Feasibility and Acceptability of App-Based Mindfulness-Meditation Training for Older Adults*

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Aim
- Investigate the feasibility, acceptability, and preliminary efficacy of an app-based mindfulness meditation program (i.e., Headspace) among older adults.

Background
- Few studies have focused on the utility of mindfulness being in older adults.
- Lifespan developmental theories concerned with ageing and emotion, i.e.,
  - Socioemotional Selectivity Theory (SST; Carstensen, 2006); and
  - Strength and Vulnerability Integration (SAV; Charles, 2010),
- suggest that mindfulness-meditation may offer unique potential for supporting affective well-being in later life.
- In particular, the practice of mindfulness-meditation may:
  a. require relatively modest physiological and cognitive resources;
  b. capitalise on age-related regulatory strengths; and
  c. be an effective strategy for managing prolonged and potentially aversive experiences (e.g., significant loss, chronic illness, etc.).
- Uptake of digital technology continues to increase among older adults.
- Advantages of digitally delivered mindfulness-based practice include enhanced dissemination and flexible access.

Method
Participants
- N = 46, aged 63-81 years (M = 70.85, SD = 4.70).
- Community-based, meditation-naïve sample recruited via email and eBulletin.
- Mostly female (89.1%), Caucasian (100%), well-educated (45.7% with a tertiary qualification), retired (71.7%), and a mostly favourable health status on average (M = 81.96, SD = 17.30; Range 0-100, with 100 representing optimum physical functioning).
- Cognitive impairment screening indicated no participants scored below the recommended cut-off for potential dementia.
- Participants engaged with a 30-day app-based mindfulness-meditation program (i.e., Headspace) for 10 minutes daily on their smartphones.
- Each meditation session comprised:
  - Focusing on the breath;
  - Mentally scanning the body;
  - Monitoring the mind’s activity; and
  - Cultivating a nonjudgmental orientation toward experiences
- Questionnaires were completed at baseline, day 10, and day 30.

Measures
- See Table 1.

Results
- Participants completed 25 sessions and almost 4 hours of application use across the 30 days on average.
- Results of linear mixed models showed significant increases in positive affect (0.32 SD) and life satisfaction (0.22 SD), and decreases in negative affect (0.37 SD), across the study interval.
- There was no meaningful change in total mindfulness or perceived stress.
- Low (relative to high) smartphone efficacy was associated with higher perceived stress and negative affect, and less life satisfaction at baseline; and steeper improvements on these outcomes across the study interval.
- Older adults generally rated the app-based mindfulness-meditation training as interesting, enjoyable, valuable, and useful.

Conclusions
- The findings provide preliminary support for the feasibility and acceptability of an app-based mindfulness-meditation program among community-dwelling older adults and demonstrate potential benefits for well-being.
- As mindfulness scores did not reliably increase across the study interval the mechanisms underlying improved well-being remain uncertain.
- Older adults’ perceptions of smartphone competency may play an important role in the outcomes of app-based programs.
- Results suggest the value of further research investigating the efficacy of digital mindfulness-meditation interventions for older adults via larger randomised controlled trials.

Table 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Measures</th>
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<tbody>
<tr>
<td>Mindfulness</td>
<td>Five Facet Mindfulness Questionnaire - Short Form (Baer et al., 2006)</td>
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<tr>
<td>Perceived Stress</td>
<td>10-item Perceived Stress Scale (Cohen &amp; Williamson, 1988)</td>
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<tr>
<td>Positive &amp; Negative Affect</td>
<td>State of Positive and Negative Experience (Diener et al., 2010)</td>
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<tr>
<td>Life Satisfaction</td>
<td>Satisfaction with Life Scale (Diener et al., 1985)</td>
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<tr>
<td>Attitudes Toward Smartphones</td>
<td>Adapted ‘Attitudes Toward Computer Use Questionnaire’ (Jay &amp; Willis, 1992)</td>
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<tr>
<td>Intrinsic Motivation / Perceived Difficulty</td>
<td>Intrinsic Motivation Inventory (Ryan, 1982) + Single item</td>
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<tr>
<td>Covariates</td>
<td>Age, gender, education, health status (via the ‘Physical Functioning’ subscale of the RAND 36-item Health Survey 1.0 (Hays et al., 1993)</td>
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Figure 1. Associations of day-in-study and (A) perceived stress, (B) negative affect, and (C) life satisfaction as a function of smartphone efficacy.