

International Journal of Population Data Science

Journal Website: www.ijpds.org



Development and use of a co-produced short mood survey to collect ground truth in digital footprints research

Nina Di Cara¹, Oliver Davis², and Claire Haworth¹

¹School of Psychological Science, University of Bristol

²MRC Integrative Epidemiology Unit, University of Bristol

Introduction & Background

To use digital footprint data for mental health and well-being research we often need to collect concurrent, high-quality measures of ground truth. Delivering frequent surveys to participants using an ecological momentary assessment (EMA) methodology is one way to collect such data. However, existing surveys tend to be long, not focused on momentary states or rely on rating images which are not platform agnostic. Here we present a five-item test-based survey designed with participants and validated for use in EMA studies to collect data about momentary changes in mood. We describe its methodological development and how it has been used to investigate music listening on Spotify as a digital footprint of mood.

Objectives & Approach

The survey is based on the circumplex model of affect. It was co-produced with a participant advisory group (N=5), who gave feedback on the length, content and delivery of the survey. It was then piloted in a group of N=98 participants to assess statistical validity, and congruence with the 20-item Positive and Negative Affect Schedule (PANAS). Following this it was delivered in a wider sample (N=150) four times a day over a two-week period using an EMA app on participant's phones.

Relevance to Digital Footprints

EMA is an increasingly popular method for collecting ground truth to support the interpretation of digital footprint data. This newly developed and tested mood survey offers an opportunity to reduce participant burden for collecting mood data in EMA studies which will support the collection of high quality and high time-resolution ground truth for digital footprints research.

Results

Together with participants we selected four emotions across the axes of arousal and valence, as well as rumination which participants considered important in their music listening behaviors. Factor analysis of pilot data showed that the questions represented two factors of positive and negative affect. The ratings on a 0-10 scale of the emotions 'cheerful' and 'relaxed' explained 44% of the variance in positive affect, and ratings of 'worried', 'sad' and 'frustrated' explained 40% of the variance in negative affect. Delivery of the questionnaire in a wider student sample (N=150) four times per day for two weeks allowed for the opportunity to assess typical response rates in a realistic EMA setting. On average participants completed 3 out of the 4 surveys a day.

Conclusions & Implications

The co-created, short mood survey for the collection of ground truth in digital footprint studies was validated across two independent samples, and shown to allow for good response rates in a two week study. Future testing on wider samples will provide opportunities to validate the survey and assess its effectiveness across demographic groups and different sample types.

