

**Dissertation Workshop: Exercise 6 Solutions**  
**Johns Hopkins Bloomberg School of Public Health OpenCourseWare**

A study has been carried out to investigate differences in use of antenatal care (ANC) between areas served by trained midwives (EXP) and areas where those workers are not available (CONT). Usage was also recorded by mother's age and income level, with results shown in the following table.

	No. of Women		Pct. Receiving ANC	
	Younger	Older	Younger	Older
Exp				
Low-income	105	105	60	34
High-income	195	195	80	54
Cont				
Low-income	100	100	16	22
High-Income	100	100	36	42

1. Identify the confounding variable and describe its effect.

**Confounding**

Age: Correlation between age and intervention status

50% of Exp are younger

50% of Cont are younger

No correlation

Income: Correlation between income and intervention status

210/600 = 35% of Exp are low income

200/400 = 50% of Cont are low income

Correlation

Therefore: There is an effect of income on use - high income have 20% more use and **income is a confounder**.

2. Identify the interacting variables and describe their effect.

**Interaction**

Age: Younger have 44% more use in Exp

Older have 12% more use in Cont

**Interaction**

Income: Low income have 20% less use in Exp

High income have 20% less use in Cont

**No interaction**

**References**

Fisher A, Laing J, Stoeckel J. *Handbook for Family Planning Operations Research Design*. New York: The Population Council.

Varkevisser C, Pathmanathan I, Brownlee A. 1991. *Designing and Conducting Health Systems Research Projects Vol. 2, Par 1: Proposal Development and Fieldwork*. Ottawa: International Development Research Centre.