21−15

$\hat{p}_m = \frac{109}{385} = .28$ p_m = prop. of all men that would agree w/ statement . . . .

$\hat{p}_w = \frac{103}{449} = .23$ p_w = " "women" "

$\hat{p}_c = \frac{212}{834} = .25$

$H_o: p_m = p_w$

$H_a: p_m > p_w$

• $n_1 \hat{p}_c \geq 5$
$385(.25) \geq 5$
$n_1(1-\hat{p}_c) \geq 5$
$385(.75) \geq 5$

449 > 385 so cond. met

2 independent
random sample of Amer. adults

$$z = \frac{.28 - .23}{\sqrt{.25(1-.25)\left(\frac{1}{385} + \frac{1}{449}\right)}} = 1.78$$

$Pr(z > 1.78) = .0378$ = p-value (men would & women independent

sampl. dist → $(\hat{p}_m - \hat{p}_w)$ .28 − .23

d) Interpret p-value:

~~the prob~~.

(H_o is true)

If prop. of men & women that agree are =, .0378 prob. of getting sample prop. of m & w that agree that have a diff. of .05 or greater.

$.23 \pm 1.96\sqrt{\frac{.23(1-.23)}{449}}$

(,)

$(.28 - .23) \pm 1.96\sqrt{\frac{.28(1-.28)}{385} + \frac{.23(1-.23)}{449}}$

$.05 \pm .0632$

$(-.0058, .1132)$

$385(.28) \geq 5$
$109 \geq 5$

$449(.23) \geq 5$
$103 \geq 5$

$385(1-.28) \geq 5$
$276 \geq 5$

$449(1-.23) \geq 5$
$346 \geq 5$

95% conf. the diff. in prop. of all men & women that will agree is anywhere from .0058 less for men to .1132 greater for men than women.

Because 0 is in the interval, there might no diff.

21-24

$H_0: P_S = P_N$

$H_a: P_S < P_N$

P_S = prop. of all people that would agree to ban when asked by a smoker

P_N = " " " nonsmoker

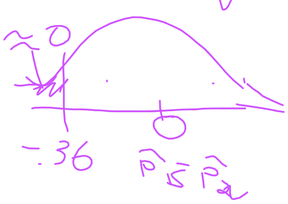
• n is large: $n_1 = n_2 = 100$

$100(.61) \geq 5$ $\quad$ $100(1-.61) \geq 5$

$61 \geq 5$ $\quad$ $39 \geq 5$

$$z = \frac{\overset{.36}{.43 - .79}}{\sqrt{.61(1-.61)\left(\frac{1}{100}+\frac{1}{100}\right)}} = -5.22$$

$p(z < -5.22) \approx 0$



With a p-value of ≈0, this is sign. @ any reasonable level. Reject H_0.

Enough evid. . . .