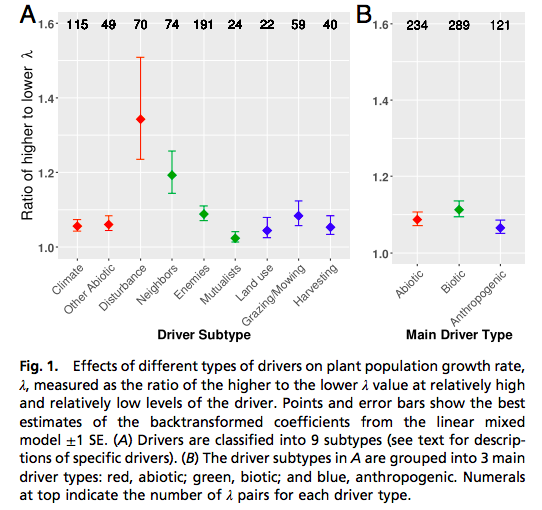
**Quiz 2, Version 1**

**Figure 1: This graph from Morris et al. (2020), published in the journal Proceedings of the National Academy of Sciences, illustrates how plant growth rates are affected by various drivers of plant growth. Use it to answer Questions 1 and 2.**



Q1. What types of variables are Driver Subtype and Main Driver Type?

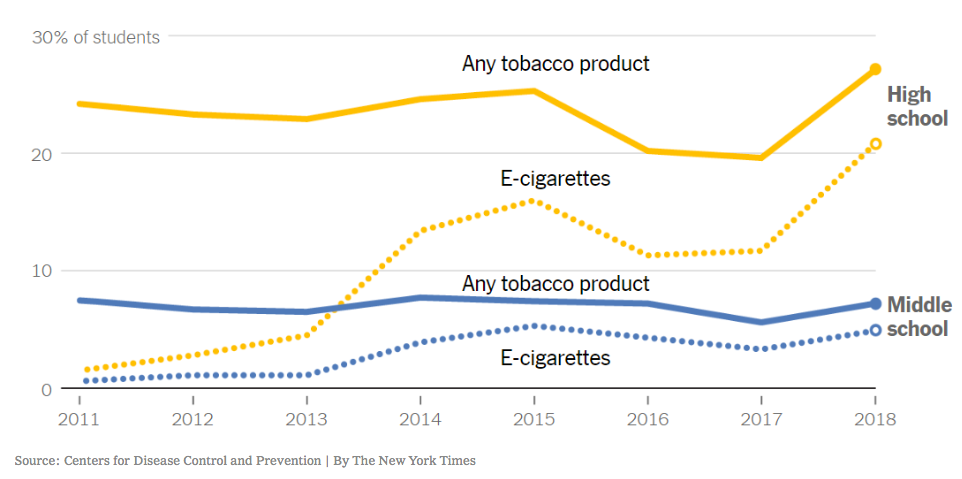
1. Categorical/nominal
2. Ordinal
3. Quantitative and continuous
4. Quantitative and discrete

Q2. What type of variable is “ratio of higher to lower λ”?

1. Quantitative and continuous
2. Categorical/nominal
3. Ordinal
4. Quantitative and discrete

**Figure 2. This figure from the New York Times shows the proportion of surveyed United States students who use e-cigarettes and other tobacco products. Use it to answer Questions 3 and 4.**

NYTimes



Q3. Which of these best represents the **population** of interest in Figure 2?

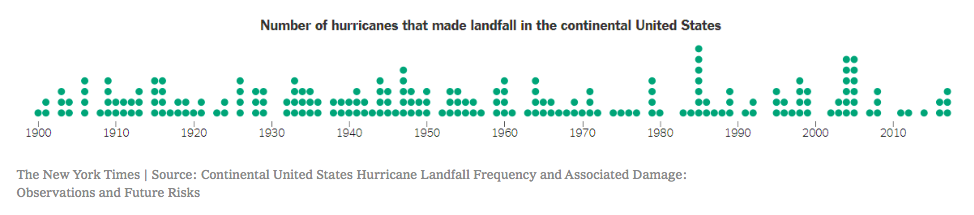
1. United States students in middle school and high school
2. United States students in middle school and high school who were surveyed by the Centers for Disease Control and Prevention
3. United States tobacco users
4. United States E-cigarettes

Q4. Which of these statements about Figure 2 is **false**?

1. In 2018, 5-27% of high school students used e-cigarettes in the United States.
2. There is variability in the proportion of high school students in the United States who use e-cigarettes across years.
3. There is probably variation in the proportion of high school students who used e-cigarettes across different towns in the United States in 2018, but this figure does not show that variability.
4. There is variability among United States K-12 students in tobacco use that can be explained by age or grade; in general, a higher proportion of high school students use tobacco products than middle school students.

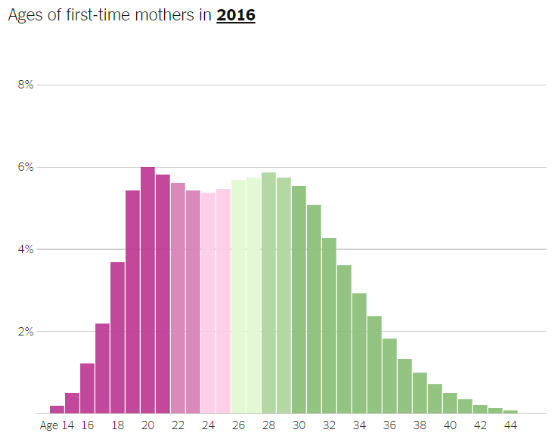
Q5. The following figure from the New York Times shows the number of hurricanes that made landfall in the United States each year from 1900 to 2010. What type of variable is “number of hurricanes”?

1. Quantitative and discrete
2. Categorical/nominal
3. Ordinal
4. Quantitative and continuous



Q6. The following figure from the New York Times is based on a survey of United States families conducted by the National Center for Health Statistics. Which of these best describes the **sample**?

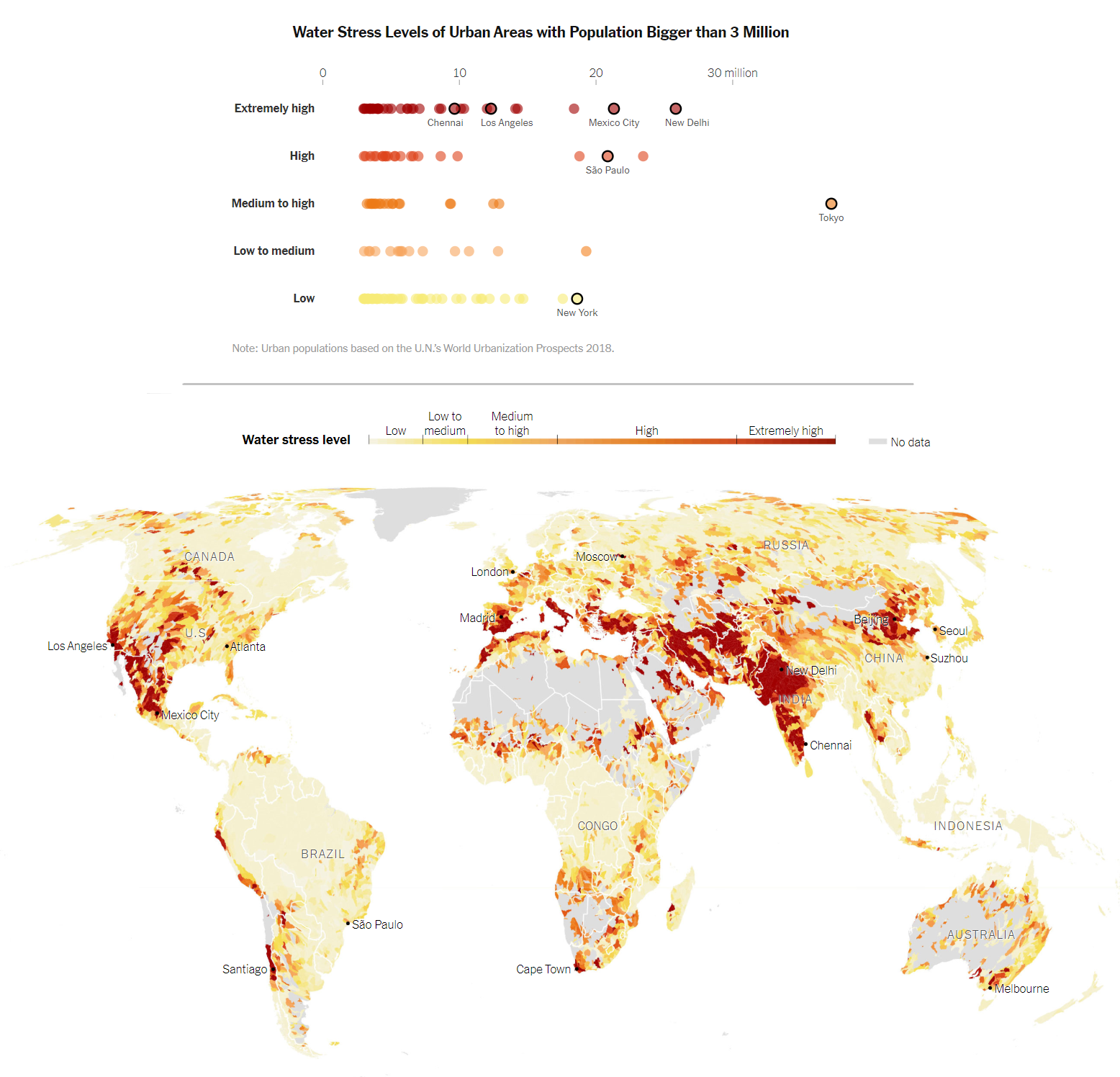
1. First-time mothers in the United States who were surveyed by NCHS
2. All mothers in the United States
3. First-time mothers in the United States
4. Women in the United States



**Quiz 2, Version 2**

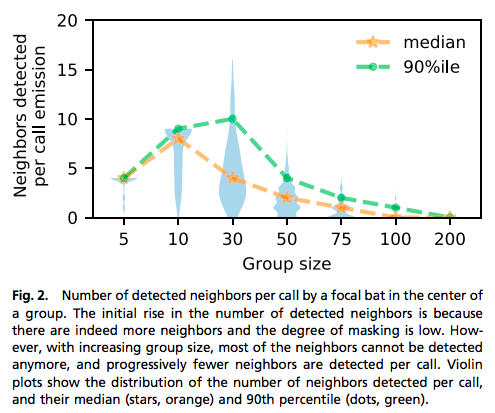
Q1. In the following figure from the New York Times, which shows water stress levels around the world, what type of variable is water stress level (low, low to medium, etc.)?

1. Ordinal
2. Categorical/nominal
3. Quantitative and continuous
4. Quantitative and discrete



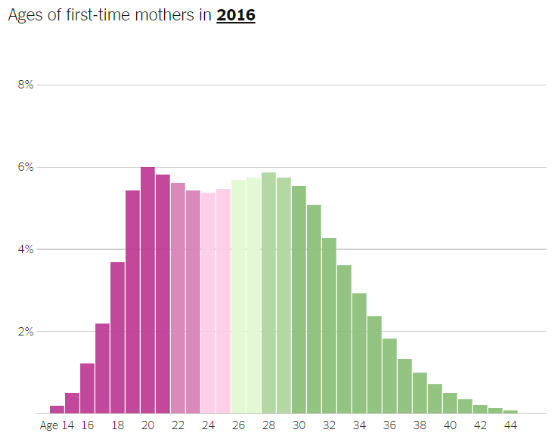
Q2. In the following figure from Beleyura and Goerlitza (2019), published in the journal Proceedings of the National Academy of Sciences, what type of variable is “Neighbors detected per call emission” (1 neighbor, 2 neighbors, etc.)?

1. Quantitative and discrete
2. Categorical/nominal
3. Ordinal
4. Quantitative and continuous

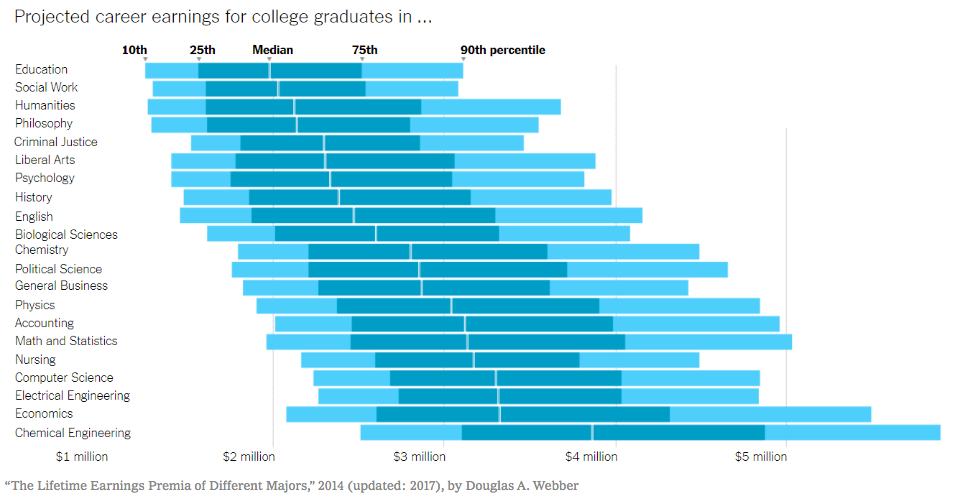


Q3. The following figure from the New York Times is based on a survey of United States families conducted by the National Center for Health Statistics. Which of these best describes the **population**of interest?

1. First-time mothers in the United States in 2016
2. All mothers in the United States
3. First-time mothers in the United States who were surveyed by NCHS
4. Women in the United States in 2016



**Figure 4. This figure published in the New York Times shows data from the National Longitudinal Survey of Youth and Community Survey, which surveyed 12,686 men and women aged 14-22 in 1979 in the United States, and then performed followed up surveys of the same people ever year or every other year until present. Use this figure to answer Questions 4-6.**



Q4. Which of these best describes the **sample** represented in Figure 4?

1. The 12,686 men and women in the United States who were surveyed by the National Longitudinal Survey of Youth and Community Survey, starting in 1979
2. Men and women in the United States who were ages 14-22 in 1979
3. Men and women in the United States in 1979
4. None of these

Q5. Which of these inferences would be appropriate to make about the **population** represented in Figure 4?

1. Men and women in the United States who were ages 14-22 in 1979 tended to make more money during their lifetimes if they majored in chemical engineering during college than if they majored in education.
2. People who major in chemical engineering in the United States always make more money during their lifetimes than people who major in education.
3. After graduating with biological sciences majors, the students in this class will have a median lifetime earning of roughly $2.75 million.
4. Men and women in the United States made very little money in 1979 if they majored in education.

Q6. Which of these statements about the information shown in Figure 4 is **false**?

1. All the men and women surveyed made between $1 and $5 million during their lifetimes, so all of the men and women in the United States who were 14-22 years old in 1979 probably made between $1 and $5 million during their lifetimes.
2. There was natural variation in the lifetime earnings of the people who were surveyed, and some of that variation can be explained by college major; some majors tended to produce higher lifetime earnings than others.
3. For any given major, there was natural variation in the lifetime earnings of the people who were surveyed, but this graph does not explain why lifetime earnings varied within each major.
4. There might have been variation in lifetime earnings between the men and women who were surveyed (e.g., men might have made more money, on average), but this graph does not show that variability.