Usability and acceptability of corneal-plane α-opic dosimetry in a 24-hour field trial

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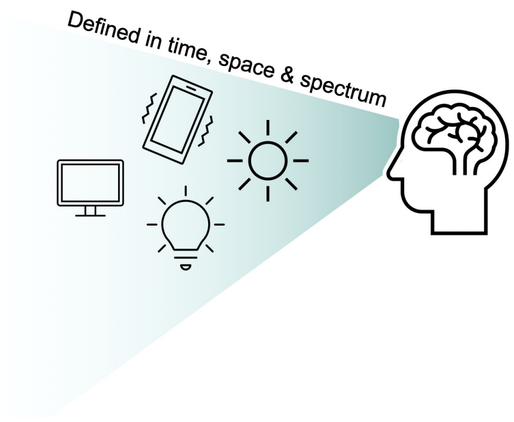
Introduction

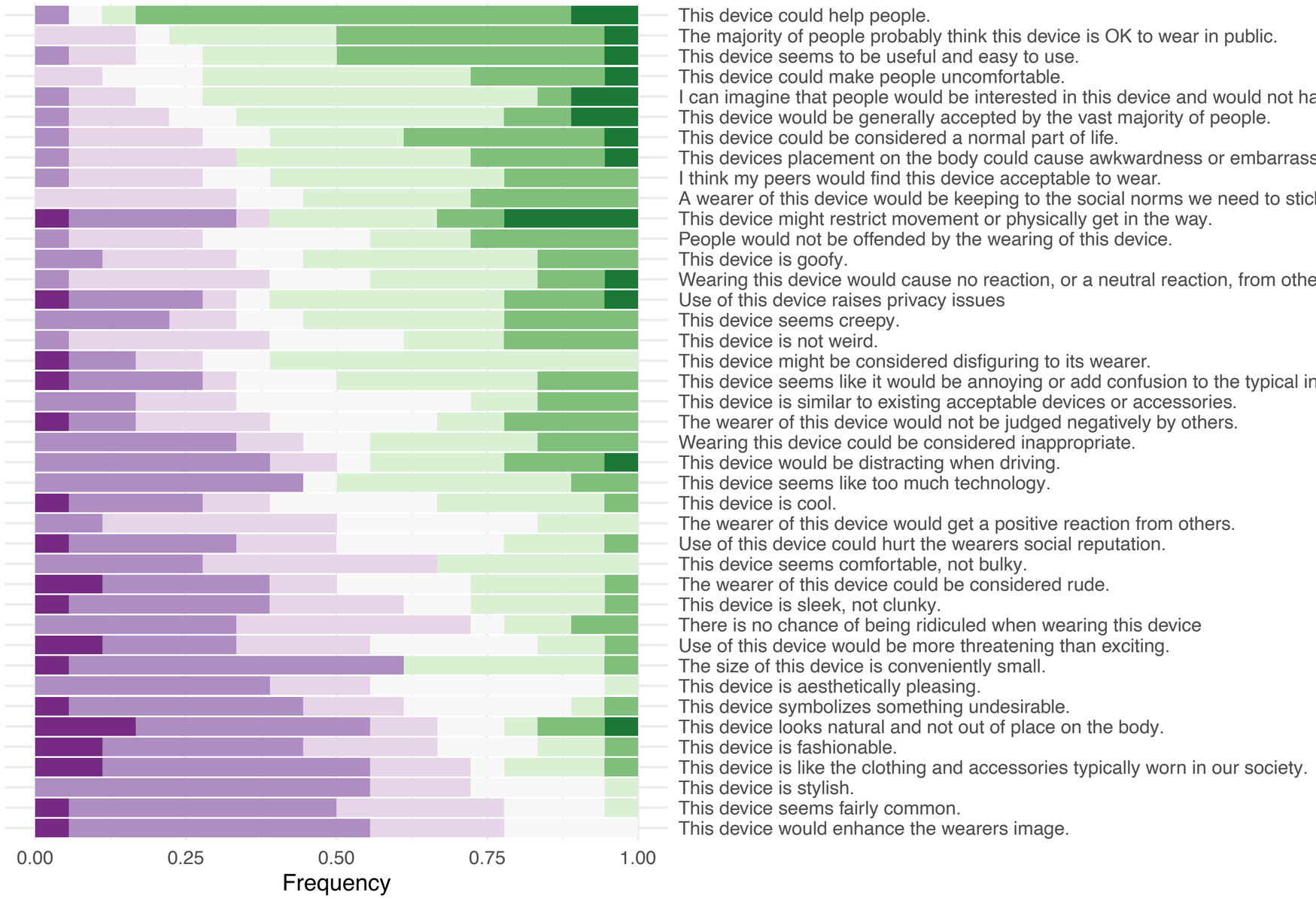
Recent guidelines propose criterion light levels to support physiology, sleep and wakefulness (Brown *et al.*, 2022). Ensuring adherence to these light levels requires wearable dosimeters measuring α-opic irradiance. Stampfli *et al*. (2021) developed a novel corneal-plane α-opic light measurement device, the *LiDo* (https://light-dosimeter.ch).



Methods

Eighteen (n=18) full-time students (20.1±1.6 years, 9 female) wore the *LiDo* for a period of 24 hours (approx. noon on Day 1 to noon on Day 2). After the wear period, participants completed an acceptability questionnaire, rating the device across a range of dimensions, as well as an open-ended feedback question.

Results



Thematic analysis of the qualitative responses revealed two main themes that participants were concerned with: size, weight and stability of the device, as well positive and negative reactions from other people.

Conclusions

Our study indicates that corneal-plane dosimetry may be feasible for measuring ocular light exposure in the field, leading to novel insights into the relationship between light exposure and physiological outcomes. The study highlights that for long-term use and convenience, miniaturization of sensors for use in the corneal plane may be necessary.