Just in Time Adaptive Interventions for Behavioral Activation in Depression (JADE)

Protocol of a Design, Feasibility and Preliminary Effectiveness Study

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The challenge of depression & treatment adherence

Depression: Major public health issue, significant impact on quality of life[1]

Behavioral Activation (BA): Effective, but only for ~50% of patients[2]

Adherence is Key: Completing BA activities improves outcomes [3-6]

The Gap: Adherence rates are suboptimal (e.g., ~47% completion) [7]

Barriers: Low mood/energy, difficulty selecting/performing activities[8]

JITAIs: A Promising Approach for BA

Just-**i**n-**T**ime **A**daptive **I**nterventions (JITAIs):

- Deliver support via smartphones in daily life.
- Adapt to an individual's current state and context (e.g., mood, location).
- Use Ecological Momentary Assessment (EMA)

Why JITAIs for BA?

- Personalized, timely reminders & suggestions.
- Can target low mood directly when it occurs.
- Potential to improve adherence to BA activities.

Despite promise, JITAIs for BA in depression are understudied[9]

JADE Study aim & Hypotheses

AIM:

To design, and evaluate the feasibility, acceptability, and preliminary effectiveness of JITAIs for Behavioral Activation in depression.

Key Hypotheses:

- JITAIs will be **feasible**
- JITAIs will be **acceptable** to patients and therapists.
- JITAIs will improve **proximal outcomes**
- BA with JITAIs will show improved **distal outcomes**

JADE Study Design: A Mixed-Methods Approach

- **Two Phases:**
  - **Phase 1: Participatory Design**
    - Focus groups with patients and therapists to co-design JITAIs
    - Pilot testing JITAIs among therapists and patients.
  - **Phase 2: Evaluation (N=104)**
    - **Micro-Randomized Trial (MRT):** To assess proximal effects of JITAIs (within TAU + JITAI group, N=52).
    - **Non-randomized quasi-experimental design:** To compare distal outcomes between this same TAU + JITAI (N=52) and TAU only (N=52).
- **Participants:**
  - Adults with depression admitted for treatment

Key outcomes

- **Primary Outcome (Feasibility):**
  - JITAI adherence rate (>60% of offered JITAIs completed) [10].
- **Secondary Outcomes (Acceptability):**
  - Usability (SUS), Satisfaction (CSQ-8), Engagement (TWEETS).
- **Proximal Outcomes (MRT):**
  - EMA mood & well-being, daily step counts.
- **Distal Outcomes (Quasi-Experimental):**
  - Depression (PHQ-9), Well-being (MHC-SF), Recovery (QPR), Quality of Life (EQ-5D).

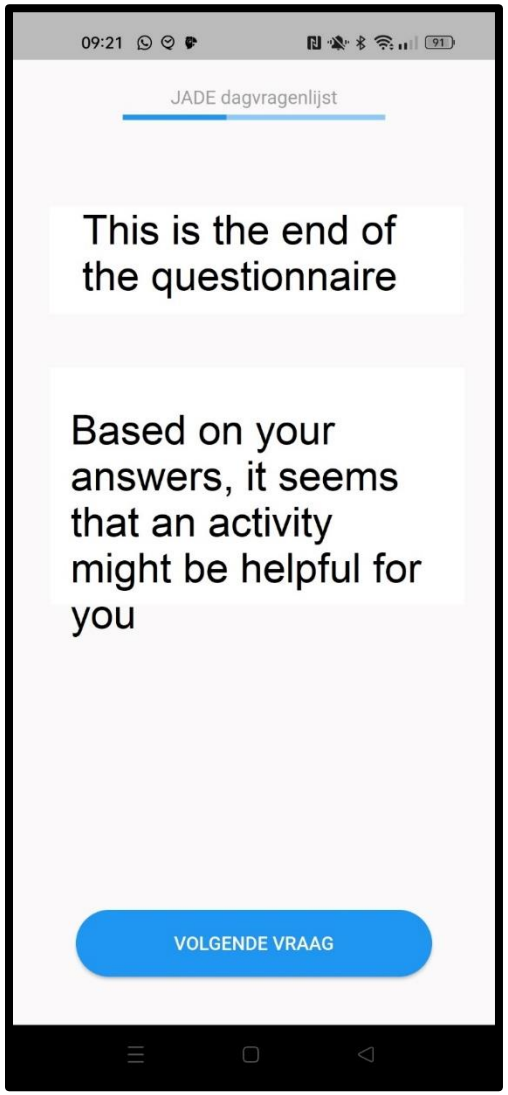
How the JITAI Works

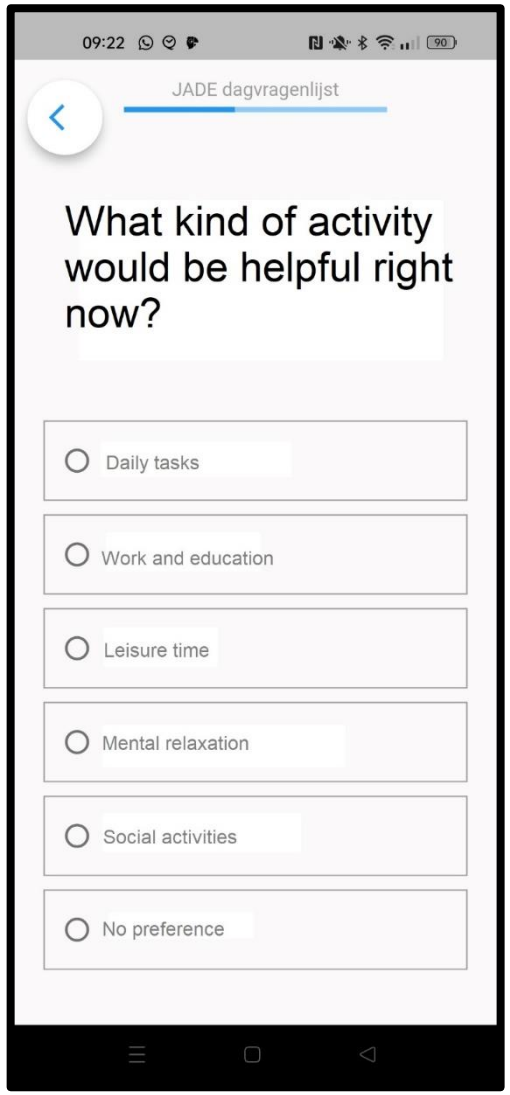
- Delivered via **m-Path** app.

- **EMA Surveys:** 4 times/day during 6 weeks.

- **Decision Point:** If specific EMA mood items < 4 (on 1-7 scale):
  - Eligible for randomization.
  - 50% chance of receiving a JITAI.

How the JITAI Looks





Current status

- Trial Registration (NL-OMON57144): October 2024
- Patient enrollment design phase: December 2024
- Patient enrollment evaluation phase: June 2025

Materials

Will be made available in our OSF repository

Thank you

Contact: f.chakhssi@thubble.nl

OSF repository: osf.io/k8z9a

Literature

[1]Ten Have M, Tuithof M, van Dorsselaer S, Schouten F, Luik AI, de Graaf R. Prevalence and trends of common mental disorders from 2007-2009 to 2019-2022: results from the Netherlands Mental Health Survey and Incidence Studies (NEMESIS), including comparison of prevalence rates before vs. during the COVID-19 pandemic. World Psychiatry. 2023;22:275–85

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