

Study Design in Epidemiology

Lab 3 Summary

Goals

- Identify which *study design* to use in different study contexts
- Visualize 2x2 contingency tables and measure effect of exposure
 - Without confounder
 - With confounder

Study Design (exercises)

- ✓ Study 1: Case-control study
- ✓ Study 2: Cross-sectional
- ✓ Study 3: Cohort
- ✓ Study 4: Correlational study

2x2 Contingency Table (summary)

	Disease	No Disease
Exposed	A	B
Not exposed	C	D

$$OR = \frac{A/C}{B/D} = \frac{A \times D}{C \times B}$$

Odds of exposure between disease groups

$$RR = \frac{A/(A+B)}{C/(C+D)}$$

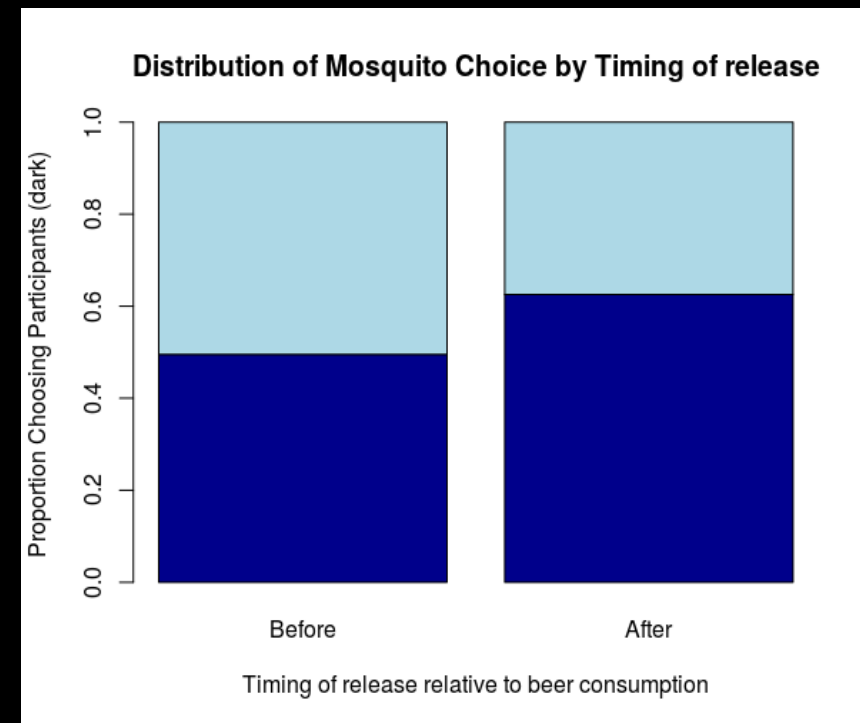
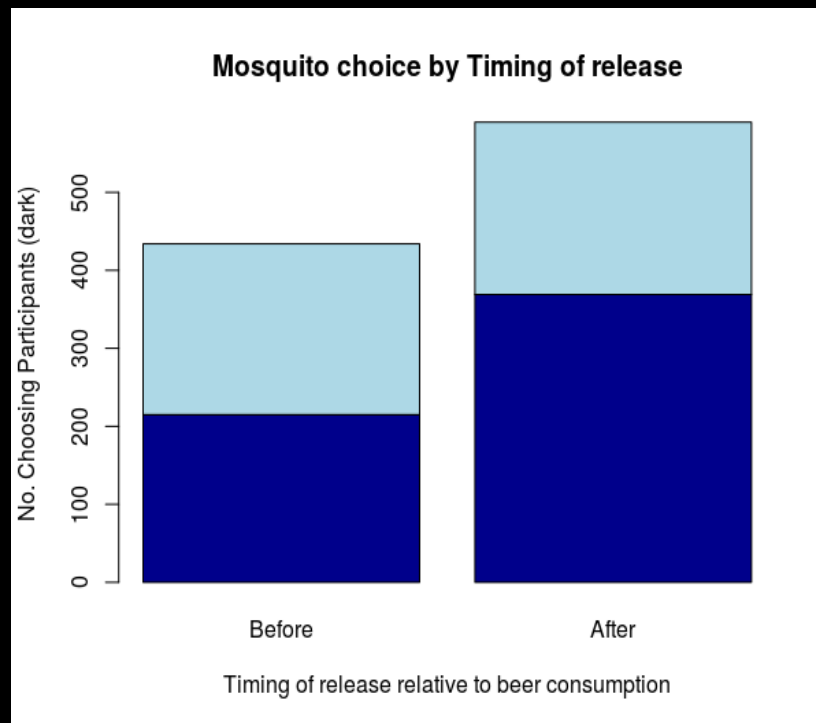
Relative Risk of being diseased between exposure groups (CIR)

Beer & Mosquitoes attractiveness

	human	outdoor
After	369	221
Before	215	219

Chi-squared test

RR = 1.2; OR = 1.7



Malaria & Gender & Workplace

- Confounder?
 - Crude OR: 1.7 (Malaria & Gender)
 - OR stratified by workplace: 1 and 1.06
- Workplace & Gender
 - OR: 7.79
- Workplace & Malaria
 - OR: 5.31

Malaria & Gender & Workplace (cont')

glm(formula = l(Malaria == "case") ~ Gender + Workplace, family = binomial)

Coefficients:

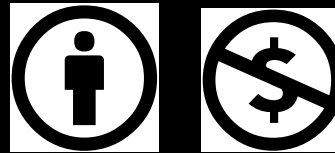
	Estimate	Std. Er.	z value	Pr(> z)
(Intercept)	-0.4106	0.2090	-1.964	0.0495 *
Genderfemale	-0.0105	0.2626	-0.040	0.9681
Workplaceoutdoor	1.6651	0.3219	5.172	2.31e-07 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1				

(Intercept) Genderfemale Workplaceoutdoor
 0.6632415 0.9895556 5.2860342



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