**data** clogit\_data;

do x1 = **1** to **4**;

do x2 = **1** to **3**;

do y = **1** to **3**;

input x3 @@;

output;

end;

end;

end;

datalines;

0 0 1 7 8 8 19 8 1

6 9 12 11 7 6 1 0 0

1 1 6 8 23 7 5 1 0

0 0 0 1 3 7 14 16 11

;

**proc** **format**;

value y\_fmt **1**='Minimal' **2**='Moderate' **3**='Severe';

value x1\_fmt **1**='Treatment1' **2**='Treatment2' **3** ='Treatment3' **4**='Treatment4';

value x2\_fmt **1**='Low' **2**='Median' **3**='High';

**run**;

\* Example1;

%***CLogit***(DSName=clogit\_data, Dir =, Outcome=y, Freq=, PredictNum=x3, PredictClass=x1(ref='Treatment1') x2(ref='Low'), Format=y\_fmt. x1\_fmt. x2\_fmt., OutFormat=rtf, OutFileName=ClogitOutput1);

The following output will be generated in the specified directory after running Example1.

|  |
| --- |
| ***Proportional odds model (Outcome: y, Predictor variable(s): x3 x1 x2)*** |

|  |
| --- |
| ***The LOGISTIC Procedure*** |

| **Response Profile** | | |
| --- | --- | --- |
| **Ordered Value** | **y** | **Total Frequency** |
| **1** | Minimal | 12 |
| **2** | Moderate | 12 |
| **3** | Severe | 12 |

|  |
| --- |
| ***Probabilities modeled are cumulated over the lower Ordered Values.*** |

| **Score Test for the Proportional Odds Assumption** | | |
| --- | --- | --- |
| **Chi-Square** | **DF** | **Pr > ChiSq** |
| 0.1908 | 6 | 0.9999 |

| **Type 3 Analysis of Effects** | | | |
| --- | --- | --- | --- |
| **Effect** | **DF** | **Wald Chi-Square** | **Pr > ChiSq** |
| **x3** | 1 | 0.2370 | 0.6264 |
| **x1** | 3 | 0.0007 | 1.0000 |
| **x2** | 2 | 0.0395 | 0.9805 |

| **Analysis of Maximum Likelihood Estimates** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter** |  | **DF** | **Estimate** | **Standard Error** | **Wald Chi-Square** | **Pr > ChiSq** |
| **Intercept** | **Minimal** | 1 | -0.7705 | 0.7919 | 0.9469 | 0.3305 |
| **Intercept** | **Moderate** | 1 | 0.6238 | 0.7880 | 0.6268 | 0.4285 |
| **x3** |  | 1 | 0.0277 | 0.0570 | 0.2370 | 0.6264 |
| **x1** | **Treatment2** | 1 | 0.00232 | 0.8670 | 0.0000 | 0.9979 |
| **x1** | **Treatment3** | 1 | -0.0185 | 0.8671 | 0.0005 | 0.9830 |
| **x1** | **Treatment4** | 1 | -0.00644 | 0.8671 | 0.0001 | 0.9941 |
| **x2** | **High** | 1 | -0.0968 | 0.7745 | 0.0156 | 0.9006 |
| **x2** | **Median** | 1 | -0.1585 | 0.8027 | 0.0390 | 0.8434 |

| **Odds Ratio Estimates** | | | |
| --- | --- | --- | --- |
| **Effect** | **Point Estimate** | **95% Wald Confidence Limits** | |
| **x3** | 1.028 | 0.920 | 1.150 |
| **x1 Treatment2 vs Treatment1** | 1.002 | 0.183 | 5.483 |
| **x1 Treatment3 vs Treatment1** | 0.982 | 0.179 | 5.371 |
| **x1 Treatment4 vs Treatment1** | 0.994 | 0.182 | 5.436 |
| **x2 High vs Low** | 0.908 | 0.199 | 4.142 |
| **x2 Median vs Low** | 0.853 | 0.177 | 4.116 |

/\* Example2: Consider x2 be the frequency of occurance, we can run the macro as following: \*/

%***CLogit***(DSName=clogit\_data, Dir =, Outcome=y, Freq=x2, PredictNum=x3, PredictClass=x1(ref='4'), Format=y\_fmt. **.**, OutFormat=rtf, OutFileName=ClogitOutput2);

The following output will be generated in the specified directory after running Example2.

|  |
| --- |
| ***Proportional odds model (Outcome: y, Predictor variable(s): x3 x1)*** |

|  |
| --- |
| ***The LOGISTIC Procedure*** |

| **Response Profile** | | |
| --- | --- | --- |
| **Ordered Value** | **y** | **Total Frequency** |
| **1** | Minimal | 24 |
| **2** | Moderate | 24 |
| **3** | Severe | 24 |

|  |
| --- |
| ***Probabilities modeled are cumulated over the lower Ordered Values.*** |

| **Score Test for the Proportional Odds Assumption** | | |
| --- | --- | --- |
| **Chi-Square** | **DF** | **Pr > ChiSq** |
| 0.5581 | 4 | 0.9676 |

| **Type 3 Analysis of Effects** | | | |
| --- | --- | --- | --- |
| **Effect** | **DF** | **Wald Chi-Square** | **Pr > ChiSq** |
| **x3** | 1 | 2.2282 | 0.1355 |
| **x1** | 3 | 0.1479 | 0.9855 |

| **Analysis of Maximum Likelihood Estimates** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter** |  | **DF** | **Estimate** | **Standard Error** | **Wald Chi-Square** | **Pr > ChiSq** |
| **Intercept** | **Minimal** | 1 | -1.1842 | 0.5562 | 4.5331 | 0.0332 |
| **Intercept** | **Moderate** | 1 | 0.2416 | 0.5380 | 0.2016 | 0.6534 |
| **x3** |  | 1 | 0.0563 | 0.0377 | 2.2282 | 0.1355 |
| **x1** | **1** | 1 | 0.0645 | 0.6172 | 0.0109 | 0.9168 |
| **x1** | **2** | 1 | 0.2344 | 0.6315 | 0.1377 | 0.7105 |
| **x1** | **3** | 1 | 0.1229 | 0.6244 | 0.0387 | 0.8440 |

| **Odds Ratio Estimates** | | | |
| --- | --- | --- | --- |
| **Effect** | **Point Estimate** | **95% Wald Confidence Limits** | |
| **x3** | 1.058 | 0.983 | 1.139 |
| **x1 1 vs 4** | 1.067 | 0.318 | 3.576 |
| **x1 2 vs 4** | 1.264 | 0.367 | 4.358 |
| **x1 3 vs 4** | 1.131 | 0.333 | 3.845 |