Presentation

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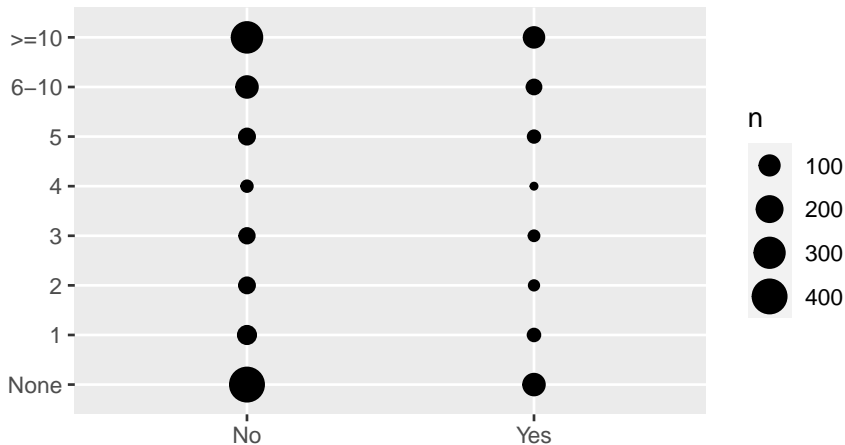
- The two classes of CHF have similar count distributions across the levels of duration of arterial hypertension.
- We will further test the hypothesis that there is an association between the two variables

Table 1: Duration of Arterial Hypertension by Chronic Heart Failure

	No	Yes
None	401	120
1	72	21
2	47	10
3	42	12
4	15	4
5	48	20
6-10	120	37
>=10	307	104

Examining the Standerdized residuals.
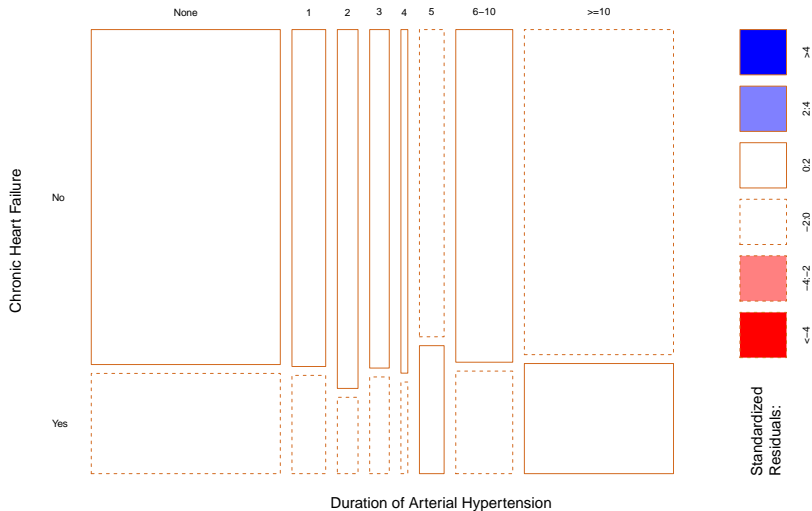
For Ix2 tables, testing for a linear trend in either response category, we use the Cochran-Armitage trend test.

```
## 
##  Cochran-Armitage test for trend
## 
## data:  dlitag
## Z = -0.99455, dim = 8, p-value = 0.32
## alternative hypothesis: two.sided
```

Issues to consider: Ordinal variable with unequal intervals so trend test on the original classification provides information about the direction but ignores the unequal spacing in the last two categories.

Logistic Regression model

x - Duration of Arterial Hypertension.

Table 2: Parameter Estimates for Logit link

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-1.2283412	0.0915051	-13.4237468	0.0000000
x	0.0138949	0.0143812	0.9661872	0.3339505

Table 3: Parameter Estiamtes for Identity link

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	0.2264438	0.0160982	14.0664047	0.0000000
x	0.0025212	0.0026207	0.9620338	0.3360326

Goodness of fit tests for the fitted models

For the logit model:
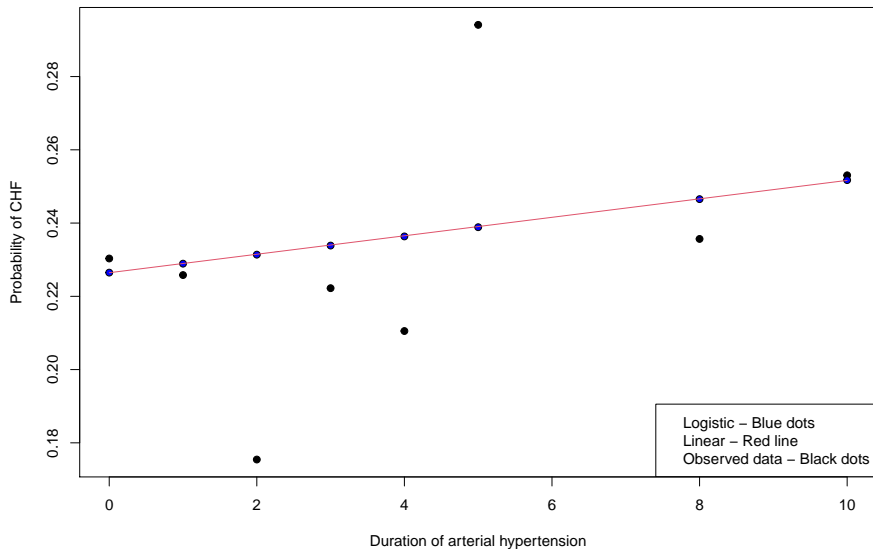
- $G^2 = 2.4236058$
- df $= 6$
- p-value $= 0.8769175$

For the linear model:

- $G^2 = 2.4249567$
- df $= 6$
- p-value $= 0.8767699$

Predicted probabilities for the fitted models and the observed data.
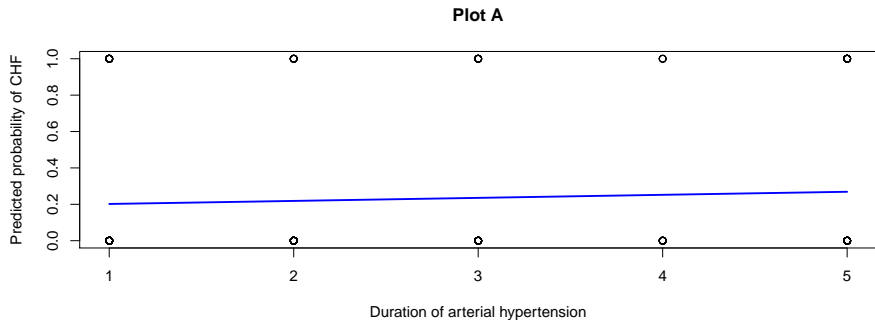
Sub-analsis

We tested the Linear model for the subset: Duration of arterial hypertension $\in [1-5]$

Table 4: Parameter Estiamtes for subset analysis

	Estimate	Std. Error	z value	Pr($>$|z|)
(Intercept)	0.1850895	0.0483670	3.826774	0.0001298
DLIT_AG_N	0.0167632	0.0161478	1.038107	0.2992204

Predicted probabilities

Plot A

The p-value for the goodness of fit went down sharply (0.16) but still didn't reach significance level to reject the null of no-fit.

Conclusions

- There is no significant association between CHF and the duration of arterial hypertension.
- By itself, duration of arterial hypertension is not predictive of CHF.