Using Eye-Tracking Glasses to Collect Physical Measures of Attention to Direct-to-Consumer (DTC) Prescription Drug Print Ads

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Introduction

- Participants with one of two medical conditions read a print prescription drug ad while wearing eye-tracking glasses and then answered a questionnaire about the ad.
- This poster reports on eye-tracking procedural adjustments we made based on pretest findings and implemented in the main study to maximize data quality.

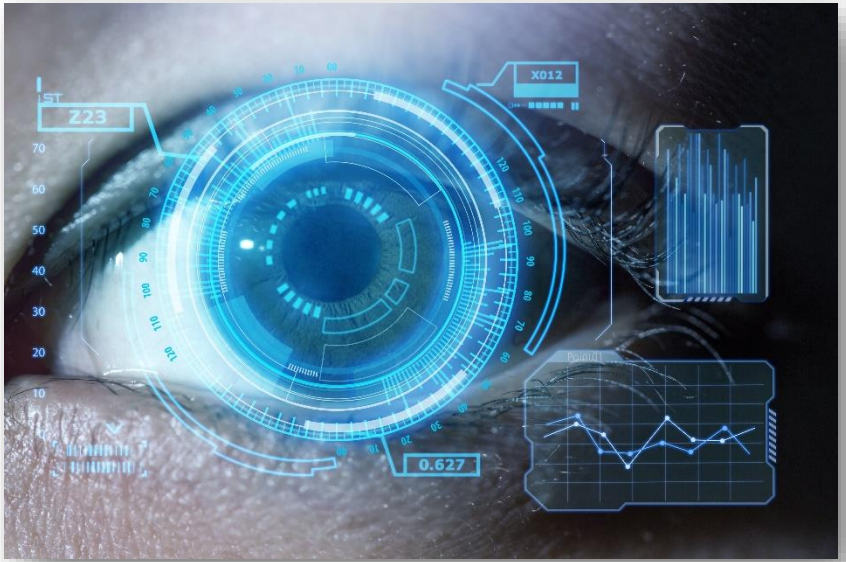
The study had two main objectives:

1. Evaluate how the amount and location of risk information in prescription drug ads relate to consumers' attention, retention, and perception of the information.
2. Examine how a physical measure of attention (eye-tracking) relates to self-reported attention metrics.

Image: Tobii AB

Background

- Westat conducted a pretest in 2018 in Rockville, MD. **We found some of the eye-tracking data collected was suboptimal.**
- Based on these findings, **Westat adjusted protocol procedures for the main study in 2019.**



Methods: Study Locations and Participant Demographics

- Westat conducted main study sessions from June to August 2019 in the following cities:

Phoenix, AZ

Houston, TX

Tampa, FL

Chicago, IL

Marlton, NJ
Paramus, NJ.

Methods: Study Locations and Participant Demographics (continued)

› The composition of the participants for the study were as follows:

	Overactive Bladder (OAB) (n = 181)	Rheumatoid Arthritis (RA) (n = 179)
Age (% >= 55)	53%	45%
Gender (% Female)	79%	77%
Race (% White – non-Hispanic)	66%	62%
Education (% Bachelor's degree or higher)	49%	45%

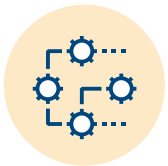
Methods: Overview of Session Procedures

1. Recruited participants.

2. Screened participants for eligibility.

3. Invited qualified participants to research facility.

4. Administered introduction and informed consent.



5. Randomly assigned participants to experimental condition.

6. Fitted eye-tracking equipment and prescription lenses as needed.

Methods: Overview of Session Procedures (continued)

7. Presented calibration document.

10. Removed eye-tracking equipment.

8. Presented warm-up ad (same for all) following successful calibration.

11. Provided web questionnaire (tailored to experimental condition).

9. Presented experimental condition ad (tailored to experimental condition).

Implemented Recommendations: Equipment and Stimuli Adaptations

The following changes were made in order to make the ads easier to read and to prevent the participants from squinting, which we found to be associated with failed calibration and poor eye-tracking quality during the pretest:

- Increased font sizes within the stimuli to ensure they were large enough for the target population to read easily.
- Acquired and used a prescription lens kit with the glasses for participants who needed corrective lenses to view the ads comfortably.
- Used visual design elements (e.g., spacing and chunking of text, visual markers) to assist the eye-tracking software's ability to automatically map fixations.

Implemented Recommendations: Recruitment Procedures

- Some pretest participants came to the lab wearing hats, wigs, or other headwear, which they did not want to or were unable to remove. Because headwear made fitting the eye-tracking glasses challenging, **we instructed participants in the main study not to wear headwear to the session.**

Implemented Recommendations: Eye-Tracking Calibration and Quality

To address calibration and eye-tracking data quality issues in the pretest further, we adjusted the data collection procedures:

- Instructed participants to maintain consistent posture and to try to avoid excessively leaning forward or backward, or fidgeting.
  - Excessive movement was associated with poorer tracking quality.
- Elevated the position of the stimulus relative to the participant so that its midpoint was at eye level.
  - We observed that eye-tracking quality was poorer at the bottom of the pages where participants' eyelids interfered with the eye-tracker's view of their pupil.

Outcomes: Use of Prescription Lens Kit

- Across the two medical conditions, **about half** (n =188) of participants were **fitted with prescription lenses** attached to the eye-tracking glasses.
- Only six participants were unable to be fitted with prescription lenses, because the lenses available were not strong enough for the participants to read comfortably.
  - These participants were excluded from the study.

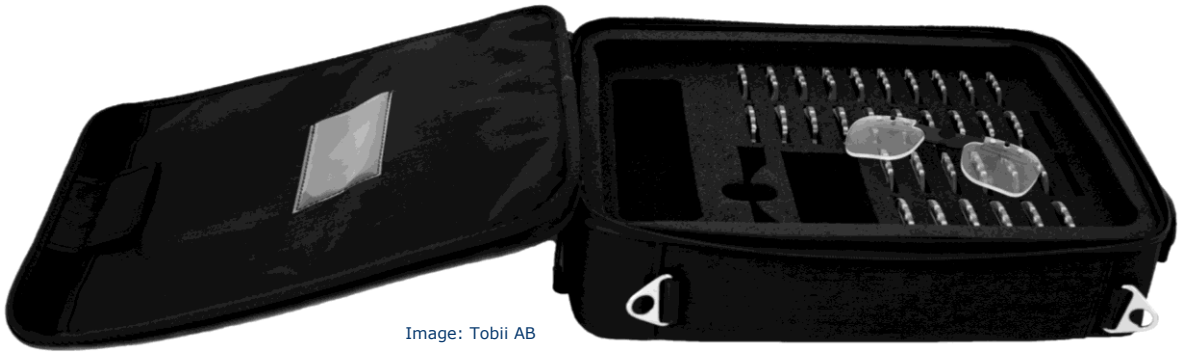


Image: Tobii AB

Outcomes: Eye-Tracking Calibration and Tracking Quality

- Overall, the percentage of cases that were dropped in the main study was reduced relative to the pretest.
- Most main study participants calibrated easily and had usable data.
- Only 6.9 percent (n = 28) failed to calibrate, similar to the pretest (7.3%, n = 3).

Outcomes: Eye-Tracking Calibration and Tracking Quality (continued)

- Eight (2.0%) exhibited a high missing data rate in the main study, compared to five (12.2%) in the pretest.
  - High missing data = greater than 25% missing, a threshold consistent with past eye-tracking research.[1] Such cases were excluded from the final data.
  - Missing data is based on "gaze sample rate," which is the percentage of the video frames in which the pupil cameras can detect a pupil.

[1] Sullivan, H.W., Boudewyns, V., O'Donoghue, A., Marshall, S., and Williams, P.A. (2017). Attention to and distraction from risk information in prescription drug advertising: An eye-tracking study. *Journal of Public Policy & Marketing.* 36(2)236-245. doi: http://dx.doi.org/10.1509/jppm.16.013

Outcomes: Eye-Tracking Calibration and Tracking Quality (continued)

- Excluding the non-calibrated and high-missing cases, the average missing data rate in the main study was low (4.6%) and improved compared to the pretest (10.0%).

Outcomes: Eye-Tracking Calibration and Tracking Quality (continued)

- Comparison of the final number of complete cases in the pretest and main study

	Total Participants Who Came to Eye-Tracking Lab	Dropped Cases Due to Poor Quality	Final Cases
Pretest	41	8 (20%)	33
Main Study	409	49 (12%)	360

Conclusions

- Procedural findings from our main study showed several indications that the eye-tracking adjustments we made based on the pretest findings improved data quality and prevented excessive data loss:
  - Using a prescription lens kit was essential for facilitating eye-tracking among our older participants, many of whom required corrective lenses to view the ads.
  - Increasing the readability through font size adjustment and visual design elements as well as elevating the stimuli improved overall tracking quality.
  - Incorporating respondent instructions with respect to headwear and posture helped to improve data quality and maximize participant retention.

Thank You

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