Characteristics of the original studies included in the systematic review.

Sources of reported barriers/facilitators:

- [ ] Quantitative Sources
- [ ] Qualitative Sources
- [ ] Mixed Method Sources

<table>
<thead>
<tr>
<th>First author, year, reference</th>
<th>Country</th>
<th>Population</th>
<th>Participant Characteristics</th>
<th>Description of RMT device</th>
<th>Type of RMT</th>
<th>Length of trial</th>
<th>Quantitative Sources</th>
<th>Qualitative Sources</th>
<th>Quality assessment (0 - 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aranki, 2016 [18]</td>
<td>USA</td>
<td>Chronic Heart Condition</td>
<td>Male (n = 8) Female (n = 7) Age not specified</td>
<td>A smartphone app encompassing internal sensors to monitor energy expenditure, and daily surveys of cardiovascular symptoms (e.g. fatigue and dizziness) and vital signs (e.g. heartbeat rate and blood pressure)</td>
<td>Active and 6 weeks</td>
<td>Usage statistics; Questionnaire</td>
<td>N/A</td>
<td>0.25</td>
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<tr>
<td>Ben-Zeev, 2014 [8]</td>
<td>USA</td>
<td>Psychosis</td>
<td>Male (n = 20) Female (n = 13) Age (Mean = 45.9, SD = 8.78)</td>
<td>FOCUS: smartphone apps and online dashboard using ecological momentary assessment (EMA) of current status (e.g. mood) with tailored feedback and interventions</td>
<td>Active</td>
<td>1 month</td>
<td>Usage statistics; Questionnaire</td>
<td>N/A</td>
<td>0.75</td>
</tr>
<tr>
<td>Ben-Zeev, 2016 [13]</td>
<td>USA</td>
<td>Psychosis</td>
<td>Male (n = 213) Female (n = 129) Age: 18-60</td>
<td>FOCUS: smartphone apps and online dashboard using ecological momentary assessment (EMA) of current status (e.g. mood) with tailored feedback and interventions</td>
<td>Active</td>
<td>6 months</td>
<td>Usage statistics</td>
<td>N/A</td>
<td>0.75</td>
</tr>
<tr>
<td>Buchem, 2015 [34]</td>
<td>Germany</td>
<td>Maintaining health and well-being amongst older adults</td>
<td>Male (n = 10) Female (n = 10) Age not specified</td>
<td>fMOOC: mobile app and pedometer, with educational and gamification (e.g. badges) components</td>
<td>Passive</td>
<td>4 weeks</td>
<td>Usage statistics; Questionnaire</td>
<td>N/A</td>
<td>0.25</td>
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<tr>
<td>Dicianno, 2016 [14]</td>
<td>USA</td>
<td>Spina Bifida</td>
<td><strong>Intervention</strong> Male (n = 8) Female (n = 5) Age (Mean = 29.7, SD = 5)</td>
<td>iMHere: mobile- and web-based PROMs (e.g. mood, physical independence and self-management skills), monitoring of medication adherence, and skin damage reports/image uploads</td>
<td>Active</td>
<td>12 months</td>
<td>Usage statistics</td>
<td>N/A</td>
<td>0.75</td>
</tr>
<tr>
<td>Author, Year</td>
<td>Country</td>
<td>Condition</td>
<td>Participants</td>
<td>Age</td>
<td>Monitoring Method</td>
<td>Activity</td>
<td>Duration</td>
<td>Statistics</td>
<td>Score</td>
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<tr>
<td>Ding, 2016 [29]</td>
<td>USA</td>
<td>Maintaining health and well-being</td>
<td>Male (n = 10) Female (n = 6) Age: 18-25</td>
<td>WalkMore: mobile- and smart watch-based monitoring of physical activity, with motivational reminders</td>
<td>Passive</td>
<td>4 weeks</td>
<td>Questionnaire</td>
<td>N/A</td>
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<tr>
<td>Engelhard, 2017 [9]</td>
<td>USA</td>
<td>Multiple Sclerosis</td>
<td>Male (n = 2) Female (n = 29) Age: (Median = 48, 27-61)</td>
<td>Web-based PROMs (e.g. fatigue, walking impairment and leisure-time exercise habits) and web portal</td>
<td>Active</td>
<td>6 months</td>
<td>Usage statistics</td>
<td>N/A</td>
<td>0.75</td>
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<tr>
<td>Hardinge, 2015 [6]</td>
<td>UK</td>
<td>COPD</td>
<td>Male (n = 9) Female (n = 9) Age: 40-90</td>
<td>Tablet-based daily symptom diaries assessing general well-being, cough and sputum production (quantity and color), and breathlessness, a wireless pulse oximeter, and personalized self-management plans</td>
<td>Active and 6 months passive</td>
<td>Usage statistics</td>
<td>N/A</td>
<td>1</td>
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<tr>
<td>Huang, 2015 [28]</td>
<td>Taiwan</td>
<td>Maintaining health and well-being amongst older adults</td>
<td>Male (n = 29) Female (n = 22) Age: 50-94</td>
<td>Mobile-pad and smartphone-based assessments of physical (e.g. hearing, speech, vision and nutrition) and mental (e.g. cognition and mood) health status SMART: smartphone-based recording of pain intensity and clinical symptoms</td>
<td>Active</td>
<td>6 weeks</td>
<td>Questionnaire</td>
<td>N/A</td>
<td>0.25</td>
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<tr>
<td>Jonassaint, 2015 [10]</td>
<td>USA</td>
<td>Sickle Cell Disease</td>
<td>Male (n = 9) Female (n = 6) Age: (Mean = 29, 16-54)</td>
<td>SMART: smartphone-based recording of pain intensity and clinical symptoms</td>
<td>Active</td>
<td>28 days</td>
<td>Usage statistics</td>
<td>N/A</td>
<td>0.5</td>
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<tr>
<td>Juengst, 2015 [23]</td>
<td>USA</td>
<td>Traumatic Brain Injury</td>
<td>Male (n = 12) Female (n = 8) Age: (Mean = 36.7, SD = 12.4, 22-60)</td>
<td>iPerform: smartphone-based EMA of affect, anxiety and fatigue</td>
<td>Active</td>
<td>8 weeks</td>
<td>Questionnaire</td>
<td>N/A</td>
<td>0.75</td>
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<tr>
<td>Leonard, 2017 [24]</td>
<td>USA</td>
<td>Sickle Cell Disease and β-thalassemia major</td>
<td>Patients Male (n = 4) Female (n = 7) Age: (Mean = 12.4, SD = 3.8, 8-21) Caregivers n = 1 (gender and age not specified)</td>
<td>Self-recorded videos of therapy (iron chelation) administration, uploaded to a remote service via a smartphone or tablet app</td>
<td>Active</td>
<td>6 months</td>
<td>Usage statistics</td>
<td>N/A</td>
<td>0.75</td>
</tr>
<tr>
<td>Lind, 2016 [38]</td>
<td>Sweden</td>
<td>Heart Failure</td>
<td>Male (n = 11) Female (n = 3) Age: (Mean = 84, SD = 5.6, 75-95)</td>
<td>Daily PROMs (e.g. shortness of breath, weight, blood pressure and oxygen saturation) recorded via digital pen-and-paper</td>
<td>Active</td>
<td>13 months</td>
<td>Questionnaire</td>
<td>N/A</td>
<td>0.5</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Condition</td>
<td>Intervention Details</td>
<td>Study Duration</td>
<td>Data Collection Methods</td>
<td>Score</td>
<td></td>
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</tr>
</tbody>
</table>
| McClure, 2016 [12] | USA | Smoking Cessation | Male \((n=14)\)  
Female \((n=19)\)  
Age: Mean = 48.4, SD = 8.4  
**Controls**  
Male \((n=15)\)  
Female \((n=18)\)  
Age: Mean = 50.6, SD = 8.9 | MyMAP: check-in surveys to report current symptoms and side effects completed via a mobile-based program | 5 months | Usage statistics; Questionnaire | 0.5 |
| Mundi, 2015 [33] | USA | Pre-bariatric Surgery | Male \((n=3)\)  
Female \((n=27)\)  
Age: Mean = 41.3, SD = 11.4 | Smartphone-based EMA of physical activity and dietary intake, with motivational and educational components | 12 weeks | Questionnaire | 0.5 |
| Piotrowicz, 2014 [7] | Poland | Cardiovascular Disease | Male \((n=307)\)  
Female \((n=58)\)  
Age: Mean = 58.3, SD = 10.5 | Tele-electrocardiogram (ECG)-monitoring transmitted via a mobile phone to a monitoring center | 4 weeks | Usage statistics; Questionnaire | 1 |
| Price, 2014 [17] | USA | PTSD | Male \((n=17)\)  
Female \((n=14)\)  
Age: Mean = 37.1, SD = 9.8 | Daily SMS-based assessments of social support, hypervigilance, avoidance, re-experiencing and pain | 15 days | Usage statistics; Questionnaire | 0.5 |
| Spring, 2017 [27] | USA | Obesity | Male \((n=15)\)  
Female \((n=81)\)  
Age: Mean = 39.3, SD = 11.7 | Monitoring of dietary intake, body weight and physical activity via a smartphone app and accelerometer \((n=32)\) | Active and 6 months Passive | Usage statistics | 0.75 |
| Anderson, 2016 [32] | Australia | Chronic health conditions and Maintaining health and well-being | Male \((n=7)\)  
Female \((n=15)\)  
Age: 18-55 | A variety of health apps for physical (e.g. blood pressure, diabetes and migraine) and mental (e.g. anxiety) health, with most requiring weekly interaction | Active and Single Session | N/A Semi-structured interviews | 0.75 |
| Fontil, 2016 [21] | USA | Diabetes | Male \((n=8)\)  
Female \((n=10)\)  
Age: Mean = 53 | The Omada Health Program: wireless weight scales and pedometer, with online group support and personalized coaching | Active and 4 weeks Passive | N/A Focus Groups | 0.75 |
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Condition</th>
<th>Gender</th>
<th>Age</th>
<th>Intervention Description</th>
<th>Study Completion</th>
<th>Study Completion Duration</th>
<th>Data Collection Method</th>
<th>Engagement</th>
<th>Fitbit Activity and Passive Use Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maglalan, 2017 [25]</td>
<td>USA</td>
<td>Type 2 Diabetes</td>
<td>Male</td>
<td>(n = 17)</td>
<td>Male (n = 17)Female (n = 28)Age: (Mean = 57.6, SD = 9.8)PiliAm Go4Health: physical activity, Active and 6 months calorie intake and weight recorded Passive via a Fitbit</td>
<td>N/A</td>
<td>Semi-structured interviews</td>
<td>0.75</td>
<td>0.75</td>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>Peng, 2016 [30]</td>
<td>USA</td>
<td>Type 2 Diabetes</td>
<td>Male</td>
<td>(n = 5)</td>
<td>Male (n = 5)Female (n = 13)Age: (Mean = 54, SD = 12.7)Four apps (Glucose Buddy, mySugr, MyFitnessPal and MapMyWalk) with features including activity tracking, goal setting and peer support</td>
<td>N/A</td>
<td>Focus Groups</td>
<td>0.75</td>
<td>0.75</td>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>Randriambelonoro, 2017 [26]</td>
<td>Switzerland</td>
<td>Diabetes and Obesity</td>
<td>Male</td>
<td>(n = 7)</td>
<td>Male (n = 7)Female (n = 11)Age: 36-73FitBit One: activity monitor, daily food log and SMS reminders</td>
<td>N/A</td>
<td>Semi-structured interviews</td>
<td>0.5</td>
<td>0.5</td>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>Westergaard, 2017 [37]</td>
<td>USA</td>
<td>HIV and Substance Use Disorders</td>
<td>Male</td>
<td>(n = 12)</td>
<td>Male (n = 12)Female (n = 7)Age: (Median = 49.3, IQR = 45-54.6)mPeer2Peer: smartphone-based EMA of symptoms and behaviors (e.g. drug and alcohol cravings, usage and mood)</td>
<td>N/A</td>
<td>Semi-structured interviews</td>
<td>0.75</td>
<td>0.75</td>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>Al Ayubi, 2014 [31]</td>
<td>USA</td>
<td>Maintaining health and well-being</td>
<td>Male</td>
<td>(n = 3)</td>
<td>Male (n = 3)Female (n = 10)Age: (Mean = 32.2, SD = 5.6, 24-45)PersonA: smartphone with internal accelerometer to monitor physical activity, and online platform (Facebook) for social support</td>
<td>4 weeks Questionnaires (social interaction introduced in week two)</td>
<td>Semi-structured interviews</td>
<td>0.25</td>
<td>0.25</td>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>Cushing, 2016 [20]</td>
<td>USA</td>
<td>Asthma</td>
<td>Male</td>
<td>(n = 2)</td>
<td>Male (n = 2)Female (n = 5)Age: (Mean = 14.1, SD = 5.7, 11-18)Mobile asthma management system: an inhaler sensor and smartphone app to monitor medication adherence and send reminders</td>
<td>Passive 12 weeks Usage statistics</td>
<td>Focus Groups</td>
<td>0.5</td>
<td>0.5</td>
<td>Focus Groups</td>
</tr>
<tr>
<td>Dale, 2015 [11]</td>
<td>New Zealand</td>
<td>Chronic Heart Condition</td>
<td>Male</td>
<td>(n = 69)</td>
<td>Male (n = 69)Female (n = 16)Age: (Mean = 61.4, SD = 9)Step count monitoring via a pedometer, with goal setting and motivational components via text messaging and a web site</td>
<td>Active 24 weeks Usage statistics; Questionnaire</td>
<td>Semi-structured interviews</td>
<td>0.75</td>
<td>0.75</td>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>Eisenhauer, 2017 [15]</td>
<td>USA</td>
<td>Maintaining health and well-being in rural men</td>
<td>Male</td>
<td>(n = 12)</td>
<td>Male (n = 12)Age: 40-66FitBit One: wearable activity monitor and companion mobile app to record daily dietary intake, and issue SMS reminders</td>
<td>Active and 3 weeks Usage statistics; Questionnaire</td>
<td>Semi-structured interviews</td>
<td>0.5</td>
<td>0.5</td>
<td>Semi-structured interviews</td>
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<tr>
<td>Evangelista, 2015 [19]</td>
<td>USA</td>
<td>Chronic heart problems</td>
<td>Male</td>
<td>(n = 10)</td>
<td>Male (n = 10)Female (n = 11)Age: (Mean = 73.1, SD = 9.2)Monitoring of physical health parameters (e.g., weight, blood pressure, and heart rate) via a wireless device, daily symptom assessment questionnaires via SMS, disease related alerts and</td>
<td>Active and 12 weeks Usage statistics</td>
<td>Semi-structured interviews</td>
<td>0.5</td>
<td>0.5</td>
<td>Semi-structured interviews</td>
</tr>
</tbody>
</table>
### Hartzler, 2016 [22] USA
#### Type-2 Diabetes or Major Depressive Disorder
- **Diabetes**
  - Male (n = 2)
  - Female (n = 6)
  - Age: (Mean = 71, SD = 5, 63-77)
- **Depression**
  - Male (n = 5)
  - Female (n = 2)
  - Age: (Mean = 63, SD = 12, 36-73)
#### Methods
- NutriWalking: mobile-based activity and nutrition log, with personalized goals and peer support
- Active
- Single Session
- Questionnaire
- Semi-structured interviews
- 0.5

### Ho, 2015 [36] Canada
#### Type-2 Diabetes
- Patients (n = 39)
  - Gender and age not specified
- Caregivers (n = 28)
  - Gender and age not specified
#### Methods
- mDAWN: wireless blood pressure monitor, weight scale and glucose meter, with educational and social support via SMS and a web-portal
- Active
- 3 months
- Questionnaire
- Semi-structured interviews
- 0.25

### Naslund, 2015 [16] USA
#### Serious Mental Illness
- Male (n = 1)
  - Female (n = 9)
  - Age: (Mean = 47.7, SD = 9, 30-58)
#### Methods
- Wearable activity tracking/accelerometer devices (FitBit Zip or Nike Inc. FuelBand) wirelessly synced to smartphone devices
- Passive
- Between 80 and 133 days
- Usage Statistics
- Semi-structured interviews
- 0.25

### Vathsangam, 2014 [35] USA
#### Maintaining health and well-being amongst older adults
- Female (n = 8)
  - Age: (Mean = 74, SD = 11, 61-88)
#### Methods
- Strive: physical activity monitored via an accelerometer smartphone app
- Passive
- 3 weeks
- Usage Statistics; Questionnaire
- Focus Group
- 0.25