**Nancy & Aviva draft problem statement of Data Driven approach to detection and management of DED**

**Cited in the Prevalence of Diagnosed Dry Eye Disease in the United States Among Adults Aged 18 Years and Older6.8% of the US adult population was projected to have diagnosed DED (∼16.4 million people). Prevalence increased with age (18-34 years: 2.7%; ≥75 years: 18.6%) and was higher among women (8.8%; ∼11.1 million) than men (4.5%; ∼5.3 million). There is direct medical cost for managing patients with many reporting burden in the treatment process. Today’s digital era, prolonged screen time has become an unavoidable part of daily life, driven by work, education, and entertainment. This combined with poor sleep habits, high stress levels, and unhealthy lifestyle choices such as smoking, alcohol consumption, and lack of physical activity, contributes to significant increase in eye-related health issues, particularly Dry Eye Disease (DED). DED is a chronic condition characterized by discomfort, irritation, and vision problems, which can severely impact quality of life and productivity. Despite its growing prevalence, many individuals remain unaware of the lifestyle factors that contribute to DED, and healthcare providers often lack the tools to offer personalized, actionable recommendations for prevention and management.**

**The problem here is the need to identify and quantify the impact of modern lifestyle factors against development of DED. Additionally, there is a gap in providing personalized, evidence-based recommendations to help individuals reduce their risk of DED or manage existing symptoms effectively. Without a clear understanding of these factors, it is challenging to develop targeted interventions that address the root causes of DED and improve eye health outcomes.**

**The dry eye data set offers a valuable opportunity to address this problem with various variables or pointers into the possible causes of the DED. The data set is attributed to help in:**

* **Identification of degree of effect from each life style factor are most strongly associated with DED.**
* **Create tools to predict an individual’s likelihood of developing DED based on their unique lifestyle and health profile.**
* **Offer tailored advice to individuals on how to modify their habits—such as reducing screen time, improving sleep hygiene, or using blue-light filters—to prevent or manage DED.**
* **Use data-driven insights to educate the public and healthcare providers about the lifestyle changes that can mitigate the risk of DED.**

**The expected outcomes of this approach include:**

* **Improved Prevention: By identifying high-risk individuals and providing actionable recommendations, the incidence of DED can be significantly reduced.**
* **Better Management: Individuals already suffering from DED can adopt lifestyle changes to alleviate symptoms and improve their quality of life.**
* **Healthcare Cost Reduction: Preventing DED and managing it effectively can reduce the burden on healthcare systems by decreasing the need for medical interventions.**
* **Increased Awareness: Public awareness campaigns based on data-driven insights can encourage healthier habits and reduce the prevalence of DED.**

**Using this dataset enables a data-driven approach to addressing the growing problem of Dry Eye Disease. By identifying risk factors, developing predictive tools, and offering personalized recommendations, we can improve prevention, management, and overall eye health as support for the public health and securing sight for the communities.**

**References and citations**

**<https://www.kaggle.com/datasets/arifmia/sleep-health-and-digital-screen-exposure-dataset>**

**<https://dryeye.worldcouncilofoptometry.info/wp-content/uploads/2023/03/Economic-Burden-Infographic.pdf>**