

Title: Contributors of negative attitudes towards sleep data in biometric-tracking ring users: A qualitative study

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Background: Biometric-tracking rings (BTR), devices that track user health metrics, can be tools for health programs; thus, it is essential to understand attitudes regarding the BTR data provided to users. This study aimed to explore factors that contributed to the negative attitudes of users toward the BTR sleep data.

Methods: BTR metrics were collected over 11 months from 120 employees at a small private college. Most participants (90%) completed an interview about their experience wearing the ring; of these, 74% discussed the sleep data in detail. Attitudes towards the sleep data were deductively coded as either positive (55%), negative (22.5%), or indifferent/insignificant (22.5%). Then, transcripts were coded using data-driven inductive techniques. Code mapping was used to inform thematic analysis. Descriptive statistics analyzed participant demographics using RStudio Version 2023.12.0+369.

Results: Participants included faculty (50%), staff (38%), and administrators (11%). The mean age was 50 ± 8.6 , and 67% identified as female. Three themes contributed to negative attitudes: expectations of the data, experiences with data accuracy, and knowledge of the data metrics. Though expectations varied, participants reported distrust in the data or reported unmet expectations. Participants discussed inaccuracies due to the data not aligning with how participants felt or providing extreme, unexplainable shifts in metrics. Additionally, participants found the data complex and challenging to interpret due to limited knowledge of the health metrics.

Conclusions: Negative attitudes toward the BTR sleep data were due to various factors that should be considered to maximize the acceptability of health programs.