

Crude logistic regression of gender on quizscore (OR=1.282, 95% CL 1.064, 1.544)

### The LOGISTIC Procedure

#### Model Information

|                           |                      |                              |
|---------------------------|----------------------|------------------------------|
| Data Set                  | TASK1.SURVEYCOMBINED |                              |
| Response Variable         | quizscore1           | Score on STD prevention quiz |
| Number of Response Levels | 2                    |                              |
| Model                     | binary logit         |                              |
| Optimization Technique    | Fisher's scoring     |                              |

|                             |      |
|-----------------------------|------|
| Number of Observations Read | 2423 |
| Number of Observations Used | 2401 |

#### Response Profile

| Ordered Value | quizscore1 | Total Frequency |
|---------------|------------|-----------------|
| 1             | Fail       | 749             |
| 2             | Pass       | 1652            |

Probability modeled is quizscore1='Fail'.

NOTE: 22 observations were deleted due to missing values for the response or explanatory variables.

#### Class Level Information

| Class  | Value  | Design Variables |
|--------|--------|------------------|
| gender | Female | 1                |
|        | Male   | 0                |

#### Model Convergence Status

Convergence criterion (GCONV=1E-8) satisfied.

#### Model Fit Statistics

| Criterion | Intercept Only | Intercept and Covariates |
|-----------|----------------|--------------------------|
| AIC       | 2982.384       | 2977.465                 |
| SC        | 2988.167       | 2989.032                 |

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### The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0

| Test             | Chi-Square | DF | Pr > ChiSq |
|------------------|------------|----|------------|
| Likelihood Ratio | 6.9187     | 1  | 0.0085     |
| Score            | 6.8420     | 1  | 0.0089     |
| Wald             | 6.8261     | 1  | 0.0090     |

### Type 3 Analysis of Effects

| Effect | DF | Wald<br>Chi-Square | Pr > ChiSq |
|--------|----|--------------------|------------|
| gender | 1  | 6.8261             | 0.0090     |

### Analysis of Maximum Likelihood Estimates

| Parameter     | DF | Estimate | Standard<br>Error | Wald<br>Chi-Square | Pr > ChiSq |
|---------------|----|----------|-------------------|--------------------|------------|
| Intercept     | 1  | -0.9582  | 0.0786            | 148.6644           | <.0001     |
| gender Female | 1  | 0.2481   | 0.0950            | 6.8261             | 0.0090     |

### Odds Ratio Estimates

| Effect                | Point<br>Estimate | 95% Wald<br>Confidence Limits |
|-----------------------|-------------------|-------------------------------|
| gender Female vs Male | 1.282             | 1.064 1.544                   |

### Association of Predicted Probabilities and Observed Responses

|                    |         |           |       |
|--------------------|---------|-----------|-------|
| Percent Concordant | 24.8    | Somers' D | 0.054 |
| Percent Discordant | 19.3    | Gamma     | 0.123 |
| Percent Tied       | 55.9    | Tau-a     | 0.023 |
| Pairs              | 1237348 | c         | 0.527 |

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 Effect of gender (AOR=1.272, 95% CL 1.056, 1.533) and resuse AOR=1.202, 95% CL 0.976, 1.481) on quizscore

### The LOGISTIC Procedure

### Model Information

|                           |                      |                              |
|---------------------------|----------------------|------------------------------|
| Data Set                  | TASK1.SURVEYCOMBINED |                              |
| Response Variable         | quizscore1           | Score on STD prevention quiz |
| Number of Response Levels | 2                    |                              |
| Model                     | binary logit         |                              |
| Optimization Technique    | Fisher's scoring     |                              |

|                             |      |
|-----------------------------|------|
| Number of Observations Read | 2423 |
| Number of Observations Used | 2396 |

### Response Profile

| Ordered Value | quizscore1 | Total Frequency |
|---------------|------------|-----------------|
| 1             | Fail       | 748             |
| 2             | Pass       | 1648            |

Probability modeled is quizscore1='Fail'.

NOTE: 27 observations were deleted due to missing values for the response or explanatory variables.

### Class Level Information

| Class  | Value  | Design Variables |
|--------|--------|------------------|
| gender | Female | 1                |
|        | Male   | 0                |
| reuse1 | No     | 1                |
|        | Yes    | 0                |

### Model Convergence Status

Convergence criterion (GCONV=1E-8) satisfied.

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Effect of gender (AOR=1.272, 95% CL 1.056, 1.533) and reuse AOR=1.202, 95% CL 0.976, 1.481) on quizscore1

### The LOGISTIC Procedure

#### Model Fit Statistics

|           |           |
|-----------|-----------|
| Intercept | Intercept |
|           | and       |

| Criterion | Only     | Covariates |
|-----------|----------|------------|
| AIC       | 2977.062 | 2971.244   |
| SC        | 2982.844 | 2988.589   |
| -2 Log L  | 2975.062 | 2965.244   |

#### Testing Global Null Hypothesis: BETA=0

| Test             | Chi-Square | DF | Pr > ChiSq |
|------------------|------------|----|------------|
| Likelihood Ratio | 9.8182     | 2  | 0.0074     |
| Score            | 9.7795     | 2  | 0.0075     |
| Wald             | 9.7425     | 2  | 0.0077     |

#### Type 3 Analysis of Effects

| Effect | DF | Wald<br>Chi-Square | Pr > ChiSq |
|--------|----|--------------------|------------|
| gender | 1  | 6.4053             | 0.0114     |
| reuse1 | 1  | 2.9848             | 0.0841     |

#### Analysis of Maximum Likelihood Estimates

| Parameter     | DF | Estimate | Standard<br>Error | Wald<br>Chi-Square | Pr > ChiSq |
|---------------|----|----------|-------------------|--------------------|------------|
| Intercept     | 1  | -0.9918  | 0.0814            | 148.3756           | <.0001     |
| gender Female | 1  | 0.2408   | 0.0951            | 6.4053             | 0.0114     |
| reuse1 No     | 1  | 0.1839   | 0.1065            | 2.9848             | 0.0841     |

#### Odds Ratio Estimates

| Effect                | Point<br>Estimate | 95% Wald<br>Confidence Limits |
|-----------------------|-------------------|-------------------------------|
| gender Female vs Male | 1.272             | 1.056 1.533                   |
| reuse1 No vs Yes      | 1.202             | 0.976 1.481                   |

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 Effect of gender (AOR=1.272, 95% CL 1.056, 1.533) and reuse AOR=1.202, 95% CL 0.976, 1.481) on quizscore

#### The LOGISTIC Procedure

##### Association of Predicted Probabilities and Observed Responses

|                    |         |           |       |
|--------------------|---------|-----------|-------|
| Percent Concordant | 35.6    | Somers' D | 0.077 |
| Percent Discordant | 27.9    | Gamma     | 0.121 |
| Percent Tied       | 36.6    | Tau-a     | 0.033 |
| Pairs              | 1232704 | c         | 0.538 |

# Partition for the Hosmer and Lemeshow Test

| Group | Total | quizscore1 = Fail |          | quizscore1 = Pass |          |
|-------|-------|-------------------|----------|-------------------|----------|
|       |       | Observed          | Expected | Observed          | Expected |
| 1     | 657   | 185               | 177.75   | 472               | 479.25   |
| 2     | 150   | 39                | 46.25    | 111               | 103.75   |
| 3     | 1236  | 389               | 396.25   | 847               | 839.75   |
| 4     | 353   | 135               | 127.75   | 218               | 225.25   |

## Hosmer and Lemeshow Goodness-of-Fit Test

| Chi-Square | DF | Pr > ChiSq |
|------------|----|------------|
| 2.8886     | 2  | 0.2359     |