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Course > EDA: Examining Relationships > Causation > Learn By Doing Activity

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## Learn By Doing Activity

### Scenario: Light and Nearsightedness

When we practiced exploring the relationship between two categorical variables, we looked at a study in which the type of light in young children's rooms when they sleep was examined, along with their later nearsightedness, or myopia.

Here is the two-way table that summarizes the collected data:

Myopia Bed Light			
	Nearsighted	Not Nearsighted	Total
Lamp	41	34	75
Night Light	79	153	232
No Light	17	155	172
Total	137	342	479

The conditional percentages allow us to compare the distribution of later nearsightedness among children who were exposed to each of the three nighttime light levels:

Myopia Bed Light			
	Nearsighted	Not Nearsighted	Total
Lamp	54.7%	45.3%	100.0%
Night Light	34.1%	66.0%	100.0%
No Light	9.9%	90.1%	100.0%

The striking finding was that children who slept with lamps on were **more than 5 times more likely** to be nearsighted later in life (54.7% vs. 9.9%). Based upon this data alone, parents might discontinue using night-lights and lamps with young children.

## Learn By Doing (1/1 point)

Do the data provide evidence that early light exposure causes myopia?

**Your Answer:**

No because there might be an extra lurking variable

**Our Answer:**

Association does not imply causation. We cannot conclude that light exposure in early childhood somehow causes myopia in older children. The data is suggestive of a relationship, but we can't rule out the possibility that a lurking variable is associated with parents' use of light with their young children and the children's later myopia.

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## Learn By Doing (1/1 point)

What is a likely lurking variable in this case that could explain this observed relationship? (Hint: this lurking variable affects both the type of light with which a child sleeps and the child's later nearsightedness.)

**Your Answer:**

Do they have glasses?

Edit: that was a really bad idea haha. I didn't think of the connection to parents.

**Our Answer:**

A lurking variable that can very likely explain the observed relationship in this case is the nearsightedness of the child's parents (one or both). If the parents are nearsighted, then their child is more likely to be nearsighted due to genetic factors. Also, nearsighted parents are more likely to leave more light near their sleeping children to make it easier to care for them at night. Click here to see a visual explanation of this.

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