Child-focused mHealth apps used in collaborative, real-world interventions: A scoping review

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STUDY OBJECTIVE
This scoping review aimed to gather and synthesize existing literature related to rehabilitation-based mHealth apps used with children in real-world environments and as part of collaborative care models. For the purpose of this review, rehabilitation encompassed audiology and speech-language pathology (SLP), occupational therapy (OT) and physical therapy (PT), psychology, orthotics and prosthetics, and physical and rehabilitation medicine. Collaborative care can help facilitate patient-centered health care and shared decision making, through direct patient involvement, paired with provider-directed care. Interventions conducted in “real-world” environments (outside of labs or simulated environments) can provide naturalistic and information-rich findings.

METHODS
The following databases were utilized to develop a full search strategy and obtain articles for this review: MEDLINE(R) ALL (Ovid), Embase and Embase Classic (Ovid), Nursing and Allied Health, Web of Science, Scopus and CINAHL (EBSCO).

Inclusion Criteria:
(1) published/accessible in the English-language; (2) accessible electronically; (3) peer-reviewed; (4) available in full-text; (5) an original research article; (6) describing a context including the use of mHealth apps; (7) guiding real-world treatment/intervention; (8) care beyond assessment/screening only; (9) care including rehabilitation; and (10) app use co-led by a healthcare professional within rehabilitation sciences with direct patient (child) manipulation of the app as part of the intervention.

Following the Joanna Briggs Institute (JBI) methodology4 and using the Covidence platform5, two independent reviewers assessed all articles at each phase. Conflicts were resolved by a moderator or through team discussion.

RESULTS*

Table 1. Real-World, Physical Context of App Use

<table>
<thead>
<tr>
<th>Home-based</th>
<th>At school</th>
<th>Clinic-based</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>7</td>
<td>13</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 2. Care Scenario

<table>
<thead>
<tr>
<th>During therapy session</th>
<th>Daily life use</th>
<th>Targeted behaviour/situation</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>13</td>
<td>16</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 4. Interactive App Features

CONCLUSIONS
Just over half of the included articles were pilot or efficacy studies, relating to the novelty of the use of child-focused mHealth apps as part of rehabilitation-based interventions. Only a limited number of interventions assessed the quality and/or safety of the app(s). Active interactive app features were more common than passive, with action/treatment plan and interactive prompts being used most often. Repetitive content, lack of motivation, technical difficulties and limited/no access to support were perceived as barriers to app engagement. Conversely, gamification and guiding/coaching led to greater app use and as a result increased engagement in care. The benefit of mobile apps is that they allow care to take place in a variety of environments that are convenient to the end-user. Overall, the findings from this review suggest that the use of mHealth apps as part of interventions led to a greater desire to participate and increased child engagement in the care process.

Funding statement: This work was supported by The Western Undergraduate Summer Research Internship (USRI) program and in part with funding from a research grant (Awarded from Sorouy AG) and held by Dr. Glista.

REFERENCES

Figure 1. PRISMA Flow Diagram

Figure 2. Origins of Included Studies

Figure 3. Childhood Health Condition

Figure 4. Interactive App Features

*Note: All summaries are related to the number of studies (N) included in this review.