

## Conditional Probability Exercise

This data set was generated by the work of

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### I. Background

#### A. General Abuse Statistics

1. 11% or 4 million women physically assaulted annually
2. 3-4% or approx. 2 million women experience severe violence<sup>1-5</sup>
3. 3-20% of women emotionally abused who are not assaulted<sup>5,6-10</sup>
4. Varies widely, centers at 15-20% sexually abused and 50% of physically abused<sup>11-17</sup>
5. Cost to employers estimated at 3-10 billion annually<sup>18</sup>
6. Health costs unknown

### II. Preliminary study

#### A. Objectives

1. Determine what patients in this setting wanted physicians and providers to do to help abused women
2. Determine the feasibility of a large scale study
3. Preliminary estimates of health outcomes of abused women compared to women never abused

#### B. Ages 18 to 58

#### C. Surveyed from

1. Community Health Plan centers (local HMO)
2. Outreach programs at local domestic violence programs
3. Shelter residents
4. Staff of domestic violence services

#### D. Outcome Variables

- |                 |                                |
|-----------------|--------------------------------|
| 1. Headache     | 6. Choking sensation           |
| 2. Insomnia     | 7. Shortness of breath         |
| 3. Chest pain   | 8. Frequent vaginal infections |
| 4. Pelvic pain  | 9. Fatigue                     |
| 5. Stomach pain |                                |

#### E. 146 women with abuse category known

#### F. 36 women never abused

#### G. 110 (75%) experienced some kind of physical or emotional abuse in last year

## Probability/Prevalence Ratio Activity

The main command to use for this exercise in MINITAB is the **Cross Tabulation** command. We get to it by clicking on **Stat\Tables\Cross Tabulation and Chi Square** and then we click the risk factor variable [in this study] **abused** in the **For rows** box and the outcome variable **sxlhead** in the **For columns** box. Click the **Options** button and select the option for **No Variables** in the **Display missing values for** box.

### Tabulated statistics: abused, sxlhead

Rows: abused    Columns: sxlhead

	0	1	All
0	10	25	35
1	11	95	106
All	21	120	141

Calculate the probability of reporting a severe headache	
Calculate the probability of reporting abuse	
Calculate the probability of reporting severe headaches <b>and</b> reporting abuse	
Calculate the probability of reporting severe headaches <b>or</b> reporting abuse	
Calculate the probability of a headache given the woman was abused	
Calculate the probability of a headache given the woman was not abused	
Calculate the Prevalence Ratio of headaches for abused women	

Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlinsom**

Rows: abused Columns: sxlinsom

	0	1	All
0	22	10	32
1	36	66	102
All	58	76	134

Calculate the probability of insomnia	
Calculate the probability of insomnia given the woman was abused	
Calculate the probability of insomnia given the woman was not abused	
Calculate the Prevalence Ratio of insomnia for abused women	

Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlchest**

Rows: abused Columns: sxlchest

	0	1	All
0	29	3	32
1	62	39	101
All	91	42	133

Calculate the probability of chest pain	
Calculate the probability of chest pain given the woman was abused	
Calculate the probability of chest pain given the woman was not abused	
Calculate the Prevalence Ratio of chest pain for abused women	

Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlpelv**

Rows: abused Columns: sxlpelv

	0	1	All
0	26	8	34
1	65	35	100
All	91	43	134

Calculate the probability of pelvic pain	
Calculate the probability of pelvic pain given the woman was abused	
Calculate the probability of pelvic pain given the woman was not abused	
Calculate the Prevalence Ratio of pelvic pain for abused women	

Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlstom**

Rows: abused Columns: sxlstom

	0	1	All
0	23	10	33
1	37	65	102
All	60	75	135

Calculate the probability of stomach pain	
Calculate the probability of stomach pain given the woman was abused	
Calculate the probability of stomach pain given the woman was not abused	

Calculate the Prevalence Ratio of stomach pain for abused women	
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Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlchok**

Rows: abused Columns: sxlchok

	0	1	All
0	31	1	32
1	72	21	93
All	103	22	125

Calculate the probability of choking	
Calculate the probability of choking given the woman was abused	
Calculate the probability of choking given the woman was not abused	
Calculate the Prevalence Ratio of choking for abused women	

Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlbre**

Rows: abused Columns: sxlbre

	0	1	All
0	26	8	34
1	42	57	99
All	68	65	133

Calculate the probability of shortness of breath	
Calculate the probability of shortness of breath given the woman was abused	

Calculate the probability of shortness of breath given the woman was not abused	
Calculate the Prevalence Ratio of shortness of breath for abused women	

Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlvag**

Rows: abused Columns: sxlvag

	0	1	All
0	23	12	35
1	63	33	96
All	86	45	131

Calculate the probability of frequent vaginal infections	
Calculate the probability of frequent vaginal infections given the woman was abused	
Calculate the probability of frequent vaginal infections given the woman was not abused	
Calculate the Prevalence Ratio of frequent vaginal infections for abused women	

Interpret the meaning of the Prevalence Ratio

**Tabulated statistics: abused, sxlfat**

Rows: abused Columns: sxlfat

	0	1	All
0	22	12	34
1	36	69	105
All	58	81	139

Calculate the probability of fatigue	
Calculate the probability of fatigue given the woman was abused	
Calculate the probability of fatigue given the woman was not abused	
Calculate the Prevalence Ratio of fatigue for abused women	

Interpret the meaning of the Prevalence Ratio

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