MS self®, an Educational Application for Recording MS-Related Experience and Symptoms: A Longitudinal Analysis

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Background

MS self® is a FIS®-enabled, multicomponent, educational application (App) (Figure 1).

The journaling feature of the App allows users to record multiple events pertaining to MS-related symptoms, mobility impairment, activities of daily living (ADLs), and to generate concise reports that can be shared with their healthcare providers (HCPs).

Overview of key features:

- Educational Fact Cards
- More than 50 Fact Cards provide info and tips on managing the physical, emotional, and mental challenges of living with MS
- Fact Cards are updated regularly
- Topics easily searchable within the App
- Symptom tracking
- Enables users to track mood, symptoms, and activities
- Users can add text to describe their daily experiences
- "Emoticons" encourage users to be forthcoming in expressing their emotions
- Fitbit and weather integration
- Information on weather conditions may be useful to those whose symptoms can be exacerbated by extreme temperatures

Objective

- To provide user experience data from the MS self® App

Methods

- In this longitudinal analysis, de-identified and aggregated data for MS-related symptoms, mobility impairment, and ADLs were tracked using Google Analytics from November 2, 2013, to September 1, 2016, and compared with data from December 1, 2013, to November 1, 2015.

Results

- From 2015–2016, an estimated 8,490 users logged 127,461 sessions; average session time: 3 minutes and 6 seconds (Table 1).
  - There was an 8% increase in the total number of journal events recorded: 625,648 vs 763,307 for 2015–2016 vs 2013–2015, respectively

Table 1. Overall Usage From 2013 to 2015 and 2015 to 2016, as Determined by Google Analytics, by Variable

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Users, %</td>
<td>11,120</td>
<td>8,499</td>
</tr>
<tr>
<td>Sessions, %</td>
<td>104,908</td>
<td>107,401</td>
</tr>
<tr>
<td>Events, N</td>
<td>726,123</td>
<td>825,698</td>
</tr>
<tr>
<td>Avg. session duration, sec</td>
<td>6:39</td>
<td>3:06</td>
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</table>

- Mobility levels were recorded based on the question "How would you rate your mobility today?"

- Longitudinal analysis indicates that the proportions of events were consistent between 2015–2016 vs 2013–2015 (Table 1).

- MS-related symptoms were stratified by mobility level of ability to walk (Figure 3).

Figure 1. The MS self® App, a Multicomponent, Educational App

Figure 2. Total Reported Journal Events (n=475,387), by Category (main pie chart) and Subcategory (bar graphs and small pie charts)

Figure 3. MS-Related Symptoms Stratified by Mobility

<table>
<thead>
<tr>
<th>Symptom</th>
<th>2015–2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue</td>
<td>32%</td>
</tr>
<tr>
<td>Lower body weakness</td>
<td>20%</td>
</tr>
<tr>
<td>Numbness</td>
<td>10%</td>
</tr>
<tr>
<td>Pain</td>
<td>10%</td>
</tr>
<tr>
<td>Impaired gait disturbance</td>
<td>6%</td>
</tr>
</tbody>
</table>

Limitations

- The users of the App were not required to have a confirmed diagnosis

Summary

- Longitudinal data support the use of the App as a tool to record MS-related experience and symptoms that could be used to facilitate patient engagement with HCPs

- There was consistency of recorded journal events between 2015–2016 and 2013–2015

- The next version of the App (version 3.3) will include: 12–15x More Multisclerosis Walking Scale (MSWS-12); validated, self-reported patient questionnaire rating the effect of MS on walking

- Scheduled reminders to generate reports prior to next doctor’s appointment

- Addition of new User Profile questions

Support

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Disclosures

All authors are employees and shareholders of Acorda Therapeutics, Inc.

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