How are activities in different Life-areas perceived?
A behavioral study on depressed patients {work in progress}

Darius A. Rohani*, Andrea Quemada Lopategui*, Nanna Tuxen**, Maria Faurholt-Jepsen, Lars V. Kessing**, Jakob E. Bardram*

* Department of Applied Mathematics and Computer Science, Technical University of Denmark, Lyngby, Denmark
** Psychiatric Center Copenhagen, Copenhagen University Hospital, Rigshospitalet, Blegdamsvej 9, Copenhagen, Denmark

Background
- Behavioral activation (BA) has shown to be a simple yet effective therapy for depressive patients [1].
- The method relies on collection of patient reported activity data. Together with a psychologist they locate activities promoting healthy/unhealthy behavior and then plan the following week.
- We developed an app to support BA in therapy.

Objective
Collect highly-sampled activity data for a prolonged time:
- Can we reproduce the paper-pen based activity scores?
- Should we design for personalization?

Apriori-knowledge
Last symposium: presented results from 2,480 hours of transcribed activity data from patients with depressive disorders [2]. Activities were divided into six life-areas.
- Compliance above 80% for all patients
- Movement-related activities were associated with the perceived Pleasure and Mastery (most enjoyable activities)

Methods
We digitalized the current paper-pen based activity sampling, by developing an app to collect activities. We added the score Mastery ‘The effort it took to perform an activity’ [3].

Recruited 6 patients with a diagnose of either unipolar- or bipolar disorder to use the app for 4 weeks.
- 2 x Two-way ANOVA, followed by Kruskal-Wallis test due to non-normality on the residuals.
  - Factor 1: Life area (6 levels)
  - Factor 2: Patient ID (6 levels)
  - Dependent variables: Pleasure, Mastery

Pairwise analysis on Life-area with Wilcoxon Rank Sum test (multiple-comparisons corrected by FDR, as implemented in R)

Table 1: Pairwise analysis of Life-area for Pleasure (light-blue) and Mastery (dark-red)

<table>
<thead>
<tr>
<th>Life-area</th>
<th>p-value</th>
</tr>
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<tbody>
<tr>
<td>Movement</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Social</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Work &amp; Edu.</td>
<td>&gt; .05</td>
</tr>
<tr>
<td>Practical</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Leisure</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Housework</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Table 2: Kruskal-Wallis test statistics for Factor 1 (Life-area), Factor 2 (Patients) and their interaction.

<table>
<thead>
<tr>
<th>Factor</th>
<th>χ² (df)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>284.9 (5)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>F2</td>
<td>497.7 (5)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>F1*F2</td>
<td>700.3 (33)</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

The non-parametric Kruskal-Wallis test on the full model is shown in Table 1 and reveals a significant effect of all test conditions on the dependent variables.

N = 1684 activities were registered on the app (P8398 is shown in Fig. 2). Pleasure and Mastery score was reported in 96% (n = 1609) of the activities. The count is shown in Fig. 3.

• Reproducible findings in high Pleasure life-areas (Movement, Social), when comparing Pleasure scores from paper-pen (Fig. 1) and app (Fig. 4).

Conclusion
• Activities and the perceived Pleasure and Mastery is highly individual (Pleasure F2. χ²(5) = 497.70, p < .0001)
• Although activities within some life-areas achieve same Pleasure, they require totally different effort to initiate
• The results in this poster, suggest that similar apps in the area of BA should design for personalization

References