

## Controlling for a Third Variable Example

The United States Postal Service has become alarmed by recent unsubstantiated reports from employees that the pressures of the workplace, such as large volumes of mail and very short time deadlines, contribute to alcoholism. The USPS commissioned a panel that collected data from post office employees working in Ripple, Montana; Thunderbird, New Mexico; and Gallo, Mississippi.

As a first step, they hypothesized that a positive relationship between position in the hierarchy and alcoholism. They reasoned this because they thought the higher the position, the more the stress, and, therefore, alcoholism.

They generated the following table:

Raw Data			
	Hierarchy		
Alcoholism	Non-supervisor	Supervisor	Total
Nonalcoholic	115	60	175
Alcoholic	5	20	25
Total	120	80	200

Percentaged Data			
	Hierarchy		
Alcoholism	Non-supervisor	Supervisor	
Nonalcoholic	96%	75%	
Alcoholic	4%	25%	
Total	n=120 100%	n=80 100%	

Because the table shows that supervisors are more likely than non-supervisors to be alcoholics (a difference of 21%), most thought they had gotten it right.

However, one investigator didn't think so. She thought it wasn't hierarchy, but instead operation of the high-pressure ziptronic machine that is leading to alcoholism. It just so happens, she argued, that more supervisors operate the ziptronic than non-supervisors.

To find out if she was right, they created a table for each value of the control variable (employees who have operated the ziptronic; employees who have not operated the ziptronic)

### Operated Ziptronic

	Hierarchy	
Alcoholism	<i>Non-supervisor</i>	<i>Supervisor</i>
<i>Nonalcoholic</i>	97%	75%
<i>Alcoholic</i>	3%	25%
Total	100%	100%
	(n=30)	(n=60)

### Have not operated Ziptronic

	Hierarchy	
Alcoholism	<i>Non-supervisor</i>	<i>Supervisor</i>
<i>Nonalcoholic</i>	96%	75%
<i>Alcoholic</i>	4%	25%
Total	100%	100%
	(n=90)	(n=20)

From this, it appears that operating the Ziptronic doesn't matter. The results are almost identical. So, we are left with the original hypothesis.