disagree 1 2 3 4 Strongly Agree 5

2. Knowledge: This app is likely to increase knowledge/understanding of [insert target health behaviour]

Strongly disagree 1 2 3 4 Strongly Agree 5

3. Attitudes: This app is likely to change attitudes toward improving [insert target health behaviour]

Strongly disagree 1 2 3 4 Strongly Agree 5

4. Intention to change: This app is likely to increase intentions/motivation to address [insert target health behaviour]

Strongly disagree 1 2 3 4 Strongly Agree 5

5. Help seeking: Use of this app is likely to encourage further help seeking for [insert target health behaviour] (if it's required)

Strongly disagree				Strongly Agree
1	2	3	4	5

6. Behaviour change: Use of this app is likely increase/decrease [insert target health behaviour]

Strongly disagree				Strongly
1	2	3	4	Agree 5