**Supplementary Online Content**

Inomata T, Iwagami M, Nakamura M, et al. Characteristics and risk factors associated with diagnosed and undiagnosed symptomatic dry eye using a smartphone application. *JAMA Ophthalmol*. Published online November 27, 2019. doi:10.1001/jamaophthalmol.2019.4815

**eTable 1.** Survey Questions

**eTable 2.** Daily Subjective Symptom Questions

**eTable 3.** Classification of Dry Eye

**eFigure.** Age Distribution Based on Subgroup Analysis

This supplementary material has been provided by the authors to give readers additional information about their work.

## eTable 1. Survey Questions

| Question | Variable Name | Variable Details |
|---|---|---|
|  | Height | Integer input, cm |
|  | Weight | Integer input, kg |
|  | Age | Integer input, years |
|  | Sex | Choose one {'Man,' 'Woman'} |
|  | Race | Choose one {'American Indian or Alaskan Native,' 'Arabic,' 'Asian,' 'Black or African American,' 'Caucasian,' 'Hispanic, Latino or Spanish,' 'Native Hawaiian or other Pacific Islander,' 'Other Race'} |
| Have you ever been diagnosed with hypertension? | Hypertension | Choose one {'No,' 'I am being treated for hypertension,' 'I have untreated hypertension,' ' I do not know'} |
| Have you ever been diagnosed with diabetes? | Diabetes (HbA1c) | Choose one {'Yes,' 'No'}. If 'Yes,' scale bar input of HbA1c (5–15) |
| Have you suffered any of the following illness? | Systemic diseases | Multiple choice among {'Brain disease,' 'Blood disease,' 'Collagen disease,' 'Heart disease,' 'Kidney disease,' 'Liver disease,' 'Malignant tumor,' 'Respiratory disease,' 'N/A'} |
| Do you have hay fever? | Hay fever | Choose one {'Yes,' 'No'} |
| Do you suffer from the following mental illnesses? | Mental illness | Multiple choice among {'Depression,' 'Schizophrenia,' 'Other mental illness,' 'N/A'} |
| Have you ever been diagnosed as having dry eyes? | Past diagnosis of dry eye disease | Choose one {'Yes,' 'No'} |
| Have you ever undergone the following ophthalmic surgeries? | Ophthalmic surgery | Multiple choice among {'Cataract surgery,' 'LASIK,' 'Other ophthalmic surgery,' 'N/A'} |
| Have you used eye drops? | Eye drop | Choose one {'Yes,' 'No'} |
| How much coffee did you drink today? | Coffee intake | Scale bar input (0–10), cups |

| Have you ever used contact lenses? | Contact lenses | Choose one {'I have been using contact lenses,' 'I have used contact lenses in the past,' 'I have not used contact lenses'} |
|---|---|---|
| Please tell me how long were you exposed to the screen today (Smartphone, PC, TV, etc.). | Screen time | Scale bar input (0–24), hours |
| How many hours do you exercise per week? | Periodic exercise | Scale bar input (0 to more than 10), hours |
| Please indicate at what time you went to bed. | Bed time | Input drum bar, hours and minutes |
| Please indicate at what time you woke up this morning. | Wake-up time | Input drum bar, hours and minutes |
| Do you currently smoke or have you smoked in the past? | Smoking | Choose one {'Yes,' 'No'} |
| How much fluid did you drink today? | Water intake | Scale bar input (0–2,000), mL |

HbA1c = hemoglobin A1c; LASIK = laser-assisted in situ keratomileusis; PC = personal computer; TV = television; N/A = not applicable.

## eTable 2. Daily Subjective Symptom Questions

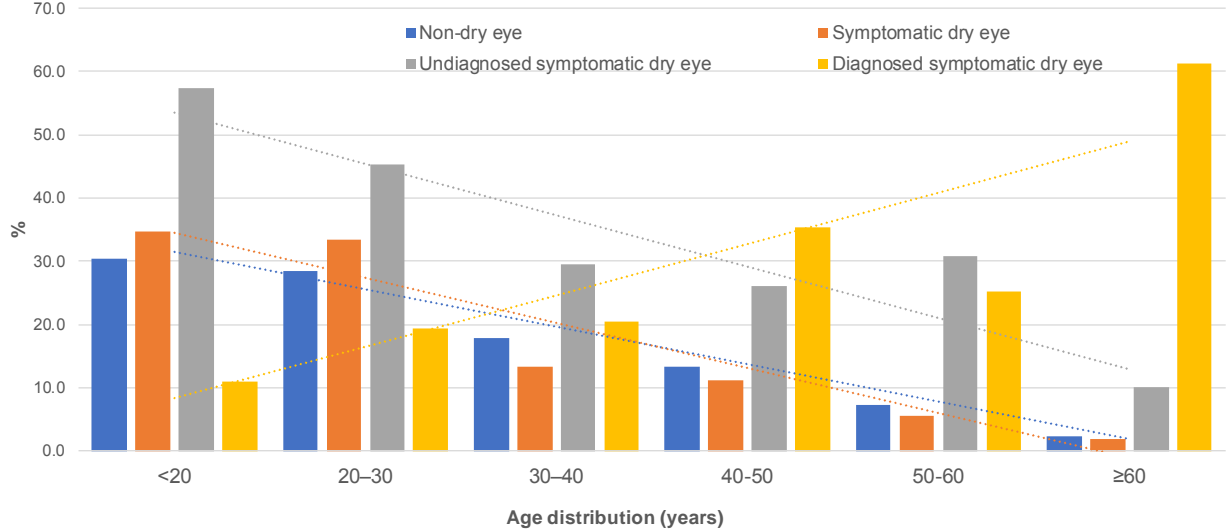| Question | Variable Name | Variable Details |
|---|---|---|
| Please answer each question using a 10-point scale | Stress level | Scale bar input (0, not at all to 10, I feel very stressed) |
| | Headache | Scale bar input (0, not at all to 10, very painful) |
| | Eye itching | Scale bar input (0, not at all to 10, very itchy) |
| Do you have any of the following symptoms that you aware of? | Concomitant symptoms | Multiple choice from {'Asthenopia,' 'Stiffness and pain of body axis muscle,' 'Mental fatigue,' 'N/A'} |

N/A = not applicable.

**eTable 3. Classification of Dry Eye**

| Classification | | OSDI total score ≥ 13 | History of clinically diagnosed DED |
|---|---|---|---|
| Non-dry eye | | - | N/A |
| Symptomatic dry eye | Undiagnosed symptomatic dry eye | + | - |
| | Diagnosed symptomatic dry eye | + | + |

DED = dry eye disease, OSDI = ocular surface disease index.

# eFigure. Age Distribution Based on Subgroup Analysis



The dotted line shows the slope of the ratio of age distribution by linear regression. Younger participants were more prevalent in the undiagnosed symptomatic dry eye group, while the participants classified into the diagnosed symptomatic dry eye group were on average older.