

# Indivi: Personalizing Feedback for Study Participants at Scale

Florian Fischer<sup>1</sup>, Chat Wacharamanatham<sup>1</sup>, & Andrea B. Horn<sup>2</sup>

<sup>1</sup>People and Computing Lab (ZPAC), Department of Informatics, University of Zurich. <sup>2</sup>Department of Psychology & URPP «Dynamics of Healthy Aging», University of Zurich, Research Group *CoupleSense: HIER - Health and Interpersonal Emotion Regulation*.

## Conceptual Background

Ambulatory assessment often includes a significant burden to the participant, particularly if it includes self-reports. One way of compensating this effort and allow the study participant to take part in the interpretational discourse is to provide personalized feedback on own data. With increasingly large number of study participants, manually personalizing feedback becomes infeasible. In this poster, we present “Indivi”, an open-source web application that helps researchers personalize feedback at scale.

## Goal

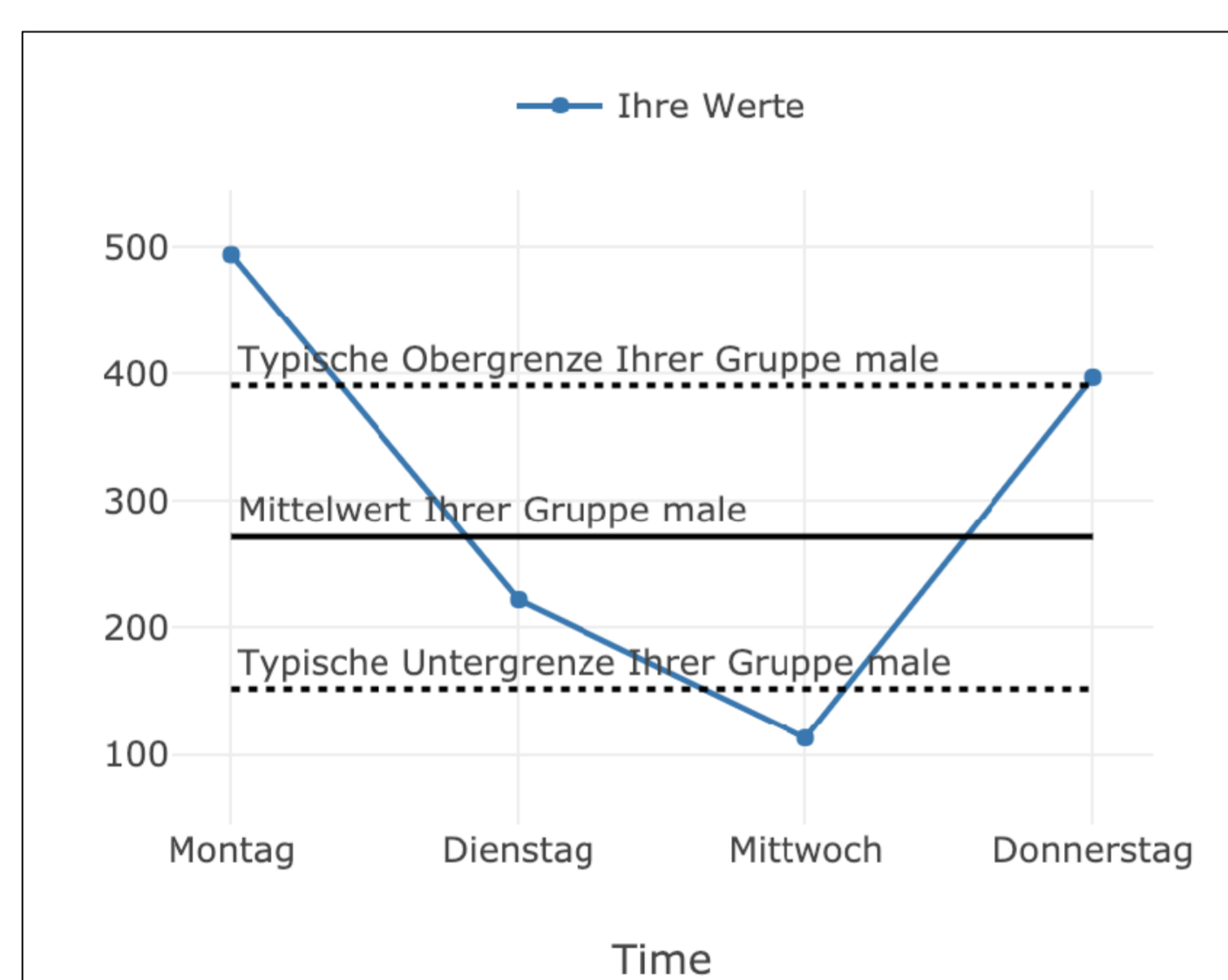
To provide a tool that allows researchers to create personalized feedback for a large number of study participants. We believe that this will be an additional incentive for study participation.

<https://indivi.zpac.ch/>

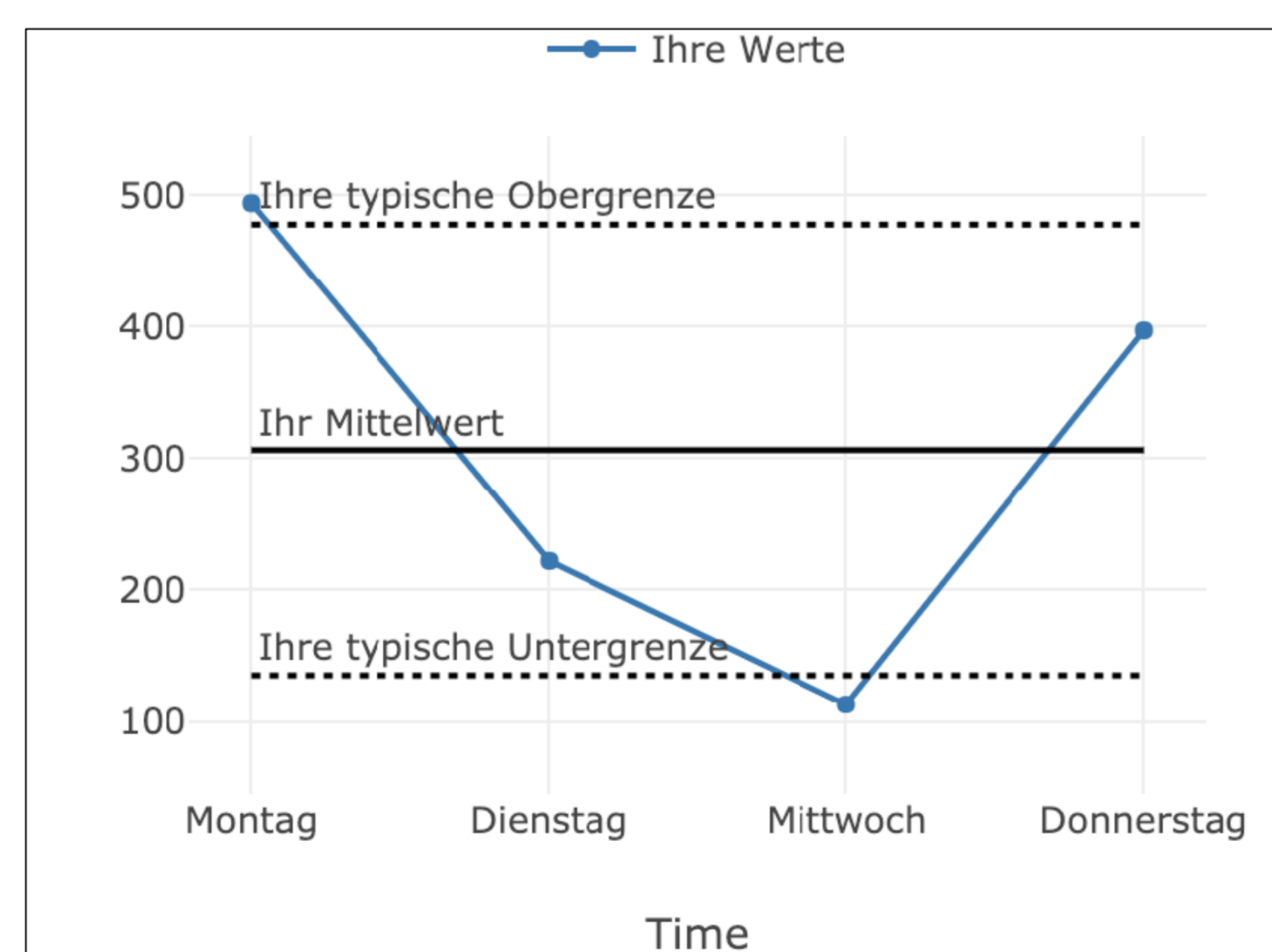
## How to use Indivi:

1. Import a comma-separated (CSV) file of the study results in a long format (one time point of participant per row, one variable per column)
2. Specify sets of variables to work on.
3. For each variable set, the researchers assign textual explanation individually for the high, medium, and low values. These are used to personalize the feedback.
4. Preview and export the report as printable pages, booklets in PDF format, or web pages that can be digitally distributed.

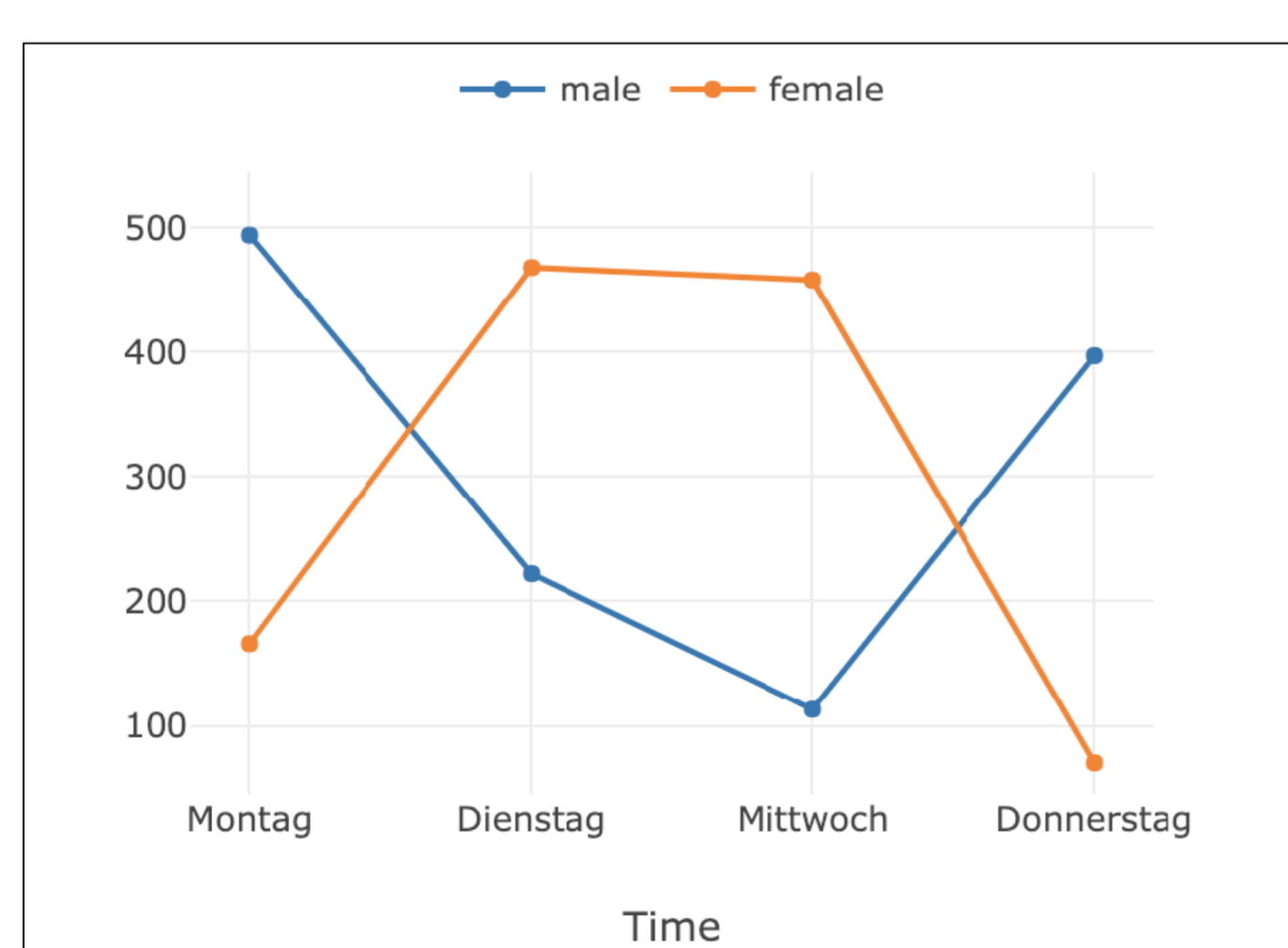
Example of data visualization generated by Indivi:  
(Participants' own measurements over time are shown in blue lines.)



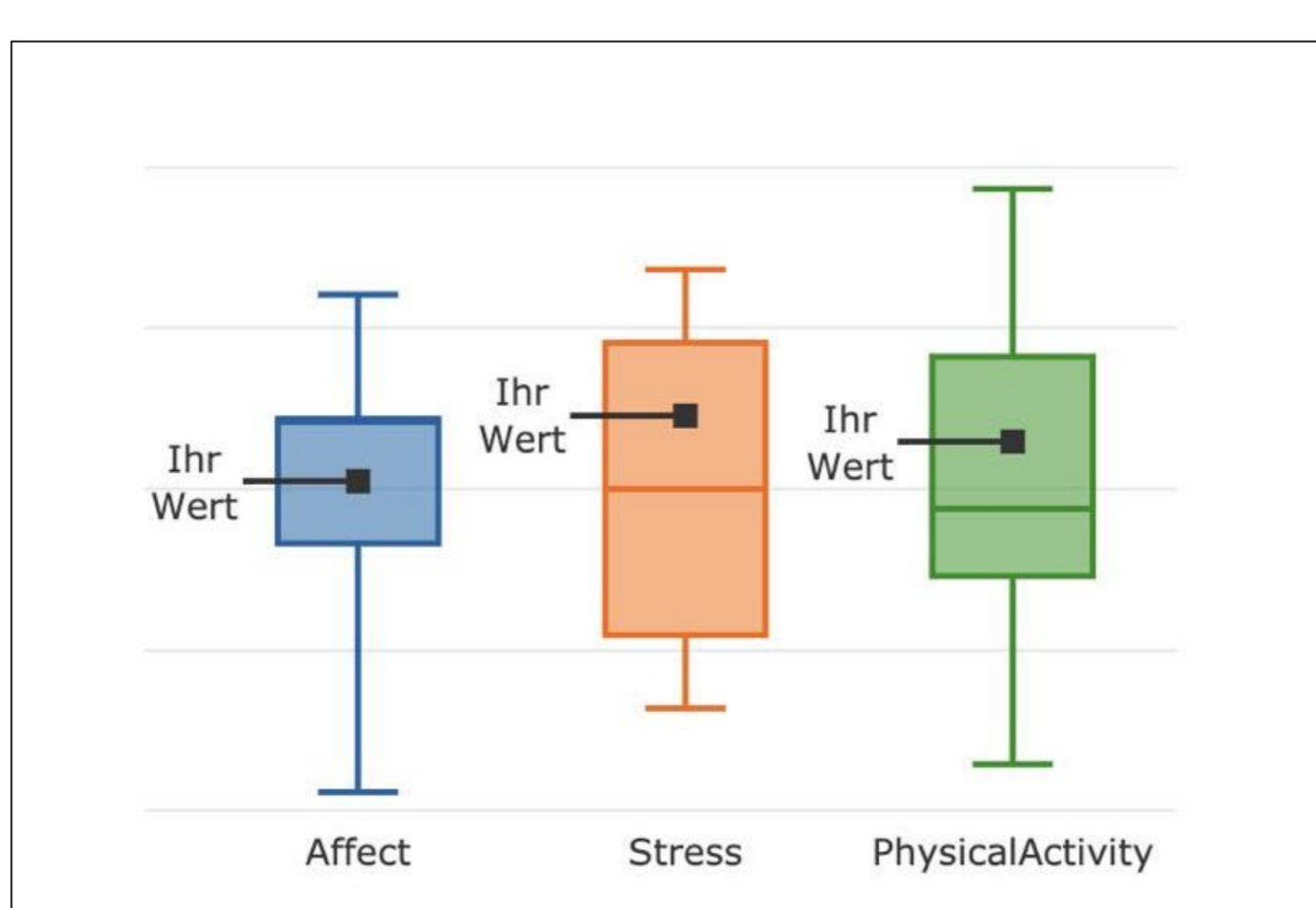
**Figure 3:** The reference is the defined (sub-) group variance (lines represent group mean  $\pm$  1 standard deviation)



**Figure 4:** The reference is **their own typical variance** (lines represent within-person mean  $\pm$  1 within person-standard deviation)



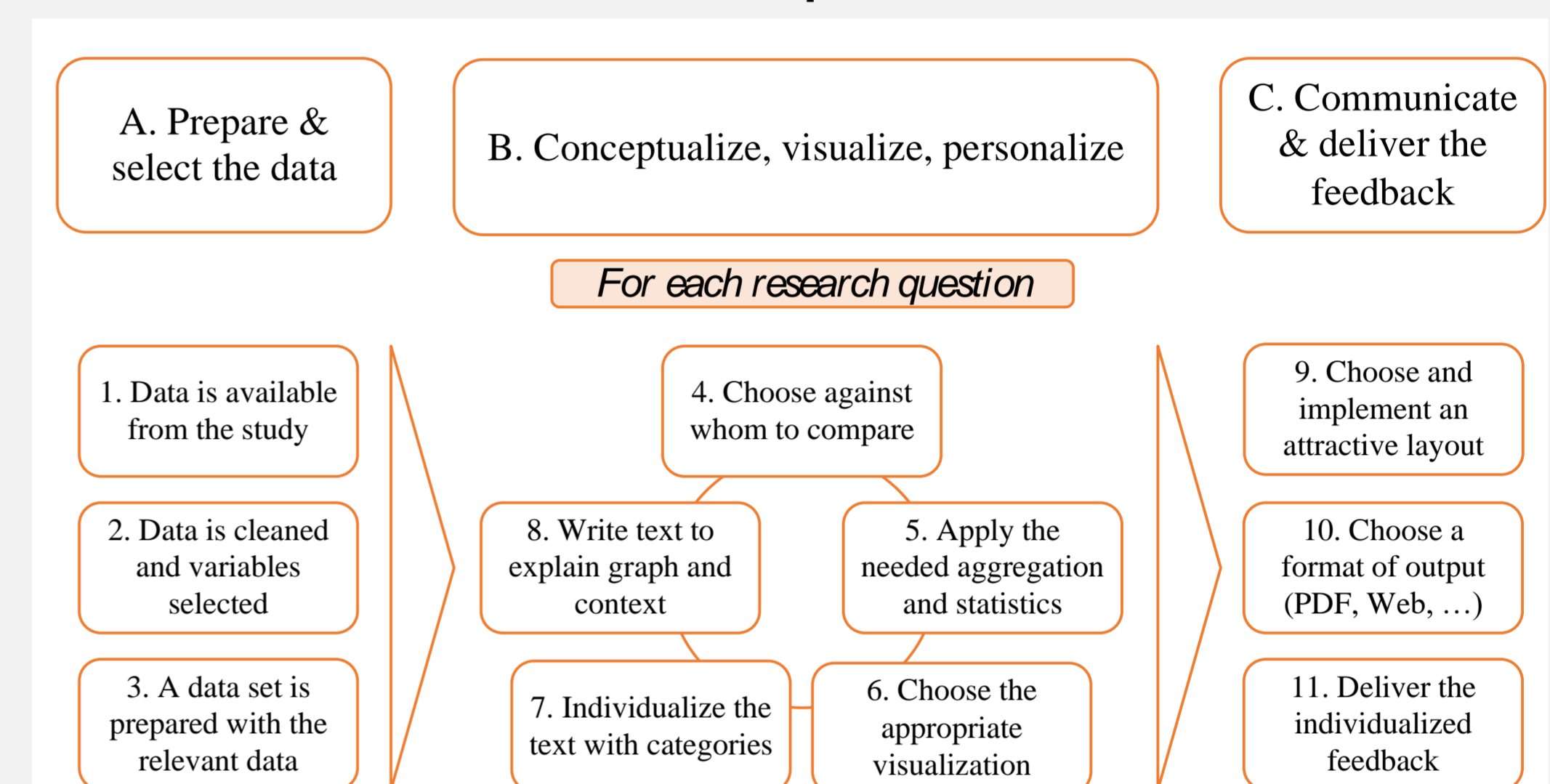
**Figure 5:** The reference is **their dyad member's results (for dyadic data)**



**Figure 6:** Participants' point measurement (dot) are shown with reference to **group results (in box plots)**

## Method

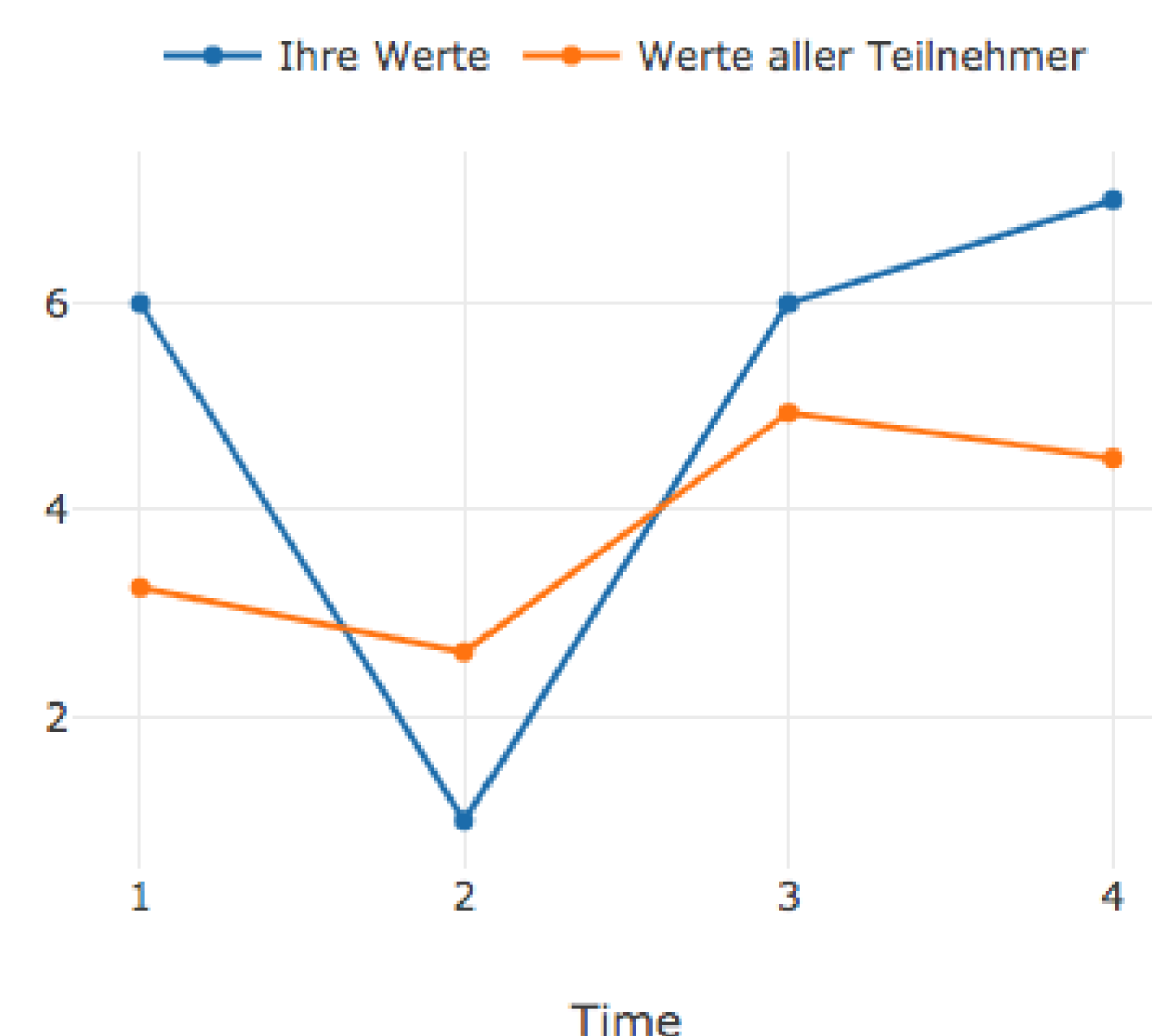
Contextual Inquiry interviews with 7 ambulatory assessment experts, resulting in the work model showing an iterative process of analyzing and formulating personalized feedback (Figure 1), and a taxonomy of variables and the associated method to visualize and contextualize the feedback (Figure 2–6). Based on these findings, we iteratively designed and tested the Indivi tool with the experts.



**Figure 1:** A work model of how researchers create feedback for study participants

This is your general text on the topic

Während der Studie haben wir Werte zum Thema gesammelt. Wir möchten diese hiermit in Form eines personalisierten Feedbacks zurückgeben.



Here you can update the graph explanation

Diese Graphik ist ein Liniendiagramm. Es zeigt die Verteilung der Werte über die Zeit.

This is your personalized text:

In der Graphik sehen Sie, wo Ihr Wert im Vergleich der anderen Studienteilnehmer liegt. Ihr Wert befindet sich in der mittleren Hälfte der gesammelten Antworten. Das bedeutet...

**Figure 2:** An example of feedback customization in Indivi. Participants' own measurements over time (blue) are shown in the context with the average values from all study participants (orange). Textual explanation can be customized by the threshold of the measurement values.

## Conclusion

We believe that Indivi will provide ambulatory researchers a scalable way to use personalized feedback as an additional motivation for study participants.

**Contact:** Andrea B. Horn <a.horn@psychologie.uzh.ch>

<https://www.dynage.uzh.ch/en/research/groups/couplesense.html>

**Reference:** Fischer, F (2018). **Indivi: Designing a tool for researchers to create individualized feedback.** Master thesis. University of Zurich, Zurich, Switzerland.