

## Conditional Probability Exercise

This data set was generated by the work of  
Dr. Louise A. McNutt - The University at Albany  
Dr. Bonnie E. Carlson - The University at Albany  
Dr. John P. Holcomb, Jr. - Cleveland State University

### 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 SPSS is the **Crosstabs** command. We get to it by clicking on **Analyze\Descriptive Statistics\Crosstabs** and then we click the risk factor variable [in this study] **abuse** in the **row** box and the outcome variable **sxlhead** in the column box.

**ABUSED \* SXLHEAD Crosstabulation**

Count		SXLHEAD		Total
		No	Yes	
ABUSED	No			35
	Yes			106
Total		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

**ABUSED \* SXLINSOM Crosstabulation**

Count

		SXLINSOM		Total
		No	Yes	
ABUSED	No			32
	Yes			102
Total		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

**ABUSED \* SXLCHEST Crosstabulation**

Count

		SXLCHEST		Total
		No	Yes	
ABUSED	No			32
	Yes			101
Total		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

**ABUSED \* SXLPELV Crosstabulation**

Count

		SXLPELV		Total
		No	Yes	
ABUSED	No		8	34
	Yes	65	35	
Total				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

**ABUSED \* SXLSTOM Crosstabulation**

Count

		SXLSTOM		Total
		No	Yes	
ABUSED	No		10	
	Yes	37		
Total			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	

Interpret the meaning of the Prevalence Ratio

**ABUSED \* SXLCHOK Crosstabulation**

Count

		SXLCHOK		Total
		No	Yes	
ABUSED	No	31		32
	Yes	72		
Total		103		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

**ABUSED \* SXLBREA Crosstabulation**

Count

		SXLBREA		Total
		No	Yes	
ABUSED	No		8	
	Yes		57	
Total			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

**ABUSED \* SXLVAG Crosstabulation**

Count		SXLVAG		Total
		No	Yes	
ABUSED	No			
	Yes		33	
Total		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

**ABUSED \* SXLFAT Crosstabulation**

Count		SXLFAT		Total
		No	Yes	
ABUSED	No		12	
	Yes	36		
Total			81	

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

## REFERENCES:

- <sup>1</sup>Straus, MA Gelles, RJ. How violent are American families? Estimates from the national Family Violence Resurvey and other studies. In MA Straus and RJ Gelles (Eds.), *Physical Violence in American Families: Risk Factors and Adaptions to Violence in 8,145 Families*. New Brunswick, NJ: Transaction Publishers, 1990.
- <sup>2</sup>Straus M, Gelles, R, Steinmetz SK. *Behind Closed Doors: A Survey of Family Violence in America*. New York, Doubleday, 1990.
- <sup>3</sup>Schulman, MA, Survey of spousal violence against women in Kentucky. Harris Study #792701, 1979.
- <sup>4</sup>Teske, RHC, Parker, ML. Spouse Abuse in Texas: A study of women's attitudes and experiences. Huntsville, TX: Criminal Justice Center, Sam Houston State University, 1983.
- <sup>5</sup>Hale-Carlsoon G, Hutton B, Fuhrman J, McNutt LA, Morse. Physical Violence and injuries in intimate relationships: New York State Behavioral Risk Factor Surveillance System, 1994. *MMWR* 1996, 45:765-7.
- <sup>6</sup>Follingstad, DR, Rutledge, LL, Berg, BJ, Hause, ES, and Polek, DS. The role of emotional abuse in physically abusive relationships. *Journal of Family Violence*, 1994; 9:35-45.
- <sup>7</sup>O'Leary, KD, Curely, AD. Assertion and family violence: Correlates of spouse abuse. *J Mar Fam Therapy*, 1986; 12:282-289.
- <sup>8</sup>Margolin, LM, Miller, Moran, PB., When a kiss is not a just a kiss: Relating violations of consent in kissing to rape myth acceptance. *Sex Roles*, 1988; 20:231-242.
- <sup>9</sup>Sabourin, RC Infante, DA, Rudd, JE. Verbal aggression in marriages: A comparison of violent, distressed but nonviolent, and nondistressed couples. *Human Communication Research*, 1993; 20:245-267.
- <sup>10</sup>Vinokur, AD, Van Ryn, M. Social support and undermining in close relationships: Their independent effects on mental health. *J Personality and Social Psychology*, 1993; 65:350-359.
- <sup>11</sup>Russell, DEH. Wife Rape. In A Parrot and L Bechlofer (Eds.), *Acquaintance Rape: The Hidden Crime*. NY: Wiley, 1991.
- <sup>12</sup>Koss, MP, Oros, C. The sexual experiences survey: A research instrument investigating sexual aggression and victimization. *J Consulting and Clin Psych*, 1982;50:455-457.
- <sup>13</sup>Koss, MP Gidcyz, CA, Wisniewski, N. The scope of rape: Incidence and prevalence of sexual aggression and victimization in a national sample of higher education students. *J Consulting and Clin Psych*, 1987; 42:162-170.

<sup>14</sup>Moore, KA, Nord, CW, Peterson, JL. Nonvoluntary sexual activity among adolescents. *Family Planning Perspectives*, 1989; 21:110-114.

<sup>15</sup>Hall, ER, Flannery, PPJ. Prevalence and correlates of sexual assault experiences in adolescents. *Victimology*, 1984;9:398-406.

<sup>16</sup>Kilpatric, DG, Saunders, BE, Vernonen, LJ, Best, CL, Von, JM. Criminal victimization: Lifetime prevalence, reporting to police, and psychological impact. *Crime and Delinquency*, 187; 33:479-489.

<sup>17</sup>Gilbert, N. Violence against women: Social research and sexual politics. In Smith, MD, Besharov, DJ, and Gardiner, KN (Eds.), *Was it Rape? An Examination of Sexual Assault Statistics* (pp. 1-24). Menlo Park, CA: The Henry J. Kaiser Family Foundation, 1995.

<sup>18</sup>Bureau of National Affairs. *Violence and stress: The work/family connection*. Special report #32. Washington DC, Bureau of National Affairs, 1990.