

Oregon Health & Science University
School of Medicine

Scholarly Projects Final Report

Title *(Must match poster title; include key words in the title to improve electronic search capabilities.)*

Public attitudes regarding vision insurance coverage for eye care

Student Investigator's Name

Isabelle Nguyen

Date of Submission *(mm/dd/yyyy)*

3/17/22

Graduation Year

2022

Project Course *(Indicate whether the project was conducted in the Scholarly Projects Curriculum; Physician Scientist Experience; Combined Degree Program [MD/MPH, MD/PhD]; or other course.)*

Scholarly Projects Curriculum

Co-Investigators *(Names, departments; institution if not OHSU)*

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Project/Research Question

How are American adults's understanding of their vision care coverage in health insurance and does this influence their perceptions of the merger of both vision insurance and health insurance?

Type of Project *(Best description of your project; e.g., research study, quality improvement project, engineering project, etc.)*

Research study

Key words *(4-10 words describing key aspects of your project)*

vision insurance, health insurance, health policy, health care survey

Meeting Presentations

If your project was presented at a meeting besides the OHSU Capstone, please provide the meeting(s) name, location, date, and presentation format below (poster vs. podium presentation or other).

n/a

Publications *(Abstract, article, other)*

If your project was published, please provide reference(s) below in JAMA style.

n/a

Submission to Archive

Final reports will be archived in a central library to benefit other students and colleagues. Describe any restrictions below (e.g., hold until publication of article on a specific date).

Please keep submission private in archive.

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Next Steps

What are possible next steps that would build upon the results of this project? Could any data or tools resulting from the project have the potential to be used to answer new research questions by future medical students?

- Consider increasing the sample size as well as representation of those who have Medicare/Medicaid in the state of Oregon
 - administer the survey as a paper format in person to increase sample size
 - those who do not speak English as a native language and their perceptions of their vision care coverage

Please follow the link below and complete the archival process for your Project in addition to submitting your final report.

https://ohsu.ca1.qualtrics.com/jfe/form/SV_3ls2z8V0goKiHZP

Student's Signature/Date *(Electronic signatures on this form are acceptable.)*

This report describes work that I conducted in the Scholarly Projects Curriculum or alternative academic program at the OHSU School of Medicine. By typing my signature below, I attest to its authenticity and originality and agree to submit it to the Archive.

X

3/15/22

Student's full name

Mentor's Approval *(Signature/date)*

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Report: Information in the report should be consistent with the poster, but could include additional material. Insert text in the following sections targeting 1500-3000 words overall; include key figures and tables. Use Calibri 11-point font, single spaced and 1-inch margin; follow JAMA style conventions as detailed in the full instructions.

Introduction (≥250 words)

Vision impairment continues to be a critical public health issue in the United States, especially with a rapidly aging adult population. It is estimated that over 28 million adults in the United States have at least one age-related eye disease.¹ Another estimate shows 7.5% of Americans ages 40 and older have a best corrected visual acuity in their better seeing eye of worse than 20/40.² Roughly half of Americans have a correctable refractive error.³

The total cost of health care expenditure due to visual impairment in the United States is approximately \$5.5 billion annually.¹ This cost is projected to increase by 376 percent by 2050.⁴ Vision impairment not only imposes a large economic burden on the population level of the nation but also significant physical, psychologic and emotional costs on the individual. Those with moderate to severe vision loss are more likely to have fair/poor health, life dissatisfaction, and disability, while those with normal vision view the potential loss of eyesight as worse than losing speech, hearing, memory, or a limb.^{5,6}

Many common causes of vision loss, such as cataracts, glaucoma, and age-related macular degeneration, can be treated completely or the disease progression slowed through routine eye examinations.⁵ For this reason, the American Academy of Ophthalmology currently recommends screening eye exams every 2 to 4 years for those ages 40 to 54, every 1 to 3 years for those ages 55 to 64, every 1 to 2 years for those 65 and older.⁷ However, many patients do not adhere to recommended screening guidelines, including those for specific diseases such as diabetes mellitus.⁸ A longitudinal study by Lee et al. found that more than half of diabetic patients on Medicare had at least a 15 month gap in their examinations, a disease for which annual dilated eye examinations are recommended universally.⁹

Lack of vision insurance provides a major obstacle to accessing preventive care. In the United States, this is complicated by the fact that vision insurance is currently an add-on benefit only and separate from standard health insurance. Adult vision care is not a mandated essential health benefit category in the ACA.¹⁰ Recent research has revealed some of the negative consequences of this insurance structure. A 2013 study using the Behavioral Risk Factor Surveillance Survey 2008 vision module data found that patients aged 40-64 without vision insurance had less eye care utilization, specifically less eye care visits and more self-reported near and distance vision difficulty.¹¹ Notably, individuals with diagnosed cataracts, glaucoma, or age-related macular degeneration lacked insurance at almost the same rate as those in the general cohort (38.1% vs. 40.6%).¹²

Similar findings have been reported for those with public insurance. A 2015 study using Medicaid patients found that Medicaid coverage increased the likelihood of an eye care visit within a year by 17%.¹³ Compared to individuals with insurance, those without insurance had a 35% increased likelihood of functional limitation due to vision. A study predicted that providing vision health insurance coverage for the uninsured American adult population would improve ocular health outcomes and increase the rate of eye care utilization.⁹

Despite this growing evidence on the importance of vision insurance, it remains separate from standard health insurance and frequently not covered by employment-based health plans.¹¹ In addition,

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lack of health and vision insurance disproportionately affects those based on race and socioeconomic status.¹⁴⁻¹⁶ A study found that women, individuals with visual impairment and racial/ethnic minorities are more likely to deal with barriers in accessing and/or affording eye care.¹⁷

While publications document the need for expanded vision coverage, little information is known regarding the understanding of the general public and at-risk populations of the similarities and distinctions between vision and medical insurance. The objective of this study is to survey adults living in Oregon 18 years of age and older of their understanding of vision and general health insurance and whether altering the current vision care insurance system would potentially improve access to care.

Methods (≥250 words)

In this cross-sectional study, we recruited participants via telephone who were patients at one of the following OHSU family medicine clinics: Beaverton, Gabriel Park, Orenco Station, and Scappoose during the period of June 1, 2021 to January 31, 2022. The study inclusion criteria included adults 18 to 89 years old who were of Oregon residence and had completed the survey. Exclusion criteria included pregnant women, children, and those of vulnerable populations. A 30-question survey was modeled off the Behavioral Risk Factor Surveillance System (BRFSS), a state-based telephone survey of US adults, and was administered to these participants (as shown in eFigure 1 in Supplement). The survey included questions in English related to vision health, health insurance status, vision insurance status as well as their knowledge level of and attitudes regarding vision care coverage followed by an optional demographic section. Participants' confidence in their knowledge level of and their attitudes regarding vision care coverage was measured using the 5-point Likert scale.

The Institutional Review Board of Oregon Health & Science University reviewed and approved the minimal risk study protocol. All participants were provided informed consent for use of their deidentified data to be used for research purposes and followed the tenets of the Declaration of Helsinki.

Demographic data was represented using descriptive statistics. The differences in these factors between the groups were assessed with χ^2 test or Fisher exact test. Statistical significance was set at 2-sided $P=.05$. Covariates involved those who have vision insurance, understanding of vision insurance, preference to combine health and vision insurance, and satisfaction of their current insurance coverage. Data were analyzed between December 9, 2021 and March 15, 2022. All analyses were conducted using R version 4.0.5 (The R Foundation for Statistical Computing).

Results (≥500 words)

Of the 119 invited individuals, 63 participants completed the survey. There was missing data in the demographics section because this section was intended to be optional for the sake of not identifying the respondents as shown in Table 1. Among the 63 survey respondents, 41.8% had good health, 34.5% had very good health, 12.7% had excellent health, 7.3% had fair health, and 3.6% had poor health. Regarding their eye health, 61.1% of respondents had good eye health, 25.9% had fair eye health, 7.4% had excellent eye health, and 5.6% had poor eye health. When asked how much of the time the respondents worried about their eye health, most respondents (52.7%) worried a little of the time. When respondents were asked about what type of health insurance plan they have, 48% had an employer-purchased plan, 27% had Medicare, 8% had Medicaid, 7% had a self-purchased plan, 4% had TRICARE, VA or military plan, 2% had Alaska Native, Indian Health Service, Tribal Health Service, and 4% did not have health insurance. Of those with health insurance, 58% had purchased vision insurance, 36% did not have vision insurance, and 6% were unsure. Over half (62%) of the 52 respondents have an eye care provider (optometrist/ophthalmologist) as their usual source of eye care. Approximately 46.9% of respondents have health insurance that cover refractions, 26.5% do not have refraction coverage, while the other 26.5% are

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unsure. For those who have health insurance, 83.3% have health insurance that covers part or all the cost of purchasing new glasses. However, there were no statistical differences among those who had health insurance and whether they understand vision insurance coverage ($p=0.66$).

Of the respondents that have vision insurance, 34% had fair understanding of what their current vision insurance covers regarding eye care whereas 24.1% had very good understanding of their current vision care coverage (Figure 1). Most respondents 32.7% had rated their confidence as ‘poor’ when it came to knowing what to do if their health insurance refuses to pay for an eye service that they think should be covered (Figure 1). In regards to the statement ‘I know what to do if my health insurance refuses to pay for an eye service that I think should be covered’, 32.7% rated their knowledge as poor, 22.4% rated their knowledge as excellent, 18.4% rated their knowledge as fair, 16.3% rated their knowledge as good, and 10.2% rated their knowledge as very good. When asked regarding the statement ‘I know how to figure out my share of the cost for care, after my health insurance pays their share’, most (29.2%) rated their understanding as fair. However, there were no statistically significant association among those who had vision insurance in regards to their satisfaction with their current vision care coverage ($p=1$).

Respondents mostly strongly agreed (76.9%) with the statement ‘I am more likely to get my eyes examined if I know that my health insurance would pay for it’ (Figure 2). In regards to the following opinion ‘I think insurance coverage for eye exams should be covered by my health insurance’, a majority of respondents (94.2%) strongly agree with this statement. However, there was no statistically significant association between the respondent’s vision insurance status and whether they would prefer to combine vision and health insurance ($p=.52$).

Table 1. Demographic Characteristics of Survey Respondents

Characteristic (N=52)	n (%)
Age	
18-39	11(22)
40-54	16 (32)
55-64	10 (20)
65+	14 (28)
Gender	
Female	32 (64)
Male	19 (38)
Prefer to self-describe	0
Level of Education	
Less than high school	0
Some high school	1 (2)
Completed high school	4 (8)
Some college	12 (24)
Graduated from college	13 (26)
Graduate degree	20 (40)
Employment Status	
Full Time	18 (36)
Part Time	6 (12)
Self-Employed	5 (10)
Not employed but looking for work	1 (2)
not employed and not looking for work	0
Retired	13 (26)
Not employed, unable to work due to disability or illness	4 (8)

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Student	0
Stay at home spouse or partner	3 (6)
Other	1 (2)
Income	
Less than \$20,000	7 (14)
\$20,000 to \$34,999	4 (8)
\$35,000 to \$49,999	3 (6)
\$50,000 to \$74,999	9 (18)
\$75,000 to \$99,999	6 (12)
\$100,000 to \$149,999	4 (8)
\$150,000 or more	13 (26)
Race/Ethnicity	
White	42 (84)
Black or African American	1 (2)
Asian	3 (6)
Native Hawaiian or Pacific Islander	1 (2)
American Indian or Alaska Native	2 (4)
Other	1 (2)
Hispanic or Latino	
Yes	3 (6)
No	47 (94)
Not sure	0

Figure 1. Knowledge of vision care coverage

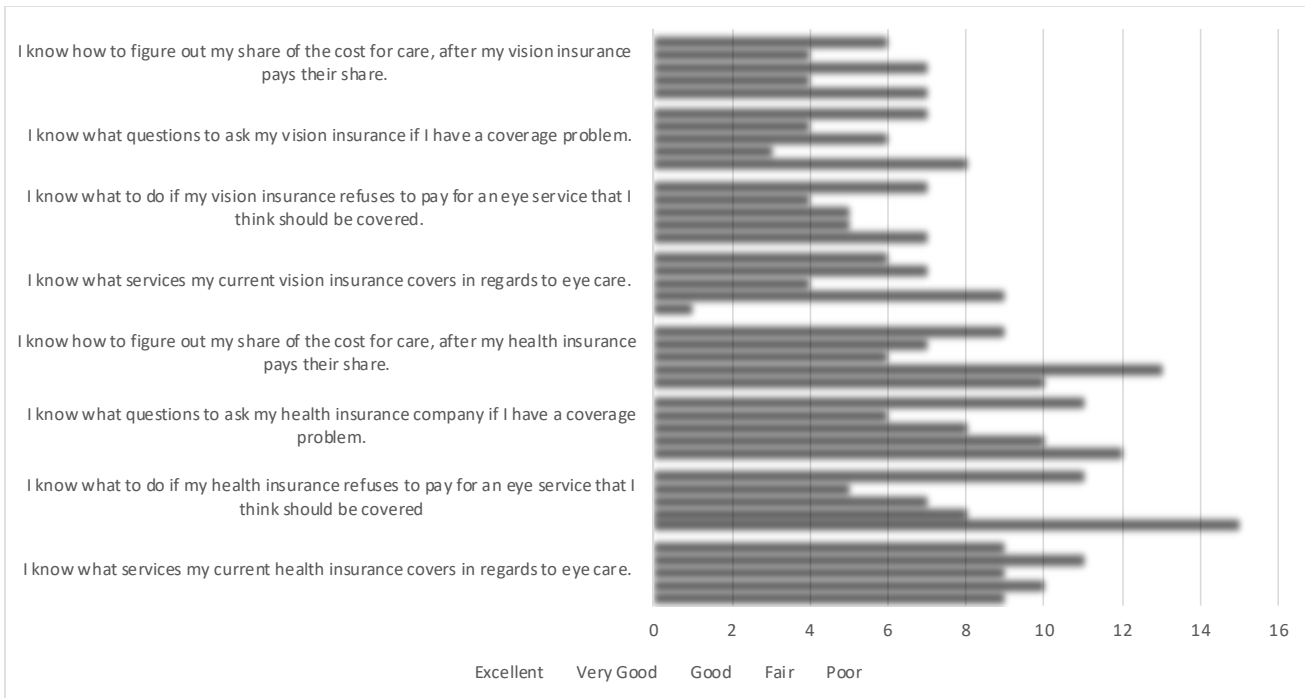
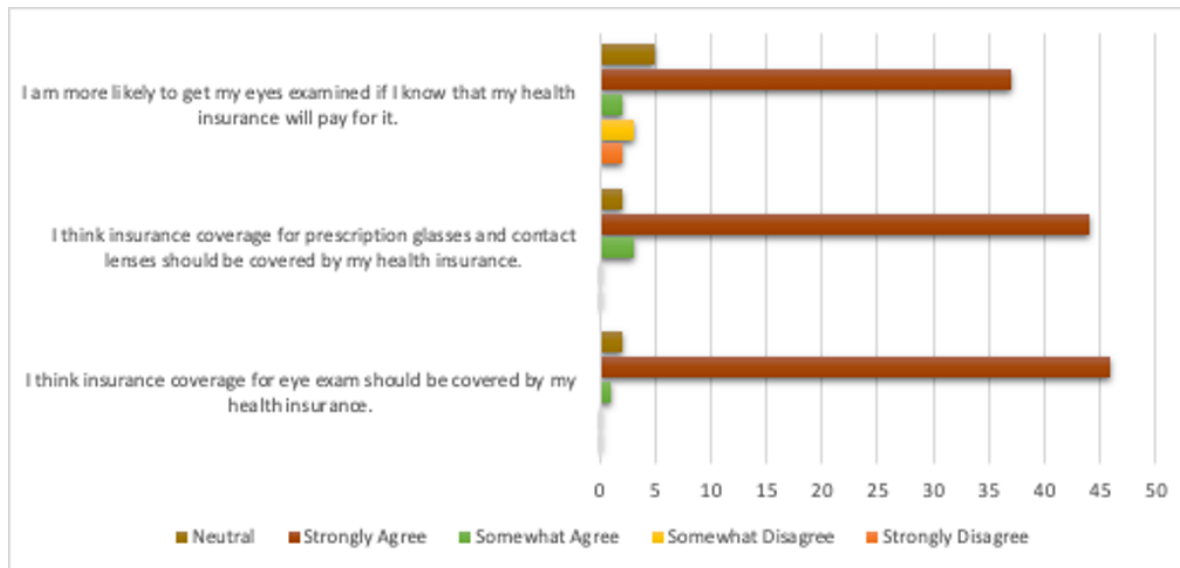


Figure 2. Opinion ratings of insurance coverage for vision care



Discussion (≥500 words)

Results from this study of Oregon adult’s knowledge and perceptions of their vision care coverage in health insurance have important implications. First, despite the insurance type of the respondents, most were confused as to what is covered in their health insurance in regards to vision care. Our study shows that there is a need to educate the public regarding the extent of vision care being covered in their health insurance and whether they would need to buy vision insurance separately out of pocket. This finding can be a deterrent for those who are unable to financially afford this option and has the potential to worsen existing eye disease if timely care is not sought^{5,9,12,13}. Second, the status of respondent’s vision insurance status was not a significant predictor in whether one prefers to combine health and vision insurance. This finding may be due to small number of individuals, which attributes to a lack of statistical power. Third, there was an unexpected finding that vision insurance status was found to not be a significant predictor in satisfaction of vision care coverage though this needs to also be understood in the context that this study was underpowered. Fourth, most respondents were more likely to seek eye care if these services were covered by their health insurance. This finding supports a prior quasi-experimental study that found that adults who had Medicaid vision coverage were more likely to seek eye care.¹³

A prior study has shown that Americans who were older, white, and had higher levels of education and income and have vision were less likely to experience significant barrier in affording eyeglasses.¹⁷ Although the demographics of our respondents fit most of these categories, we do not have sufficient evidence to make this conclusion. However, we speculate that with the financial difficulties of the COVID-19 pandemic will have a strain on those who can afford vision insurance to cover for eyeglasses and refractions.

This study has limitations. First, there is a sampling bias associated with survey studies, which limited the sample size; in fact, the sample size had a smaller population of those who had Medicaid insurance and had a high number of high-income, and highly educated participants compared to the

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general Oregon population. Therefore, this had a significant impact on lowering the statistical power of the study and therefore, our findings should be interpreted as pilot data to help inform future studies in creating improved generalizability. Second, telephone recruitment also prevented those who were not able to access the survey through technology and this method of recruitment was encouraged due to the COVID-19 pandemic. Moving forward, a paper-based survey could help reduce the barrier for those who do not have technology at home to complete the survey. Third, this study used a self-designed unvalidated survey and would require further administrations to assess reliability. In addition, a mixed-methods study including a survey and qualitative interviews would better assess patient’s knowledge of vision care insurance and their perceptions on what could be improved in the current system. Another aspect that could also be explored is administering the surveys in different languages and examining the association between those who do not speak English as a primary language and confidence in understanding vision care coverage with regards to their health insurance.

Conclusions (2-3 summary sentences)

The findings from this cross-sectional study are the first to provide insight into American adults’ perceptions and understanding of vision care coverage in the US healthcare insurance landscape. Larger studies are needed to conclude that the merging of health and vision insurance would help increase access to vision care for American adults.

Supplement

eFigure 1: Vision Insurance Survey

General Health

These first few questions are about your general state of health and insurance status.

Q1. In general, would you say your overall health is:

- Excellent
- Very good
- Good
- Fair
- Poor

Q2. At the present time, how would you rate your eye health?

- Excellent
- Good
- Fair

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- Poor
- Very poor
- Completely blind

Q3. How much of the time do you worry about your eye health?

- None of the time
- A little of the time
- Some of the time
- Most of the time
- All of the time

Q4. Do you have an eye care provider (ophthalmologist/optometrist) that is your usual source of eye care?

- Yes
- No

Q5. Before today, when was the last time you have been examined by an eye provider?

- Less than 1 year
- 1 year to less than 2 years
- 2 years to less than 3 years
- 3 years to less than 4 years
- 4 years to less than 10 years
- 10 years or more

Q6. How often do you think someone your age and with your current state of health gets their eyes examined?

- Less than 1 year
- 1 year to less than 2 years
- 2 years to less than 3 years

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3 years to less than 4 years

4 years or more

Q7. With the exception of reading glasses, has a doctor or other health professional ever told you that you have any of the following? (Check all that apply)

Refractive error (needing glasses or contacts for seeing clearly in the distance)

Cataract (clouding of the lens of the eye)

Glaucoma (damage to the optic nerve or high pressure in the eye)

Macular degeneration (age-related damage to the retina)

Diabetic retinopathy (damage to retina due to diabetes)

Not sure

Other eye disease/injury: _____

No

Q8. Have you ever been told you had diabetes?

Yes

Yes but only during pregnancy (females only)

No

No but pre-diabetes or borderline diabetes

Don't know/not sure

These next few questions will ask about your health insurance that provides medical coverage.

Q9. If you have had an eye exam in the past, how did you pay for your last eye exam? (please check all that apply)

Medicaid

Medicare

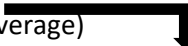
VA

TRICARE (formerly CHAMPUS)

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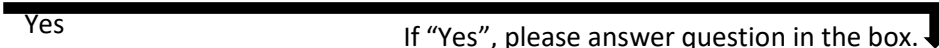
- Social Security Disability
- Indian Health Services
- Private health insurance; if known please specify: _____
- Vision insurance; if known please specify: _____
- Self-pay (excludes co-pays for insurance)
- Other (please explain): _____

Q10. What is the primary source of your health care coverage?

- A plan purchased through an employer or union (including plans purchased through another person's employer)
- A plan that you or another family member buys on your own
- Medicare
- Medicaid
- TRICARE (formerly CHAMPUS), VA, or Military
- Alaska Native, Indian Health Service, Tribal Health Services
- Some other source
- None (no coverage) 

Skip to Question 15 (Q15).

Q11. Does your health insurance cover refractions (measurements taken by your eye doctor) for eyeglasses or contact lenses?

- Yes  If "Yes", please answer question in the box.
- No
- Unsure

Q11A. Does your health insurance cover part or all of the cost of purchasing new glasses?

- Yes
- No
- Unsure

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Q12. Please indicate your level of confidence regarding your health insurance coverage in the following statements.

I know what services my current health insurance covers in regards to eye care.	Poor	Fair	Good	Very Good	Excellent
I know what to do if my health insurance refuses to pay for an eye service that I think should be covered.	Poor	Fair	Good	Very Good	Excellent
I know what questions to ask my health insurance company if I have a coverage problem.	Poor	Fair	Good	Very Good	Excellent
I know how to figure out my share of the cost for care, after my health insurance pays their share.	Poor	Fair	Good	Very Good	Excellent

Q13. When using your health insurance plan to get eye care, how likely are you to...

Look into what your health insurance will and will not cover before you access eye care services?	Unlikely	Neutral	Likely
Find out if an eye doctor is in-network before you see him/her?	Unlikely	Neutral	Likely

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Purchase separate vision insurance if your health insurance does not cover for refractive exams or prescription glasses/contacts?	Unlikely	Neutral	Likely
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Q14. Please indicate your level of agreement with the following statements.

I think insurance coverage for eye exams should be covered by my health insurance.	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Neutral
I think insurance coverage for prescription glasses and contact lenses should be covered by my health insurance.	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Neutral
I am more likely to get my eyes examined if I know that my health insurance will pay for it.	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Neutral

These next few questions will ask about vision insurance (insurance that pays for refractive and routine preventative eye exams in addition to prescription glasses and/or contact lenses).

Q15 Do you currently have vision insurance?

Yes
 No
 Unsure



Skip to Question 18 (Q18).

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Q16. Please indicate your level of confidence regarding your vision insurance coverage in the following statements.

I know what services my current vision insurance covers in regards to eye care.	Poor	Fair	Good	Very Good	Excellent
I know what to do if my vision insurance refuses to pay for an eye service that I think should be covered.	Poor	Fair	Good	Very Good	Excellent
I know what questions to ask my vision insurance if I have a coverage problem.	Poor	Fair	Good	Very Good	Excellent
I know how to figure out my share of the cost for care, after my vision insurance pays their share.	Poor	Fair	Good	Very Good	Excellent

Q17. Are you satisfied with the current coverage of your vision insurance?

Very unsatisfied

Unsatisfied

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- Neutral
- Satisfied
- Very satisfied

Q18. Please indicate the extent to which you agree or disagree with the following statements.

I am able to get eye care whenever I need it.	strongly disagree	somewhat disagree	somewhat agree	strongly agree	neutral
I avoid going to an eye doctor because I do not know if my insurance covers the exam.	strongly disagree	somewhat disagree	somewhat agree	strongly agree	neutral
I am not able to afford prescription glasses or contacts even after vision insurance.	strongly disagree	somewhat disagree	somewhat agree	strongly agree	neutral
I avoid going to an eye doctor because I do not have any symptoms.	strongly disagree	somewhat disagree	somewhat agree	strongly agree	neutral
I prioritize other health conditions or financial obligations over eye health.	Strongly disagree	somewhat disagree	somewhat agree	strongly agree	neutral

Demographics

This section asks about who you are and your background. Your answers will be kept confidential.

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Q19. What is the zip code of your current primary residence? _____

Q20. What is your age?

- 18-39
- 40-54
- 55-64
- 65+ years

Q21. What is your gender?

- Female
- Male
- Prefer to self-describe
- Prefer not to say

Q22. What is your highest level of formal education?

- Less than high school
- Completed some high school
- Completed high school
- Completed some college
- Graduated from college
- Graduate degree

Q23. Which of the following best describes your employment status?

- Employed full time
- Employed part time
- Self-employed
- Not employed, but looking for work
- Not employed and not looking for work

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- Retired
- Not employed, unable to work due to disability or illness
- Student
- Stay-at-home spouse or partner
- Other

Q24. Which of the following income categories best describes your total annual household income before/after taxes?

- Less than \$20,000
- \$20,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 or more

Q25. What is your marital status?

- Never married
- Married or civil union
- Divorced
- Separated
- Widow/widower
- Unknown
- Decline to answer

Q26. What is your race/ethnicity?

- White
- Black or African American
- Asian
- Native Hawaiian or other Pacific Islander
- American Indian or Alaska Native

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Other

Q27. Are you Hispanic or Latino?

Yes

No

Don't know/not sure

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