

Supplementary Table S1. Summary of basic information of included mHealth apps.

| App name | BeMobil Orthotimer | BraceTrack for Scoliosis | BraceWyse | Brace Rite Scoliosis | MyScoliCare | Scoliosis Tracker | SER system | Spinamic | Pain Monitor | WeChat (Mini Program) |
|-----------------------|---|--------------------------|------------------------|---|----------------------|---------------------------|---------------------|---------------------------|-------------------------|--------------------------------|
| Developer | nova motum Services & Consulting Gmb1ya | BraceTrack, LLC | BraceWyse (Yuchen Sun) | Texas Scottish Rite Hospital for Children | BA Winston | BLUE LINER MARKETING, LLC | Scoliosistoday, LLC | Value and Trust Co., Ltd. | Azucena Garcia-Palacios | WeChat International Pte. Ltd. |
| -Provider involvement | Yes | No | No | Yes | No | Yes | Unknown | Yes | Yes | Yes |
| Operating system | Android, iOS | Android, iOS | Android, iOS | Android, iOS | Android, iOS | iOS | iOS | iOS | Android, iOS | Android, iOS |
| Version | 1.0.8 | 1.4.6 | 32 | 0.5.6 | 5 | 1.1 | 0.4.1 | 1.03 | 1.8 | 8.0.18 |
| -Upload, yr | 2019 | 2019 | 2021 | 2021 | 2019 | 2019 | 2021 | 2018 | 2017 | 2011 |
| -Last update, yr | 2020 | 2021 | 2021 | 2021 | 2019 | 2019 | 2022 | 2019 | 2020 | 2022 |
| Cost | Free | Free | Free | Free | Free | Free | Free | Free | Free | Free |
| -In app purchase | Yes (\$36.99) | No | No | No | No | No | No | No | No | No |
| -Sensors purchase | Needed* | No | Needed† | Needed‡ | No | No | Needed ^b | No | No | Needed ^c |
| Target users | Patients | Patients | Patients +Caregivers | Patients +Caregivers | Patients +Caregivers | Patients +Caregivers | Patients | Patients | Patients | Patients |

* Sensor sensing temperature, body humidity, mechanical pressure, acceleration.

† Sensor sensing temperature.

‡ Sensor sensing mechanical pressure.

Supplementary Table S2. Detailed app rating items of the THESIS.

| Section | Item | Detail |
|--------------------------|--------------------------------------|---|
| Transparency | | |
| | Cost of app | Are the prices, subscriptions, and in-app purchases accurately conveyed? |
| | Consent | What is the quality of the consent process, if any? |
| | Accuracy of app store description | How accurate is the app store description of the app's purpose? |
| Health content | | |
| | Appropriate measurement | Does the app appropriately measure what it claims to measure? |
| | Appropriate interpretation of data | Does the app appropriately interpret what it claims to interpret? |
| | Quality of information | How optimal is the quality of information? |
| | Potential for harm | Is the potential for harm minimized? |
| | Literacy level | How appropriate is the literacy level for the app's intended audience? |
| | Presentation of information | Is information presented in an optimal manner? For example, is scaffolding used? |
| Technical content | | |
| | Software performance/stability | Does the app run well with zero interface crashes or bugs? |
| | Interoperability | Is the app able to exchange information with EHRs and other apps? |
| | Bandwidth | Does the app require significant bandwidth to run? |
| | Application size | Does the app require significant storage capacity? |
| Security/Privacy | | |
| | Protection against theft and viruses | Does the app follow best practices in security with optimal anti-virus and safeguards against breaches? |
| | Authentication | Is the authentication procedure optimal? |
| | Data sharing | When sharing information, does the app use best practices? |
| | Maintenance | Does the app have regular cycles to update and patch its security? |
| | Signaling of breaches | If a breach occurs, does the app have a method to notify its users? |
| | Anonymization | Does the app appropriately anonymize individuals? |
| Usability | | |
| | Installation and setup | How would you rate are installation and setup? |
| | Functionality | Quality of ease of use, navigation, gestural design, help/instructions? |
| | Aesthetics | Quality of layout, graphics, visual appeal, and image readability? |
| | Customization/tailoring | Ability to customize and tailor to the specific user's needs? |

| | | |
|-------------------|--|--|
| | Ease of use for users with low literacy and numeracy | Is the app usable by users with low literacy and numeracy? |
| | Availability in multiple languages | Is the app available in multiple languages? |
| Subjective | | |
| | Recommend app | Would you recommend this app |
| | Overall star rating | What is your overall rating of this app? |