Understanding the user experience, barriers and facilitators of using a clinical tool-kit app to support evidence-based management of neck pain

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BACKGROUND

• Neck pain is common and disabling.
• Systematic reviews suggest that effective management approaches, such as exercise, improve pain and function and are underutilized in practice.
• A knowledge translation ‘app’ was developed for physiotherapists to facilitate evidence-based practice.
• An understanding of the user experience, barriers and facilitators to using the app was needed prior to implementing more widely and to inform updates.

PURPOSE

• 1) Understand the user experience of physiotherapists and physiotherapy students using the “Manual therapy and exercise for neck pain: clinical treatment tool-kit”.
• 2) Identify barriers and facilitators to using the clinical tool-kit in clinical practice.

METHODS

• Qualitative interviews: 9 physiotherapists and 9 physiotherapy students using a combination of “think-aloud” and interpretive description.
• Morville’s User Experience Honeycomb and the Theoretical Domains Framework informed the interview guide.
• Interviews were audiotaped, transcribed, and coded independently by two authors.
• A constant comparative approach was used for analysis.

Morville’s User Experience Honeycomb

Theoretical Domains Framework

Skills
Knowledge
Nature of Behaviors
Behavioral Regulation
Emotion
Social Influences
Environmental context and resources
Memory, attention and decision process
Motivation
Beliefs about consequences
Beliefs about capabilities
Social/professional role
The Clinical ToolKit: How it works

**STEP 1: IDENTIFY YOUR PATIENT**
- Neck Pain
  - Neck Pain Alone
    - Acute
    - Chronic
    - Unspecified
  - Neck pain with cervicogenic headache
    - Acute
    - Chronic
  - Whiplash associated disorder (WAD)
    - Acute
    - Chronic
  - Neck pain with radiculopathy
    - Acute

**STEP 2: DETERMINE THE EVIDENCE**

<table>
<thead>
<tr>
<th>Author, year of original studies</th>
<th>Participant characteristics</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Pain</th>
<th>Function</th>
<th>Disability</th>
<th>GPE</th>
<th>Patient</th>
<th>Satisfaction</th>
<th>QoL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronfort 2001[1]</td>
<td>Subacute/chronic neck pain with or without CGH</td>
<td>Manipulation or mobilization and exercise</td>
<td>Primarily exercise alone</td>
<td>**, ***</td>
<td>0, 0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Skagen 1996[10]</td>
<td>Chronic neck pain</td>
<td>Manipulation or mobilization and exercise</td>
<td>Primarily manipulation or mobilization alone</td>
<td>****</td>
<td>****</td>
<td>****</td>
<td>****</td>
<td>****</td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>Ylinen 2002[11]</td>
<td>Chronic neck pain</td>
<td>Manipulation, mobilization, and exercise</td>
<td>Adjunct advice including general exercise</td>
<td>****</td>
<td>****</td>
<td>****</td>
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</tbody>
</table>

**STEP 3: INFORM YOUR TECHNIQUE**

- **Manual therapy and exercise**

  - Spinal manipulation to the cervical and thoracic spine (Halldemar 1991[9]) with light soft-tissue massage as indicated to facilitate the spinal manipulative therapy
  - Warm-up on a stationary bike with arm levers
  - Light stretching as part of warm-up (A4)

  ![Manual therapy and exercise](image)

  - (a) Upper fibres of trapezius stretch
  - (b) Levator scapulae stretch
  - (c) Scalenus stretch
  - Upper-body strengthening exercises (Dymersen 1989[9])
    - Push-ups (d)

**STEP 4: CONSIDER DOSAGE**

<table>
<thead>
<tr>
<th>Disorder Type</th>
<th>Chronic neck pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment (T) / Comparison (C)</td>
<td>T: Spinal manipulation and massage to the cervical and thoracic spine and exercise therapy C: (a) Exercise therapy using MedX equipment (b) Spinal manipulation and massage + duloxetine microcrystalline</td>
</tr>
<tr>
<td>Frequency</td>
<td>20 sessions over 11 weeks</td>
</tr>
<tr>
<td>Dose</td>
<td>15 minutes of manipulation and massage 45 minutes of exercise therapy Dumbbell shoulder exercises: 3 x 15-30 repetitions with 2-10lbs Pulley exercises: 1.25-10 lbs resistance</td>
</tr>
<tr>
<td>Duration</td>
<td>11 weeks, 20 sessions</td>
</tr>
<tr>
<td>Follow-up</td>
<td>52 and 104 weeks</td>
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</table>

**STEP 5: INDIVIDUALIZE TREATMENT**

Individualized treatment takes into account the patient, practice setting, and practitioner.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Practice Setting</th>
<th>Practitioner</th>
</tr>
</thead>
<tbody>
<tr>
<td>patient wishes</td>
<td>environment</td>
<td>clinical knowledge</td>
</tr>
<tr>
<td>patient beliefs</td>
<td>governance</td>
<td>clinical skill</td>
</tr>
<tr>
<td>circumstance</td>
<td>available tools</td>
<td>practitioner attitude</td>
</tr>
</tbody>
</table>
Results – User experience themes

**Useful** - Most participants expressed that the toolkit has potential to be useful for informing their practice for people with neck pain. "It would be nice to have a tool, developed by physiotherapists to help guide physiotherapy practice. I think it’s really really useful."

**Useable** - Participants identified improvements to the legend and navigation between steps as important for improving usability. "Usability is the biggest barrier right now for that app. And so that should improve."

**Desirable** - Most participants liked the app because it provides a quick reference to the evidence on neck pain management. "I just think it’s valuable to kind of have that quick snap shot. Like if I don’t have to go back and read a full article. Spend, whatever it is – half an hour, you probably don’t have that time in a day between patients or anything like that."

**Findable** - Many participants expressed concerns with difficulty navigating within the app to find the information they were looking for. "I imagine step 1, 2, 3 and 4 are meant to be really seamless, right, for the practitioner. And it didn’t really seem that seamless to me,. . . ."

**Accessible** - All participants reported no difficulty gaining access to the app and were able to follow the direct link provided.

**Credible** - A few participants had difficulties understanding where the information was coming from and questioned the selection process of the articles. All participants agreed that the toolkit should be updated regularly to remain a credible resource.

**Valuable** - Many saw value in the clinical toolkit as a way to stay up to date with the literature without having to engage in extensive searches on their own. Experienced therapists suggested it helped confirm current practices, while physiotherapy students suggested it provided treatment ideas.
Results – barriers and facilitators to using the app

**FACILITATORS**

- Perceived value of an app that summarizes a large volume of journal articles quickly.
- Readiness of physiotherapists to use evidence and technology in practice.
- Helpful for confirming current practice (for clinicians) and to inform treatment decisions (for students).

**BARRIERS**

- Concern that patients may view the use of app in practice as unprofessional.
- Difficulties navigating between steps of the app.
- Time required to navigate through the app.

**Conclusions**

- Physiotherapists and physiotherapy students are ready to embrace technology in practice and have a positive attitude towards evidence-based practice.
- The manual therapy and exercise for neck pain clinical tool-kit was perceived as useful and valuable by participants.
  - Practicing clinicians found the tool-kit helpful for confirming current practices.
  - Physiotherapists found the clinical tool-kit helpful for informing treatment decisions.
- Recommendations for easier navigation and an improved legend will be integrated in the next iteration of the tool-kit app.