#### **Diabetes Data Set**

| 🖬 Diab    | etes.sav  | / [DataSe    | et1] - SF     | SS Data        | Editor         |            |                  |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
|-----------|-----------|--------------|---------------|----------------|----------------|------------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------|------------|-----|-----|-----|-----|-----|-----|
| File Edit | View Da   | ata Transfo  | rm Analyze    | e Graphs I     | Utilities Win  | dow Help   |                  |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
|           | h 🖽 👳     | 🐡 🏪 🛛        | <b># 1</b>    | 🏦 🖩 🗗 I        | <b>N</b>       |            |                  |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 33 :      |           |              |               |                |                |            | r                |     |     | -   |     |     | r   |     |     |     |     |              | r          |     |     |     |     |     |     |
| 1         | id 1      | relwt<br>.81 | glufast<br>80 | glutest<br>356 | instest<br>124 | sspg<br>55 | group<br>Normal  | var          | var        | var | Var | var | var | Var | Var |
| 2         | 2         |              | 97            |                | 117            | 76         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 3         | 3         |              | 105           |                |                | 105        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 4         | 4         |              | 90            |                | 199            | 108        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 5         | 5         | 1.00         | 90<br>86      | 323<br>381     | 240<br>157     | 143<br>165 | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 7         | 7         | .91          | 100           | 350            | 221            | 119        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 8         | 8         | 1.10         | 85            | 301            | 186            | 105        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 9         | 9         |              | 97            |                | 142            | 98         | Normal           |     |     |     | -   |     |     |     |     | -   |     |              |            |     |     |     |     |     |     |
| 10<br>11  | 10<br>11  | .78          | 97<br>91      | 296<br>353     | 131            | 94         | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 12        | 12        | .90<br>.73   | 87            | 306            | 221<br>178     | 53<br>66   | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 13        | 13        | .96          | 78            | 290            | 136            | 142        | Normal           |     |     |     |     |     |     |     |     | -   |     |              |            | -   |     |     |     |     |     |
| 14        | 14        | .84          | 90            | 371            | 200            | 93         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 15        | 15        |              | 86            | 312            |                | 68         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 16<br>17  | 16<br>17  | .98<br>1.10  | 80<br>90      | 393<br>364     | 202<br>152     | 102<br>76  | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 17        | 17        | .85          | 90            | 364            | 185            | 37         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 19        | 19        | .83          | 85            | 296            | 116            | 60         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 20        | 20        | .93          | 90            |                |                | 50         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 21        | 21        | .95          | 90            |                |                | 47         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 22<br>23  | 22<br>23  | .74<br>.95   | 88<br>95      | 304<br>347     | 134<br>184     | 50<br>91   | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 24        | 23        | .97          | 90            | 347            | 192            | 124        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 25        | 25        | .72          | 92            | 386            | 279            | 74         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 26        | 26        | 1.11         | 74            |                | 228            | 235        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 27<br>28  | 27<br>28  | 1.20<br>1.13 | 98<br>100     | 365<br>352     | 145<br>172     | 158<br>140 | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 20        | 20        | 1.13         | 86            | 302            | 172            | 140        | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 30        | 30        | .78          | 98            | 321            | 222            | 99         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 31        | 31        | 1.00         | 70            | 360            | 134            | 90         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 32        | 32        | 1.00         | 99            |                | 143            | 105        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 33<br>34  | 33<br>34  | .71<br>.76   | 75<br>90      | 352<br>353     | 169<br>263     | 32         | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 35        | 35        | .89          | 85            | 373            | 174            | 78         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 36        | 36        | .88          | 99            | 376            | 134            | 80         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 37        | 37        | 1.17         | 100           | 367            | 182            | 54         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 38<br>39  | 38<br>39  | .85<br>.97   | 78<br>106     |                | 241<br>128     | 175<br>80  | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 40        | 40        | 1.00         | 98            | 277            | 222            | 186        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 41        | 40        | 1.00         | 102           | 378            | 165            | 117        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 42        | 42        | .89          | 90            | 360            | 282            | 160        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 43        | 43        | .98          | 94            |                | 94             | 71         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 44<br>45  | 44<br>45  | .78          | 80<br>93      |                | 121<br>73      | 29<br>42   | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 45        | 45        | .74          | 93            | 318            | 106            | 42         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 47        | 47        | .95          | 85            | 334            | 118            | 122        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 48        | 48        | .95          | 96            | 356            | 112            | 73         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 49        | 49        | 1.03         | 88            | 291            | 157            | 122        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 50<br>51  | 50<br>51  | .87<br>.87   | 87<br>94      |                | 292<br>200     | 128<br>233 | Normal<br>Normal |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 52        | 51        | 1.17         | 94            | 306            | 200            | 132        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 53        | 53        | .83          | 86            | 319            | 144            | 138        | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| 54        | 54        | .82          | 86            | 349            | 109            | 83         | Normal           |     |     |     |     |     |     |     |     |     |     |              |            |     |     |     |     |     |     |
| < ► \Da   | ta View 🖌 | Variable Vi  | ew / 96       | 332            | 151            | 109        | Normal           |     | <   |     | 1   | 1   |     | 1   |     |     |     | I            |            |     |     |     |     |     | >   |
|           |           |              | ,             |                |                |            |                  |     |     |     |     |     |     |     |     |     | SE  | PSS Processo | r is ready |     |     |     |     |     |     |

SPSS Processor is ready

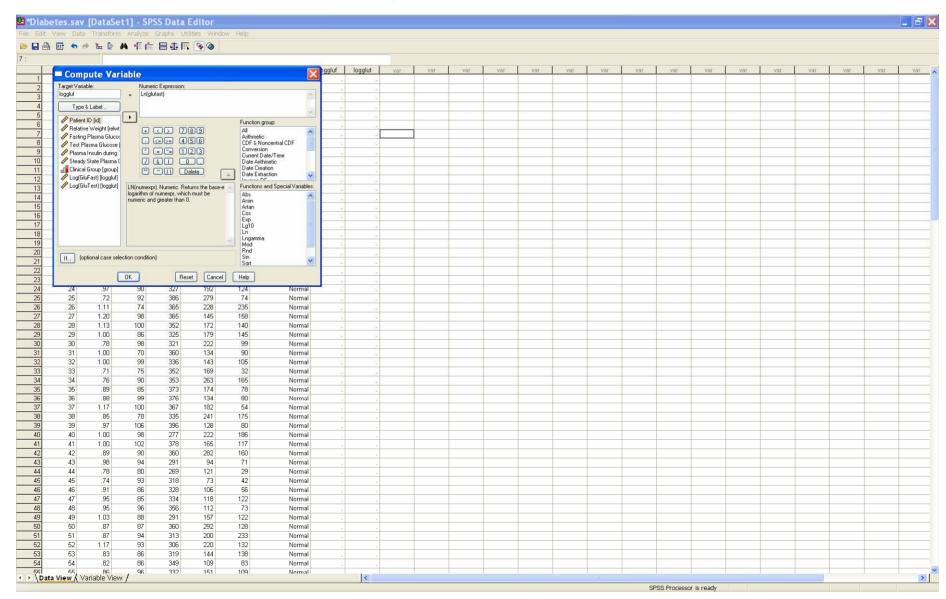
# Create two new variables loggluf and logglut for the logged variables

|          | Type    | Width   | Decimals  | 🖡 👒 🔕 🛛 Label   | Values   | Missing   | Columns   | Align  | Measure   |
|----------|---------|---|---|---|--|---|---|--|---|
| id       | Numeric |   |   | Patient ID  | None   | None  | 8   | Right  | Scale   |
| relwt    | Numeric |   |   | Relative Weight   | None   | None  | 8   | Right  | Scale   |
| glufast  | Numeric |   |   | Fasting Plasma Glucose  | None   | None  | 8   | Right  | Scale   |
| glutest  | Numeric |   |   | Test Plasma Glucose   | None   | None  | 8   |  | Scale   |
| instest  | Numeric |   |   |   | None   | None  | 8   | Right  | Scale   |
|          |         |   |   |   |  |   | 8   |  | Scale   |
|          |         |   |   |   |  |   |   |  | Ordinal   |
|          |         |   |   |   |  |   |   |  | Scale   |
|          |         |   |   |   |  |   |   |  | Scale   |
| io ggiat |         | -   | -   | Log(citricoly   | 1 tono   | 110110  |   | ragin  | Could   |
|          |         | -   |   |   | -  | -   | -   | -  | -   |
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| 3        |         |   | S   |   |  |   |   |  |   |
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|          |         |   |   |   |  |   |   |  |   |
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|          |         |   |   |   |  |   |   |  |   |
|          |         |   |   |   |  |   |   |  |   |
|          |         |   |   |   |  |   |   |  |   |
|          |         |   |   |   |  |   |   |  |   |
|          |         |   |   |   | -  | -   |   |  | -   |
|          |         |   |   |   |  | -   | -   | -  |   |
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|          |         |   |   |   |  |   |   |  |   |
|          |         | -   |   |   |  |   | -   | -  |   |
|          |         |   |   |   |  | -   |   | -  |   |
|          |         | instest Numeric<br>sspg Numeric<br>group Numeric<br>loggluf Numeric | nstest Numeric 11<br>sspg Numeric 11<br>group Numeric 11<br>loggluf Numeric 8 | Instest         Numeric         11         0           sspg         Numeric         11         0           group         Numeric         11         0           loggluf         Numeric         8         2 | Instest         Numeric         11         0         Plasma Insulin during Test           sspg         Numeric         11         0         Steady State Plasma Glucose           group         Numeric         11         0         Claincal Group           oggluf         Numeric         8         2         Log(Gluf ast) | Instest         Numeric         11         0         Plasma Insulin during Test         None           sspg         Numeric         11         0         Steady State Plasma Glucose         None           group         Numeric         11         0         Steady State Plasma Glucose         None           group         Numeric         11         0         Clinical Group         (1, Overt Diab           oggluf         Numeric         8         2         Log(GluFast)         None | Instest         Numeric         11         0         Plasma Insulin during Test         None         None           sspg         Numeric         11         0         Steady State Plasma Glucose         None         None           group         Numeric         11         0         Steady State Plasma Glucose         None         None           group         Numeric         11         0         Clinical Group         (1, Overt Diabe None           oggluf         Numeric         8         2         Log(GluFast)         None         None | Numeric         11         0         Plasma Insulin during Test         None         None         8           sspg         Numeric         11         0         Steady State Plasma Glucose         None         8           group         Numeric         11         0         Clinical Group         (1, Overt Diabe None         14           oggluf         Numeric         8         2         Log(GluFast)         None         None         8 | Numeric         11         0         Plasma Insulin during Test         None         None         8         Right           sspg         Numeric         11         0         Steady State Plasma Glucose         None         None         8         Right           group         Numeric         11         0         Clinical Group         (1, Overt Diabe None         14         Right           group(Juft Numeric         8         2         Log(Glufast)         None         None         8         Right |

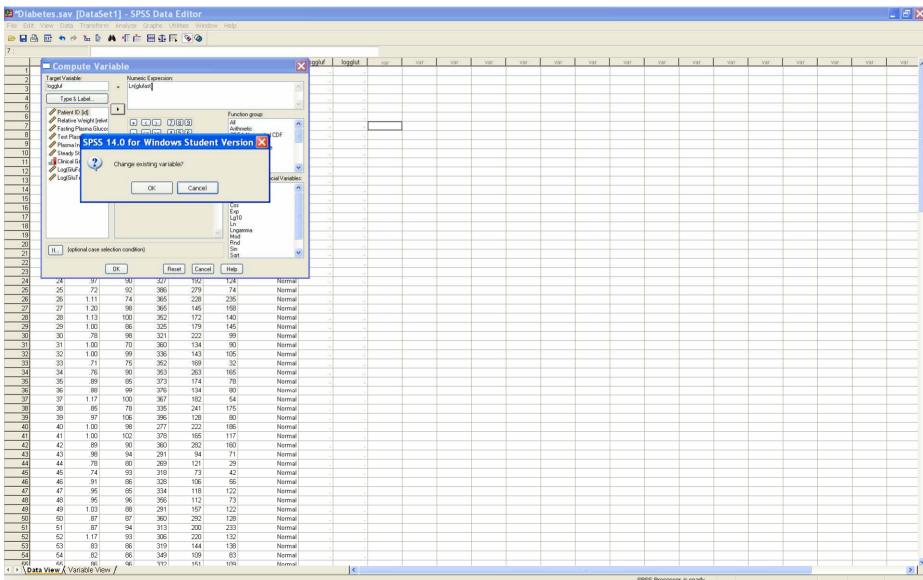
| 19 MD /  |              | ID-1-5-            | - 141                  |             | -          |           |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
|----------|--------------|--------------------|------------------------|-------------|------------|-----------|---------------------|---------|---------|------|-----|-----|-----|-----|-----|-----|-----|--------------|-------------|-----|-----|-----|-----|-------|-----|
|          | etes.sav     |                    |                        |             |            |           |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
|          | View Data    |                    |                        | Graphs Util |            | dow Help  |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 🗁 📕 🗄    | ት 📴 🛧 🖻      | Compu              |                        |             | <b>N</b>   |           |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 33 :     |              | Recode             |                        |             | •          |           |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 10000    | id           |                    | Bander                 |             | test       | sspg      | group               | loggluf | logglut | var  | var | var | var | var | var | var | var | var          | var         | var | var | var | var | var   | var |
| 10       | 10           | Count.             |                        |             | 131        | 94        |                     | reggian | reggiot | 1.41 |     |     | 201 | 100 |     |     |     |              | 1.000       |     |     |     |     | 1.011 |     |
| 11       | 11           | Rank C             |                        |             | 221        | 53        | Normal              | 14      | 14      |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 12       | 12           | Autom              | atic Recode            | ö           | 178        | 66        | Normal              | 8       | 10      |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 13       | 13           | Date/T             | ime                    |             | 136        | 142       | Normal              | 10      |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 14       | 14           | Create             | Time Series            | s           | 200        | 93        | Normal              | 1       |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 15       | 15           | Replac             | e Missing Va           | lues        | 208        | 68        | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 16       | 16           | Randor             | m Number G             | enerators   | 202        | 102       |                     |         | 58      |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 17       | 17           | -                  | nanos <del>4</del> men | WINDER OF L | 152        | 76        |                     |         | 14      |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 18       | 18           |                    | ending Trans           |             | 185        | 37        | Normal              |         |         |      |     |     |     |     |     | _   |     |              |             |     |     |     |     |       |     |
| 19       | 19           | .83                | 85                     | 296         | 116        | 60        |                     | 13      | 18      |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 20       | 20           | .93                | 90                     | 345         | 123        | 50        |                     | 8       |         |      | -   |     |     |     |     | -   |     |              |             |     |     |     |     |       |     |
| 21       | 21           | .95                | 90                     | 378         | 136        | 47        | Normal              |         | 6       |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 22       | 22           | .74                | 88                     | 304         | 134        | 50        | Normal              | 10      | 14      |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 23       | 23           | .95                | 95                     | 347<br>327  | 184<br>192 | 91        | Normal              |         |         |      | -   |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 24       | 24<br>25     | .97                | 90<br>92               | 327         | 192<br>279 | 124<br>74 |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 25       | 25           | 1.11               | 92                     | 365         | 279        | 235       | Normal              |         | •       |      |     |     |     |     |     | -   |     |              |             |     |     |     |     |       |     |
| 26       | 26           | 1.11               | 98                     | 365         | 145        | 235       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 27       | 27           | 1.13               | 100                    | 365         | 145        | 150       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 20       | 20           | 1.00               | 86                     | 325         | 172        | 140       |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 30       | 30           | .78                | 98                     | 323         | 222        | 99        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 31       | 31           | 1.00               | 70                     | 360         | 134        | 90        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 32       | 32           | 1.00               | 99                     | 336         | 143        | 105       |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 33       | 33           | .71                | 75                     | 352         | 169        | 32        | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 34       | 34           | .76                | 90                     | 353         | 263        | 165       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 35       | 35           | .89                | 85                     | 373         | 174        | 78        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 36       | 36           | .88                | 99                     | 376         | 134        | 80        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 37       | 37           | 1.17               | 100                    | 367         | 182        | 54        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 38       | 38           | .85                | 78                     | 335         | 241        | 175       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 39       | 39           | .97                | 106                    | 396         | 128        | 80        | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 40       | 40           | 1.00               | 98                     | 277         | 222        | 186       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 41       | 41           | 1.00               | 102                    | 378         | 165        | 117       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 42       | 42           | .89                | 90                     | 360         | 282        | 160       |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 43       | 43           | .98                | 94                     | 291         | 94         | 71        | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 44       | 44           | .78                | 80                     | 269         | 121        | 29        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 45       | 45           | .74                | 93                     | 318         | 73         | 42        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 46       | 46           | .91                | 86                     | 328         | 106        | 56        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 47       | 47           | .95                | 85                     | 334         | 118        | 122       | Normal              |         |         |      | -   |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 48<br>49 | 48<br>49     | .95<br>1.03        | 96<br>88               | 356<br>291  | 112<br>157 | 73<br>122 |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 49       | 49           | 1.03               | 88                     | 291         | 292        | 122       | Normal<br>Normal    |         | •       |      | -   |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 50       | 50           | .87                | 94                     | 360         | 292        | 233       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 51       | 51           | 1.17               | 94                     | 306         | 200        | 233       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       | _   |
| 53       | 53           | .83                | 86                     | 319         | 144        | 132       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 54       | 54           | .82                | 86                     | 349         | 109        | 83        | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 55       | 55           | .86                | 96                     | 332         | 151        | 109       |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 56       | 56           | 1.01               | 86                     | 323         | 158        | 96        | Normal              |         |         |      | -   |     |     |     |     |     |     |              |             | -   |     |     |     |       |     |
| 57       | 57           | .88                | 89                     | 323         | 73         | 52        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 58       | 58           | .75                | 83                     | 351         | 81         | 42        |                     |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 59       | 59           | .99                | 98                     | 478         | 151        |           | Chemically Diabetic |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 60       | 60           | 1.12               | 100                    | 398         | 122        | 176       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 61       | 61           | 1.09               | 110                    | 426         | 117        | 118       | Normal              |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 62       | 62           | 1.02               | 88                     | 439         | 208        |           | Chemically Diabetic |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
| 63       | 63           | 1.19               | 100                    | 429         | 201        |           | Chemically Diabetic |         |         |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       |     |
|          | ta View λ Va | 1 06<br>viable Vie |                        | 333         | 131        | 136       | Normal              |         | <       |      |     |     |     |     |     |     |     |              |             |     |     |     |     |       | >   |
|          | ta view A Va | andule vie         | vv /                   |             |            |           |                     |         |         |      |     |     |     |     |     |     |     | DCC Deserves | n is read : |     |     |     |     |       |     |
| Compute  |              |                    |                        |             |            |           |                     |         |         |      |     |     |     |     |     |     | SF  | PSS Process  | ir is ready |     |     |     |     |       |     |

#### In Target Variable insert loggluf, and in Numeric Expression type

#### Ln(glufast), and click OK



#### Click OK when the confirmation screen appears



SPSS Processor is ready

# The log transformed variable **loggluf** is computed.

|          |        | [DataSe            | -        |          |         |          |        |         |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|----------|--------|--------------------|----------|----------|---------|----------|--------|---------|---------|-----|-----|-----|-----|-------|------|-----|-----|-----|-------|-----|------|-----|-----|------|---|
|          |        |                    |          | Graphs U |         | dow Help |        |         |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 49 6   | 🖢 🕼                | 44 十百 6  | 🗄 🖽 🖬 🖬  | T 🐼 🚳   |          |        |         |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          |        |                    |          |          |         |          |        |         |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
| id       | 1      | relwt              | glufast  | glutest  | instest | sspg     | group  | loggluf | logglut | var | var | var | var | var   | var  | var | var | var | var   | var | var  | var | var | var  | - |
|          | 1      | .81                | 80       | 356      | 124     | 55       | Normal | 4.38    | reggrat | 201 |     |     |     | 1.011 | 1.41 |     |     |     | 1.007 |     | 1.41 |     |     | 1011 | _ |
|          | 2      | .95                | 97       | 289      | 117     | 76       | Normal | 4.57    | 15      |     | -   |     |     |       |      |     |     |     |       |     |      |     |     | -    | - |
| 1        | 3      | .94                | 105      | 319      | 143     | 105      | Normal | 4.65    | 10      |     |     | -   |     |       |      |     |     |     | -     |     |      |     |     |      | - |
|          | 4      | 1.04               | 90       | 356      | 199     | 108      | Normal | 4.50    |         |     | -   |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 5      | 1.00               | 90       | 323      | 240     | 143      | Normal | 4.50    | 1.5     |     | -   |     |     |       |      |     |     |     |       | -   | -    |     |     |      | - |
|          | 6      | .76                | 86       | 381      | 157     | 145      | Normal | 4.30    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 7      | .70                | 100      | 350      | 221     | 119      |        | 4.43    |         | -   | 1   |     |     |       |      |     |     |     |       | -   |      |     |     |      | _ |
| ļ        | 8      |                    |          |          |         |          | Normal | 4.61    | 19      |     |     |     |     |       |      |     |     |     | 1.1   |     |      |     |     |      | _ |
|          |        | 1.10               | 85       | 301      | 186     | 105      | Normal |         | 14      |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 9      | .99                | 97       | 379      | 142     | 98       | Normal | 4.57    | 12      |     |     |     |     |       |      |     |     |     | -     | -   | -    |     |     |      | _ |
|          | 10     | .78                | 97       | 296      | 131     | 94       | Normal | 4.57    | 10      |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 11     | .90                | 91       | 353      | 221     | 53       | Normal | 4.51    |         |     | -   |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 12     | .73                | 87       | 306      | 178     | 66       | Normal | 4.47    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 13     | .96                | 78       | 290      | 136     | 142      | Normal | 4.36    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 14     | .84                | 90       | 371      | 200     | 93       | Normal | 4.50    |         | _   |     |     | _   |       |      |     | _   |     |       |     |      |     |     |      |   |
|          | 15     | .74                | 86       | 312      | 208     | 68       | Normal | 4.45    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 16     | .98                | 80       | 393      | 202     | 102      | Normal | 4.38    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 17     | 1.10               | 90       | 364      | 152     | 76       | Normal | 4.50    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 18     | .85                | 99       | 359      | 185     | 37       | Normal | 4.60    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 19     | .83                | 85       | 296      | 116     | 60       | Normal | 4.44    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
| 1        | 20     | .93                | 90       | 345      | 123     | 50       | Normal | 4.50    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
| 1        | 21     | .95                | 90       | 378      | 136     | 47       | Normal | 4.50    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 22     | .74                | 88       | 304      | 134     | 50       | Normal | 4.48    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 23     | .95                | 95       | 347      | 184     | 91       | Normal | 4.55    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     | -    | - |
|          | 24     | .97                | 90       | 327      | 192     | 124      | Normal | 4.50    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 25     | .72                | 92       | 386      | 279     | 74       | Normal | 4.52    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 26     | 1.11               | 74       | 365      | 210     | 235      | Normal | 4.30    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 27     | 1.20               | 98       | 365      | 145     | 158      | Normal | 4.58    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 28     | 1.13               | 100      | 352      | 143     | 140      | Normal | 4.61    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 20     | 1.00               | 86       | 325      | 172     | 140      | Normal | 4.01    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          |        | .78                |          |          |         |          |        |         |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 30     |                    | 98       | 321      | 222     | 99       | Normal | 4.58    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 31     | 1.00               | 70       | 360      | 134     | 90       | Normal | 4.25    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 32     | 1.00               | 99       | 336      | 143     | 105      | Normal | 4.60    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 33     | .71                | 75       | 352      | 169     | 32       | Normal | 4.32    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 34     | .76                | 90       | 353      | 263     | 165      | Normal | 4.50    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 35     | .89                | 85       | 373      | 174     | 78       | Normal | 4.44    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 36     | .88                | 99       | 376      | 134     | 80       | Normal | 4.60    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 37     | 1.17               | 100      | 367      | 182     | 54       | Normal | 4.61    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 38     | .85                | 78       | 335      | 241     | 175      | Normal | 4.36    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | _ |
|          | 39     | .97                | 106      | 396      | 128     | 80       | Normal | 4.66    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 40     | 1.00               | 98       | 277      | 222     | 186      | Normal | 4.58    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 41     | 1.00               | 102      | 378      | 165     | 117      | Normal | 4.62    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 42     | .89                | 90       | 360      | 282     | 160      | Normal | 4.50    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 43     | .98                | 94       | 291      | 94      | 71       | Normal | 4.54    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 44     | .78                | 80       | 269      | 121     | 29       | Normal | 4.38    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
| 1        | 45     | .74                | 93       | 318      | 73      | 42       | Normal | 4.53    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      |   |
|          | 46     | .91                | 86       | 328      | 106     | 56       | Normal | 4.45    |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     | 1    | - |
|          | 47     | .95                | 85       | 334      | 118     | 122      | Normal | 4.44    |         |     |     |     |     |       |      | -   |     | 1   |       |     |      |     |     |      | - |
|          | 48     | .95                | 96       | 356      | 112     | 73       | Normal | 4.56    |         |     |     |     |     |       |      |     |     | 1   |       |     |      |     |     | -    | + |
|          | 49     | 1.03               | 88       | 291      | 157     | 122      | Normal | 4.48    |         |     | -   |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 50     | .87                | 87       | 360      | 292     | 122      | Normal | 4.40    |         |     | -   |     |     |       |      | -   |     | 1   |       |     |      |     |     |      | - |
|          | 51     | .87                | 94       | 313      | 202     | 233      | Normal | 4.47    |         |     | -   |     |     |       |      |     |     |     |       |     |      |     |     |      | - |
|          | 52     | 1.17               | 94<br>93 | 306      | 200     | 132      | Normal | 4.54    |         |     | -   |     |     |       |      | -   |     | -   |       |     |      |     |     |      | - |
|          | 52     | .83                | 93       | 306      | 144     | 132      | Normal | 4.55    |         |     | -   |     |     |       |      | -   |     | -   |       | -   | -    |     |     |      | - |
|          | 53     | .83                | 86       |          |         |          |        |         |         |     |     |     |     |       |      |     |     |     |       |     |      |     |     |      | + |
|          |        |                    |          | 349      | 109     | 83       | Normal | 4.45    |         |     | -   |     |     |       |      |     |     | -   |       |     |      |     |     |      | _ |
| hata Via | W L Va | RR<br>ariable Viev | 96       | 11/      | 151     | 109      | Normal | 4 56    | <       |     |     |     |     |       |      |     |     |     |       |     |      |     |     | 1    | - |

The same procedure computes the log transformed variable **logglut**; we log transform the glutest variable using the *Compute* pulldown

|           |          | [DataSe      |           |            |               |            |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
|-----------|----------|--------------|-----------|------------|---------------|------------|------------------|--------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|
| dit View  | Data     | Transform    | Analyze   | Graphs U   | Jtilities Win | dow Help   |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 47 10    | 🕨 📴 🕯        | M 📲 f     | i 🖩 🗗 I    | T 🐼 🖉         |            |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           |          |              |           |            |               |            |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| id        |          |              | lufast    |            | instest       | sspg       | group            | loggluf      | logglut      | var |   |
|           | 1        | .81          | 80        | 356        | 124           | 55         | Normal           | 4.38         | 5.87         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 2        | .95          | 97        | 289        | 117           | 76         | Normal           | 4.57         | 5.67         |     | _   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 3        | .94          | 105       | 319        | 143           | 105        | Normal           | 4.65         | 5.77         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 4        | 1.04         | 90        | 356        | 199           | 108        | Normal           | 4.50         | 5.87         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
|           | 5        | 1.00         | 90        | 323        | 240           | 143        | Normal           | 4.50         | 5.78         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 6<br>7   | .76          | 86<br>100 | 381<br>350 | 157<br>221    | 165<br>119 | Normal<br>Normal | 4.45<br>4.61 | 5.94<br>5.86 |     | 1   |     |     | _   |     |     |     |     |     |     | -   |     |     |     | - |
|           | 8        | 1.10         | 85        | 301        | 186           | 105        | Normal           | 4.61         | 5.71         |     |     | -   | -   |     |     |     |     | -   |     |     |     |     |     |     | - |
|           | 9        | .99          | 97        | 379        | 142           | 98         | Normal           | 4.44         | 5.94         |     | -   |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 10       | .78          | 97        | 296        | 131           | 94         | Normal           | 4.57         | 5.69         |     | -   | -   |     |     |     | -   |     |     |     |     | -   |     |     |     | - |
|           | 11       | .90          | 91        | 353        | 221           | 53         | Normal           | 4.51         | 5.87         |     | -   |     |     |     |     |     |     |     |     |     | -   |     |     |     | - |
|           | 12       | .73          | 87        | 306        | 178           | 66         | Normal           | 4.47         | 5.72         |     | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 13       | .96          | 78        | 290        | 136           | 142        | Normal           | 4.36         | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
| 4         | 14       | .84          | 90        | 371        | 200           | 93         | Normal           | 4.50         | 5.92         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 15       | .74          | 86        | 312        | 208           | 68         | Normal           | 4.45         | 5.74         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 16       | .98          | 80        | 393        | 202           | 102        | Normal           | 4.38         | 5.97         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 17       | 1.10         | 90        | 364        | 152           | 76         | Normal           | 4.50         | 5.90         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 18       | .85          | 99        | 359        | 185           | 37         | Normal           | 4.60         | 5.88         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 19       | .83          | 85        | 296        | 116           | 60         | Normal           | 4.44         | 5.69         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
|           | 20<br>21 | .93<br>.95   | 90<br>90  | 345<br>378 | 123<br>136    | 50<br>47   | Normal           | 4.50<br>4.50 | 5.84<br>5.93 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
|           | 21       | .95          | 90<br>88  | 378<br>304 | 136           | 47         | Normal<br>Normal | 4.50         | 5.93         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
|           | 22       | .95          | 95        | 347        | 134           | 91         | Normal           | 4.40         | 5.85         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 24       | .97          | 90        | 327        | 192           | 124        | Normal           | 4.50         | 5.79         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 25       | .72          | 92        | 386        | 279           | 74         | Normal           | 4.52         | 5.96         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
|           | 26       | 1.11         | 74        | 365        | 228           | 235        | Normal           | 4.30         | 5.90         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
| 7 :       | 27       | 1.20         | 98        | 365        | 145           | 158        | Normal           | 4.58         | 5.90         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 28       | 1.13         | 100       | 352        | 172           | 140        | Normal           | 4.61         | 5.86         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 29       | 1.00         | 86        | 325        | 179           | 145        | Normal           | 4.45         | 5.78         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 30       | .78          | 98        | 321        | 222           | 99         | Normal           | 4.58         | 5.77         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 31       | 1.00         | 70        | 360        | 134           | 90         | Normal           | 4.25         | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
|           | 32       | 1.00         | 99        | 336        | 143           | 105        | Normal           | 4.60         | 5.82         |     |     |     | _   |     |     | -   |     |     |     |     |     |     |     |     | _ |
|           | 33<br>34 | .71          | 75        | 352        | 169           | 32         | Normal           | 4.32         | 5.86<br>5.87 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
|           | 35       | .76          | 90<br>85  | 353<br>373 | 263<br>174    | 165<br>78  | Normal<br>Normal | 4.50         | 5.07         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 36       | .03          | 99        | 376        | 174           | 80         | Normal           | 4.44         | 5.93         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 37       | 1.17         | 100       | 367        | 182           | 54         | Normal           | 4.61         | 5.91         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
|           | 38       | .85          | 78        | 335        | 241           | 175        | Normal           | 4.36         | 5.81         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 39       | .97          | 106       | 396        | 128           | 80         | Normal           | 4.66         | 5.98         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| J .       | 40       | 1.00         | 98        | 277        | 222           | 186        | Normal           | 4.58         | 5.62         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 41       | 1.00         | 102       | 378        | 165           | 117        | Normal           | 4.62         | 5.93         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 42       | .89          | 90        | 360        | 282           | 160        | Normal           | 4.50         | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 43       | .98          | 94        | 291        | 94            | 71         | Normal           | 4.54         | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 44       | .78          | 80        | 269        | 121           | 29         | Normal           | 4.38         | 5.59         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 45       | .74          | 93        | 318        | 73            | 42         | Normal           | 4.53         | 5.76         |     |     | -   | -   |     |     |     |     |     |     |     |     |     |     |     | _ |
|           | 46<br>47 | .91          | 86<br>95  | 328        | 106           | 56         | Normal           | 4.45         | 5.79         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|           | 4/       | .95<br>.95   | 85<br>96  | 334<br>356 | 118<br>112    | 122<br>73  | Normal<br>Normal | 4.44         | 5.81<br>5.87 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 40       | 1.03         | 96        | 291        | 112           | 122        | Normal           | 4.56         | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 49<br>50 | .87          | 87        | 360        | 292           | 122        | Normal           | 4.40         | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 51       | .87          | 94        | 313        | 292           | 233        | Normal           | 4.47         | 5.75         |     | -   | -   |     |     |     |     |     |     |     |     |     |     |     |     | - |
|           | 52       | 1.17         | 93        | 306        | 200           | 132        | Normal           | 4.53         | 5.72         |     |     |     |     |     |     |     |     |     |     |     | -   |     |     |     |   |
|           | 53       | .83          | 86        | 319        | 144           | 138        | Normal           | 4.45         | 5.77         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
|           | 54       | .82          | 86        | 349        | 109           | 83         | Normal           | 4.45         | 5.86         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
| 5 4       | 55       | 86           | , 96      | 332        | 151           | 109        | Normal           | 4 56         | 5.81         |     |     |     |     |     |     |     |     | 1   | 1   |     | 1   |     |     |     |   |
| Data Viev | w∖∖∀a    | ariable View | 1         |            |               |            |                  |              | <            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |

# We now perform the linear regression using the General Linear Model pulldown.<sup>8</sup>

|            | S.Sdv    | DataSet1             | ] - SPSS Data                    | Editor            |            |                  |              |              |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | - F   |
|------------|----------|----------------------|----------------------------------|-------------------|------------|------------------|--------------|--------------|-------|-------|-----|-----|------|-----|-------|-----|-----|------|-----|-----|------|-----|-----|-------|
|            |          |                      | Analyze Graphs                   |                   | indow Help |                  |              |              |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
|            | 10 th c  | 🔸 🗽 🖟 🌢              | Reports                          | • @               | )          |                  |              |              |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
|            |          |                      | Descriptive Statis               | tics 🕨            |            |                  |              |              |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
|            | id       | relwt gl             | Compare Means                    | •                 |            | group            | loggluf      | logglut      | var   | var   | var | var | var  | var | var   | var | var | var  | var | var | var  | var | var | var   |
| 1          | 1        | .81                  | General Linear M                 | odel 🕨            | Univariate | Normal           | 4.38         | 5.87         | 9 011 | - VGI |     | 750 | 7.60 | YGI | - VGI | 101 |     | 7.61 | Vui | 701 | 7541 |     | 750 | - Vui |
| 2          | 2        | .95                  | Correlate                        | 17                |            | Normal           | 4.57         | 5.67         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 3          | 3        | .94                  | Regression                       | 43<br>99<br>40    | 105        | Normal           | 4.65         | 5.77         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 4          | 4        | 1.04                 | Classify<br>Data Reduction       | 99                | 108        | Normal           | 4.50         | 5.87         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 5          | 5        | 1.00                 | Scale                            | 40                | 143        | Normal           | 4.50         | 5.78         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 6          | 6        | .76                  | Nonparametric Tr                 | 57                |            | Normal           | 4.45         | 5.94         |       |       |     |     | _    |     |       |     |     |      |     |     | _    |     | _   | -     |
| 7          | 7        | .91                  | Time Series                      | ests + 21<br>+ 86 |            | Normal           | 4.61         | 5.86         |       |       |     |     |      |     |       |     |     |      |     |     |      |     | -   |       |
| 9          | 8        | 1.10                 | Line of the second second second |                   |            | Normal           | 4.44         | 5.71         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 10         | 10       | .99                  | 97 379<br>97 296                 | 142<br>131        |            | Normal<br>Normal | 4.57<br>4.57 | 5.94<br>5.69 |       | -     | -   |     |      |     |       |     |     | -    |     | -   |      |     |     |       |
| 11         | 11       | .70                  | 91 353                           | 221               |            | Normal           | 4.57         | 5.87         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 12         | 12       | .73                  | 87 306                           | 178               |            | Normal           | 4.31         | 5.72         |       |       | -   |     | -    |     |       |     |     |      |     |     |      |     |     | -     |
| 13         | 13       | .96                  | 78 290                           | 136               |            | Normal           | 4.36         | 5.67         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 14         | 14       | .84                  | 90 371                           | 200               |            | Normal           | 4.50         | 5.92         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 15         | 15       | .74                  | 86 312                           | 208               | 68         | Normal           | 4.45         | 5.74         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 16         | 16       | .98                  | 80 393                           | 202               |            | Normal           | 4.38         | 5.97         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 17         | 17       | 1.10                 | 90 364                           | 152               |            | Normal           | 4.50         | 5.90         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 18         | 18       | .85                  | 99 359                           | 185               |            | Normal           | 4.60         | 5.88         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 19         | 19       | .83                  | 85 296                           | 116               |            | Normal           | 4.44         |              |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 20         | 20       | .93                  | 90 345                           | 123               |            | Normal           | 4.50         | 5.84         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 21<br>22   | 21<br>22 | .95<br>.74           | 90 378<br>88 304                 | 13E<br>134        |            | Normal<br>Normal | 4.50<br>4.48 | 5.93<br>5.72 |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 22         | 22       | .74                  | 95 347                           | 134               |            | Normal           | 4.40         | 5.85         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 24         | 23       | .97                  | 90 327                           | 192               |            | Normal           | 4.50         | 5.79         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 25         | 25       | .72                  | 92 386                           | 279               |            | Normal           | 4.52         | 5.96         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 26         | 26       | 1.11                 | 74 365                           | 228               |            | Normal           | 4.30         | 5.90         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 27         | 27       | 1.20                 | 98 365                           | 145               | 158        | Normal           | 4.58         | 5.90         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 28         | 28       | 1.13                 | 100 352                          | 172               | 140        | Normal           | 4.61         | 5.86         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 29         | 29       | 1.00                 | 86 325                           | 179               | 145        | Normal           | 4.45         | 5.78         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 30         | 30       | .78                  | 98 321                           | 222               |            | Normal           | 4.58         | 5.77         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 31         | 31       | 1.00                 | 70 360                           | 134               |            | Normal           | 4.25         | 5.89         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 32         | 32       | 1.00                 | 99 336                           | 143               |            | Normal           | 4.60         | 5.82         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 33<br>34   | 33<br>34 | .71                  | 75 352<br>90 353                 | 169               |            | Normal           | 4.32<br>4.50 | 5.86         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 35         | 34       | .76                  | 85 373                           | 263               |            | Normal<br>Normal | 4.50         | 5.87<br>5.92 |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 36         | 36       | .03                  | 99 376                           | 134               |            | Normal           | 4.44         | 5.93         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 37         | 37       | 1.17                 | 100 367                          | 182               |            | Normal           | 4.61         | 5.91         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 38         | 38       | .85                  | 78 335                           | 241               |            | Normal           | 4.36         | 5.81         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 39         | 39       | .97                  | 106 396                          | 128               |            | Normal           | 4.66         | 5.98         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 40         | 40       | 1.00                 | 98 277                           | 222               |            | Normal           | 4.58         | 5.62         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 41         | 41       | 1.00                 | 102 378                          | 165               |            | Normal           | 4.62         | 5.93         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 42         | 42       | .89                  | 90 360                           | 282               |            | Normal           | 4.50         | 5.89         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 43         | 43       | .98                  | 94 291                           | 94                |            | Normal           | 4.54         | 5.67         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 44         | 44       | .78                  | 80 269                           | 121               |            | Normal           | 4.38         | 5.59         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 45         | 45       | .74                  | 93 318                           | 73                |            | Normal           | 4.53         |              |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 46<br>47   | 46<br>47 | .91<br>.95           | 86 328<br>85 334                 | 10E<br>11E        |            | Normal<br>Normal | 4.45         | 5.79<br>5.81 |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 47         | 4/       | .95                  | 85 334<br>96 356                 | 118               |            | Normal           | 4.44         | 5.81         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 40         | 40       | 1.03                 | 88 291                           | 112               |            | Normal           | 4.56         | 5.67         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 50         | 49<br>50 | .87                  | 87 360                           | 292               |            | Normal           | 4.40         | 5.89         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 51         | 51       | .87                  | 94 313                           | 202               |            | Normal           | 4.47         | 5.75         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 52         | 52       | 1.17                 | 93 306                           | 200               |            | Normal           | 4.53         | 5.72         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 53         | 53       | .83                  | 86 319                           | 144               |            | Normal           | 4.45         | 5.77         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | -     |
| 54         | 54       | .82                  | 86 349                           | 109               |            | Normal           | 4.45         | 5.86         |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     |       |
| 55         | 55       | 86<br>(orighte View) | 1 96 332                         | 151               | 109        | Normal           | 4 56         | 5.81         |       |       |     |     |      |     | 1     |     |     |      |     |     | 1    |     |     | 1     |
| 🕐 🔪 Data V | view A V | /ariable View ;      | /                                |                   |            |                  |              | 5            |       |       |     |     |      |     |       |     |     |      |     |     |      |     |     | >     |

# Select the *Dependent Variable* (logglut), the *Fixed Factor* (group) and the *Covariate* (loggluf).

|          |       | ıtaSet1]                    |            |            |                  |               |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-------|-----------------------------|------------|------------|------------------|---------------|------------------|--------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          |       | ransform Ar                 |            |            |                  | idow Help     |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 🖭 🕁      | ek (  | in [? #                     | 重直         | 🗄 🗗        | <b>F</b> 📎 🔕     |               |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|          |       |                             |            |            |                  |               |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| id       | reh   |                             |            | utest      | instest          | sspg          | group            | loggluf      | logglut      | var |
| 1        |       | .81                         | 80         | 356        | 124              | 55            | Normal           |              | 5.87         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 2        |       | .95                         | 97         | 289        |                  | 76            | Normal           |              | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3        |       | .94                         | 105<br>90  | 319        | 143              | 105           | Normal           | 4.65         | 5.77         |     |     |     |     |     |     | -   |     |     |     | -   | -   |     |     |     |
| 4        |       | Univari                     |            | 356        | Tau              | 11.8          | al 🔀             | 4.50<br>4.50 | 5.87<br>5.78 |     | -   |     |     |     |     | -   | -   |     |     | -   | -   | -   | -   |     |
| 6        |       | Cilivan                     | atte       |            |                  |               | al al            | 4.30         | 5.94         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 7        |       | 🔗 Patient ID [i             | d]         |            | Dependent Vari   |               | Model al         | 4.61         | 5.86         |     | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 8        |       | Relative We                 |            | +          | 🛷 Log(GluTe:     | st) [logglut] | Contrasts        | 4.44         | 5.71         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 9        |       | Fasting Plas<br>Test Plasma |            |            | Fixed Factor(s): |               | al               | 4.57         | 5.94         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 10       |       | Plasma Insu                 |            |            | 📲 Clinical Gro   | up (group)    | Plots al         | 4.57         | 5.69         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 11       |       | 🔗 Steady Stat               | e Plasma ( |            |                  |               | Post Hoc         | 4.51         | 5.87         |     | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 12<br>13 |       |                             |            |            | Random Factor(   | (s):          | al               | 4.47<br>4.36 | 5.72<br>5.67 |     |     |     |     |     |     | -   |     |     |     | -   | -   |     |     |     |
| 14       |       |                             |            |            |                  | 6             | Save al          | 4.50         | 5.92         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 14       |       |                             |            |            |                  |               | Options al       | 4.35         | 5.74         |     |     |     |     |     |     |     |     |     |     | -   | -   |     |     |     |
| 16       |       |                             |            |            | Covariate(s):    |               | al               | 4.38         | 5.97         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 17       |       |                             |            |            | 🛷 Log(GluFas     | st) (loggluf) | al               | 4.50         | 5.90         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 18       |       |                             |            |            |                  |               | al               | 4.60         | 5.88         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 19       |       |                             |            | _          | WLS Weight:      |               | al               | 4.44         | 5.69         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 20<br>21 |       |                             |            | 2          | WED WEIGHT.      |               | a                | 4.50<br>4.50 | 5.84<br>5.93 |     | -   |     |     |     |     |     |     |     |     | -   | -   |     |     |     |
| 21       |       | _                           |            |            |                  |               | ai               | 4.30         | 5.33         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 23       |       |                             | Ж          | L          | Reset Can        | icel Help     | al               | 4.55         | 5.85         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 24       |       | .97                         | 90         | 327        | 192              | 124           | Normal           | 4.50         | 5.79         |     | -   |     |     |     |     | -   | -   |     |     |     |     |     |     |     |
| 25       |       | .72                         | 92         | 386        |                  | 74            | Normal           |              | 5.96         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 26       |       | 1.11                        | 74         | 365        | 228              | 235           | Normal           |              | 5.90         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 27<br>28 |       | 1.20                        | 98<br>100  | 365<br>352 | 145<br>172       | 158<br>140    | Normal<br>Normal |              | 5.90<br>5.86 |     |     |     |     |     |     |     |     |     |     | -   |     |     |     |     |
| 20       |       | 1.00                        | 86         | 325        |                  | 140           | Normal           |              | 5.78         |     |     |     |     | _   |     |     |     |     |     | -   | -   |     |     |     |
| 30       |       | .78                         | 98         | 321        | 222              | 99            | Normal           |              | 5.77         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 31       |       | 1.00                        | 70         | 360        | 134              | 90            | Normal           | 4.25         | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 32       |       | 1.00                        | 99         | 336        | 143              | 105           | Normal           |              | 5.82         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 33       |       | .71                         | 75         | 352        | 169              | 32            | Normal           |              | 5.86         |     | -   |     |     |     |     | -   | -   | -   | -   | -   | -   | -   |     |     |
| 34<br>35 |       | .76                         | 90<br>85   | 353<br>373 | 263<br>174       | 165<br>78     | Normal<br>Normal | 4.50         | 5.87<br>5.92 |     | _   |     |     |     |     | _   | _   |     |     |     |     |     |     |     |
| 36       |       | .09                         | 99         | 376        |                  | 70            | Normal           |              | 5.92         |     | -   |     |     | -   |     |     | -   |     | -   |     | -   |     |     |     |
| 37       |       |                             | 100        | 367        | 182              | 54            | Normal           |              | 5.91         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 38       |       | .85                         | 78         | 335        | 241              | 175           | Normal           |              | 5.81         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 39       |       |                             | 106        | 396        | 128              | 80            | Normal           |              | 5.98         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 40       |       | 1.00                        | 98         | 277        | 222              | 186           | Normal           |              | 5.62         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 41       |       |                             | 102        | 378        | 165              | 117           | Normal           |              | 5.93         |     |     |     |     |     |     |     |     |     |     | _   |     |     |     |     |
| 42<br>43 |       | .89<br>.98                  | 90<br>94   | 360<br>291 | 282<br>94        | 160<br>71     | Normal<br>Normal |              | 5.89<br>5.67 |     | -   |     |     |     |     |     |     |     |     | -   | -   |     |     |     |
| 45       |       | .96                         | 94<br>80   | 291        | 121              | 29            | Normal           |              | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 45       |       | .74                         | 93         | 318        |                  | 42            | Normal           |              | 5.76         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 46       |       | .91                         | 86         | 328        | 106              | 56            | Normal           |              | 5.79         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 47       |       | .95                         | 85         | 334        | 118              | 122           | Normal           |              | 5.81         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 48       |       | .95                         | 96         | 356        | 112              | 73            | Normal           |              | 5.87         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 49       |       | 1.03                        | 88         | 291        | 157              | 122           | Normal           |              | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 50       |       | .87                         | 87         | 360        | 292              | 128           | Normal           |              | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 51<br>52 |       | .87                         | 94<br>93   | 313<br>306 | 200<br>220       | 233<br>132    | Normal<br>Normal |              | 5.75<br>5.72 |     |     |     |     |     |     |     |     |     |     | -   | -   |     |     |     |
| 52       |       | .83                         | 93<br>86   | 319        | 144              | 132           | Normal           |              | 5.72         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 54       |       | .82                         | 86         | 349        | 109              | 83            | Normal           |              | 5.86         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 55       |       | 86                          | 96         | 332        |                  | 109           | Normal           |              | 5.81         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| a View 🖌 | Varia | ble View /                  |            |            |                  |               |                  |              | <            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

## To specify the model, click the *Model* button to get the *Model Dialog*.

We wish to specify a *Custom* main effects plus interaction model.

| Introde         Name         38         8.7         Note         1.8         0.7           Introde         In  | tes.sav [DataSet1] - SF      |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|--|------------------------------|---------------------|----------------------|--------|-----------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| University         unit  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Normalize: Model         Normalize: Model< |                              |                     | <b>v</b>             |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Invarian:         Node         13         35         36         35         35         35         35  | -                            |                     |                      |        |                 |           |     |     |     | r   |     |     |     |     |     |     |     |     |     |     |     |
| Intracte: Model         10  | Univariate                   |                     | ×                    | group  | loggiut<br>A 38 |           | var |
| Unit of the Condition         Condition <thcondition< th=""> <thcondition< th=""></thcondition<></thcondition<>  | for the second second second |                     |                      | Nonnai |                 |           |     |     |     |     |     |     |     |     |     | -   | -   |     |     |     | _   |
| Note:         Note: <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Participant       Note       Note <td></td> <td>0-</td> <td></td>  |                              | 0-                  |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| No         No<   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Model         Model <th< td=""><td></td><td>Model</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>_</td><td></td><td>-</td><td></td><td></td><td></td></th<>  |                              | Model               |                      |        |                 |           |     |     |     |     |     |     |     |     |     | _   |     | -   |     |     |     |
| 40°       50°       0 <td>loggluf(C)</td> <td></td> <td>-</td> <td>-</td> <td></td> <td></td>  | loggluf(C)                   |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     | -   | -   |     |     |
| 47         60        60        60         60 <td>Build</td> <td>ild Term(s)</td> <td></td>  | Build                        | ild Term(s)         |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Add         Add <td></td> <td>4</td> <td></td>   |                              | 4                   |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Line         Line <thline< th="">         Line         Line         <thl< td=""><td>1</td><td></td><td></td><td></td><td>4.51</td><td>5.87</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td></thl<></thline<>  | 1                            |                     |                      |        | 4.51            | 5.87      |     |     |     |     |     |     |     |     |     |     |     |     |     |     | -   |
| List         List <thlist< th="">         List         List         <thl< td=""><td>Inter</td><td>eraction</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thl<></thlist<>   | Inter                        | eraction            |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| b          | Main<br>All 2-               | in effects<br>2-way |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _   |
| Abric         Abric <th< td=""><td>All 3-</td><td>3-way</td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td>_</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td></th<>   | All 3-                       | 3-way               |                      |        |                 |           |     |     | -   |     | _   |     |     |     |     | -   |     |     |     |     |     |
| Image         Image <th< td=""><td>All 4-</td><td>9-way<br/>5-way</td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>-</td><td>_</td><td>-</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td>_</td></th<>                                    | All 4-                       | 9-way<br>5-way      |                      |        |                 |           |     |     | -   | -   | _   | -   |     |     |     | -   |     |     |     |     | _   |
| Image         Image <th< td=""><td>Sum of squares: Type III</td><td></td><td>e intercept in model</td><td></td><td></td><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>                  | Sum of squares: Type III     |                     | e intercept in model |        |                 |           | _   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 10         36         10<   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 199       90       970       138       47       Noma       44.0       573       0  |                              |                     |                      | Help   |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 12       74       88       344       134       97       90       934       134       97       90       937       134       Nomal       456       5.87       0 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 131       99       937       192       194       91       Namai       4.69       565         25       72       92       366       273       124       Namai       4.69       556         26       111       74       396       225       Namai       4.60       556         27       120       396       365       145       168       Namai       4.60       550         27       120       396       325       172       140       Namai       4.60       550         29       100       365       325       173       146       Namai       4.60       578         31       100       79       380       134       39       Namai       4.60       578         31       100       99       380       134       39       589       587       68  |                              |                     |                      |        |                 | 21.22.226 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 14       97       90       37       192       112       Normal       4.50       5.79 <td></td> <td>-</td> <td>-</td> <td></td> <td></td>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     | -   | -   |     |     |
| 25       72       936       293       974       Noma       442       596   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     | -   |     |     | -   |     |     |
| 111       74       366       126       Normal       4.30       5.90       I  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     | -   |
| 138       1100       352       172       140       Normal       4.46       5.76       0 <td>26 1.11 74</td> <td></td> <td>228 235</td> <td></td> <td></td> <td>5.90</td> <td></td>   | 26 1.11 74                   |                     | 228 235              |        |                 | 5.90      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 120       180       280       179       146       Normal       4.46       5.77       0 <td></td>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 30       78       98       92       92       99       Normal       4.58       6.79       0   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 1100       70       330       134       90       Normal       425       5.82 <td></td> <td>-</td>  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     | -   |
| 100       99       33       143       105       Normal       4.50       562  |                              |                     |                      |        |                 |           |     |     |     |     | -   | -   |     |     |     |     |     | -   | -   |     |     |
| 34 76 99 363 263 116 Normal 440 5.97   <   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     | -   |     |     |     |     |
| 38 98 98 97 174 78 Norma 4.40 5.92 <td< td=""><td>33 .71 75</td><td>i 352 1</td><td>69 32</td><td>Normal</td><td>4.32</td><td>5.86</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>_</td></td<>  | 33 .71 75                    | i 352 1             | 69 32                | Normal | 4.32            | 5.86      |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _   |
| 36       88       99       376       134       00       Normal       4.60       6.93 <td></td>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 37 1.17 100 367 182 54 Nomal 4.61 5.91  <  |                              |                     |                      |        |                 |           |     |     | -   |     |     |     |     |     |     |     | 1   |     |     |     |     |
| 38       86       78       336       241       175       Normal       4.36       5.81 </td <td></td>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 39       97       106       396       128       80       Normal       4.66       5.98 </td <td></td>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 401.00982.772.22186Normal4.585.6200  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 42       88       90       380       282       180       Normal       4.50       5.89 </td <td>40 1.00 98</td> <td>8 277 2</td> <td>222 186</td> <td></td> <td>4.58</td> <td>5.62</td> <td></td>   | 40 1.00 98                   | 8 277 2             | 222 186              |        | 4.58            | 5.62      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 43       9.8       9.4       291       9.4       7.1       Normal       4.54       5.67  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 44       7.8       80       269       121       29       Nomal       4.38       5.59 <td></td>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 45       7.4       9.3       3.18       7.3       4.2       Normal       4.53       5.76 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 46       .91       86       .328       106       .66       Normal       4.45       .579  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 47       9.95       865       334       118       122       Normal       4.44       5.81 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 48       .99       .996 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 60       87       360       292       128       Normal       4.47       5.89 <td>4895 .96</td> <td>i 356 1</td> <td>12 73</td> <td></td> <td>4.56</td> <td>5.87</td> <td></td>   | 4895 .96                     | i 356 1             | 12 73                |        | 4.56            | 5.87      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 51   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 52       1.17       93       306       220       132       Normal       4.63       5.72         53       .83       86       319       144       138       Normal       4.45       5.77       6 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 53       .83       86       319       144       138       Normal       4.45       5.77         54       .82       86       349       109       83       Normal       4.45       5.86  <  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 54 82 86 349 109 83 Normal 4.45 5.86   |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|  |                              |                     |                      |        |                 |           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|  | 55 86 96                     |                     | 109                  | Normal |                 | , 5.81    |     |     |     |     |     |     |     |     |     |     |     |     | ,   |     |     |

#### We select the factor and covariate as main effects.

|               | DataSet1] - S          |               |                  |            |                  |                 |                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|---------------|------------------------|---------------|------------------|------------|------------------|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|
|               | Transform Analy        |               |                  | v Help     |                  |                 |                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|               | 🚣 🖟 👫 📲                | in ∎⊕≣        | <u></u>          |            |                  |                 |                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| General       |                        |               |                  |            |                  |                 |                 |     |     |     | -   |     |     |     |     | r   | r   |     |     |     |     |     | _ |
| 🗖 🗖 Univa     | riate                  |               |                  | ×          | group<br>Normal  | loggluf<br>4.38 | logglut<br>5.87 | var | _ |
| (martine      | Andrew March 1         |               |                  |            | Normal           | 4.50            | 5.67            |     | -   |     |     |     |     |     | -   |     |     |     | -   |     |     |     | - |
|               | iate: Model            |               |                  |            |                  | 4.65            | 5.77            |     |     |     |     |     |     | -   |     |     |     |     |     |     |     |     | + |
| Specify M     |                        | 00.0          |                  |            |                  | 4.50            | 5.87            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| O Full fac    | ctorial<br>Covariates: | Custom        | n<br>odel:       |            |                  | 4.50            | 5.78            |     | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| group(F)      |                        |               | roup             |            |                  | 4.45<br>4.61    | 5.94<br>5.86    |     | -   |     |     |     |     | -   | -   |     |     |     | -   |     |     |     | _ |
| loggluf(C     | 9                      | lo            | oggluf           |            |                  | 4.01            | 5.00            |     |     |     |     |     |     |     | -   |     |     |     |     |     |     |     | - |
|               | Bu                     | uild Term(s)  |                  |            |                  | 4.57            | 5.94            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
|               |                        | <b>F</b>      |                  |            |                  | 4.57            | 5.69            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
|               | Ma                     | ain effects 🔽 |                  |            |                  | 4.51            | 5.87            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| _             |                        |               |                  |            |                  | 4.47            | 5.72            |     |     |     |     |     |     | _   |     |     |     | _   |     |     |     |     | _ |
|               |                        |               |                  |            |                  | 4.36<br>4.50    | 5.67<br>5.92    |     |     |     |     |     |     |     |     |     |     |     | -   |     |     |     | + |
|               | 6                      |               |                  |            |                  | 4.45            | 5.74            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
|               |                        |               |                  |            |                  | 4.38            | 5.97            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| Sum of squ    | uares: Type III        | <b>~</b>      | Include intercep | t in model |                  | 4.50            | 5.90            |     | -   |     |     | _   |     | -   | -   |     |     |     |     |     |     |     |   |
|               |                        |               | Continue         | Cancel     | Help             | 4.60            | 5.88            |     | -   |     |     |     |     | _   |     |     |     |     | -   |     |     |     | _ |
| 20            | .93 91                 | U 345         | 123              | 501        | Normal           | 4.44            | 5.69<br>5.84    |     | -   |     |     |     |     | -   |     |     |     | -   | -   |     |     |     | + |
| 20            | .95 90                 |               | 136              | 47         | Normal           | 4.50            | 5.93            |     |     |     |     |     |     |     | -   |     |     |     | -   |     |     |     | + |
| 22            | .74 86                 |               | 134              | 50         | Normal           | 4.48            | 5.72            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
| 23            | .95 95                 |               | 184              | 91         | Normal           | 4.55            | 5.85            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| 24<br>25      | .97 90<br>.72 90       |               | 192<br>279       | 124        | Normal           | 4.50            | 5.79            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
| 25            | .72 91                 |               | 279              | 74<br>235  | Normal<br>Normal | 4.52<br>4.30    | 5.96<br>5.90    |     | -   | -   |     |     |     | -   | -   |     |     | -   |     |     |     |     |   |
| 20            | 1.20 98                |               | 145              | 158        | Normal           | 4.58            | 5.90            |     |     |     |     |     |     |     |     |     |     |     | -   |     |     |     | - |
| 28            | 1.13 100               | 0 352         | 172              | 140        | Normal           | 4.61            | 5.86            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
| 29            | 1.00 86                |               | 179              | 145        | Normal           | 4.45            | 5.78            |     | ·   |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| 30<br>31      | .78 98                 |               | 222<br>134       | 99<br>90   | Normal           | 4.58            | 5.77<br>5.89    |     | -   |     |     |     |     | -   | -   |     |     |     |     |     |     | _   | _ |
| 31            | 1.00 70                |               | 134              | 90         | Normal<br>Normal | 4.25<br>4.60    | 5.89            |     |     |     |     |     |     | -   |     |     |     |     |     |     |     |     | + |
| 33            | .71 75                 |               | 169              | 32         | Normal           | 4.32            | 5.86            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 34            | .76 90                 | 0 353         | 263              | 165        | Normal           | 4.50            | 5.87            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
| 35            | .89 85                 |               | 174              | 78         | Normal           | 4.44            | 5.92            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| 36<br>37      | .88 99<br>1.17 100     |               | 134<br>182       | 80<br>54   | Normal<br>Normal | 4.60<br>4.61    | 5.93<br>5.91    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 37            | .85 78                 |               | 241              | 175        | Normal           | 4.61            | 5.91            |     |     |     |     |     |     | -   |     |     |     | -   | -   |     |     |     | + |
| 39            | .97 106                |               | 128              | 80         | Normal           | 4.66            | 5.98            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 40            | 1.00 98                | 8 277         | 222              | 186        | Normal           | 4.58            | 5.62            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | - |
| 41            | 1.00 100               |               | 165              | 117        | Normal           | 4.62            | 5.93            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
| 42<br>43      | .89 90                 |               | 282<br>94        | 160<br>71  | Normal<br>Normal | 4.50<br>4.54    | 5.89<br>5.67    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 45            | .78 80                 |               | 121              | 29         | Normal           | 4.54            | 5.67            |     |     |     |     |     |     | -   |     |     |     |     | -   |     |     |     | + |
| 45            | .74 93                 |               | 73               | 42         | Normal           | 4.53            | 5.76            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 46            | .91 86                 | 6 328         | 106              | 56         | Normal           | 4.45            | 5.79            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| 47            | .95 85                 |               | 118              | 122        | Normal           | 4.44            | 5.81            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
| 48<br>49      | .95 96<br>1.03 86      |               | 112<br>157       | 73<br>122  | Normal<br>Normal | 4.56<br>4.48    | 5.87<br>5.67    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 49            | .87 87                 |               | 292              | 122        | Normal           | 4.40            | 5.89            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 51            | .87 94                 |               | 200              | 233        | Normal           | 4.54            | 5.75            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| 52            | 1.17 93                |               | 220              | 132        | Normal           | 4.53            | 5.72            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |
| 53            | .83 86                 |               | 144              | 138        | Normal           | 4.45            | 5.77            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _ |
| 54            | .82 86                 |               | 109<br>151       | 83         | Normal           | 4.45<br>4.56    | 5.86            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | + |
| ata View 🗸 Va | riable View /          |               |                  |            |                  |                 | <               |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |   |

# Select Interaction from the Build Terms pulldown.

|              |                                 |                  | PSS Data         |                  | 11-1-1      |                |         |              |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|--------------|---------------------------------|------------------|------------------|------------------|-------------|----------------|---------|--------------|------|------|--------|-----|-----|-------|--------|------|-------|-----|-------|------|--------|-----------|-----|
|              |                                 |                  | i Graphs C       | Jtilities Window |             |                |         |              |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| U **>        | er mr L?                        | 990 T# 1         | # <b>⊞ •⊡•</b> I |                  |             |                |         |              |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              | variate                         |                  |                  |                  |             | aroun          | loggluf | logglut      | var  | var  | var    | var | var | var   | var    | var  | var   | var | var   | var  | var    | var       | var |
|              | variate                         |                  |                  |                  | 2           | group<br>Norma |         | 5.87         | TISY | 9 dt | V CI 1 | Vdi | Ven | V dti | V CI 1 | 9 dt | V dti | Vdi | V dt1 | V di | V CI I | V dti - : | Vdi |
| Illain       | ariate: /                       | ladal            |                  |                  |             |                | 4.57    | 5.67         |      |      |        |     |     |       |        |      |       |     |       | -    |        |           |     |
|              |                                 | nouer            |                  |                  |             | Ľ              | 4.65    | 5.77         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              | sify Model<br>III factorial     |                  | 💿 Cust           |                  |             |                | 4.50    | 5.87         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              | arractonar<br>ors & Covariates: |                  |                  | Model:           |             |                | 4.50    | 5.78         |      |      |        |     |     |       |        | -    |       |     |       |      |        |           |     |
|              |                                 |                  |                  | group            |             |                | 4.45    | 5.94<br>5.86 |      | -    |        |     |     |       |        |      |       |     |       |      |        |           |     |
| grou<br>logg | lui(Ć)                          |                  |                  | loggluf          |             |                | 4.01    | 5.00         |      |      |        |     |     |       | -      | -    | -     |     |       |      |        |           |     |
|              |                                 | Build            | I Term(s)        |                  |             |                | 4.57    | 5.94         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              |                                 |                  | )÷               |                  |             |                | 4.57    | 5.69         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              |                                 | Main             | effects 🔽        |                  |             |                | 4.51    | 5.87         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              |                                 | Inter            | action           |                  |             |                | 4.47    | 5.72         |      |      |        |     |     |       |        |      |       | _   |       |      |        |           |     |
|              |                                 | All 2-           | effects<br>way   |                  |             |                | 4.36    | 5.67<br>5.92 |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              |                                 | All 3-<br>All 4- | way              |                  |             |                | 4.50    | 5.92         |      | -    |        |     |     |       | -      |      |       |     |       | -    |        |           |     |
|              |                                 | AII 5            | way              |                  |             |                | 4.38    | 5.97         |      | -    |        |     |     |       | -      | -    |       |     |       |      |        |           |     |
| Sumo         | of squares:                     | Type III         | ~                | Include intercep | pt in model |                | 4.50    | 5.90         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              |                                 |                  |                  | Continue         | Canc        | el Help        | 4.60    | 5.88         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
|              |                                 |                  |                  | -                |             |                | 4.44    | 5.69         |      |      |        | _   |     |       | _      | -    |       | -   |       |      |        |           |     |
| 20           | .93                             | 90               | 345              | 123              | 50<br>47    | Norma          |         | 5.84<br>5.93 |      |      |        |     |     |       | _      |      |       |     |       |      |        |           |     |
| 21           | .95                             | 90<br>88         |                  | 136<br>134       | 47          | Norma          |         | 5.93         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 23           | .95                             | 95               | 347              | 184              | 91          | Norma          |         | 5.85         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 24           | .97                             | 90               |                  | 192              | 124         | Norma          |         | 5.79         |      | -    |        |     |     |       | -      |      |       |     |       |      |        |           |     |
| 25           | .72                             | 92               |                  | 279              | 74          | Norma          |         | 5.96         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 26           | 1.11                            | 74               |                  | 228              | 235         | Norma          |         | 5.90         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 27           | 1.20                            | 98               | 365              | 145              | 158         | Norma          |         | 5.90         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 28<br>29     | 1.13<br>1.00                    | 100<br>86        | 352<br>325       | 172<br>179       | 140<br>145  | Norma<br>Norma |         | 5.86<br>5.78 |      | -    |        |     |     |       |        |      |       |     |       |      |        |           | -   |
| 30           | .78                             | 98               | 321              | 222              | 99          | Norma          |         | 5.77         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 31           | 1.00                            | 70               |                  | 134              | 90          | Norma          |         | 5.89         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 32           | 1.00                            | 99               |                  | 143              | 105         | Norma          |         | 5.82         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 33           | .71                             | 75               |                  | 169              | 32          | Norma          |         | 5.86         |      | 4    |        |     |     |       | -      |      | -     | -   |       | _    |        |           |     |
| 34           | .76                             | 90               |                  | 263<br>174       | 165         | Norma          |         | 5.87         |      | -    |        | -   |     |       |        |      |       | _   |       |      |        |           |     |
| 35<br>36     | .89                             | 85<br>99         |                  | 174              | 78<br>80    | Norma<br>Norma |         | 5.92<br>5.93 |      | -    |        |     |     |       |        | -    |       | -   | -     |      |        | -         | -   |
| 37           | 1.17                            | 100              | 367              | 182              | 54          | Norma          |         | 5.91         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 38           | .85                             | 78               |                  | 241              | 175         | Norma          | I 4.36  | 5.81         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 39           | .97                             | 106              | 396              | 128              | 80          | Norma          |         | 5.98         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 40           | 1.00                            | 98               | 277              | 222              | 186         | Norma          |         | 5.62         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 41<br>42     | 1.00<br>.89                     | 102<br>90        | 378<br>360       | 165<br>282       | 117<br>160  | Norma<br>Norma |         | 5.93<br>5.89 |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 42           | .89                             | 90               | 291              | 282              | 71          | Norma          |         | 5.89         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 43           | .30                             | 94<br>80         | 269              | 121              | 29          | Norma          |         | 5.59         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 45           | .74                             | 93               |                  | 73               | 42          | Norma          |         | 5.76         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 46           | .91                             | 86               | 328              | 106              | 56          | Norma          |         | 5.79         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 47           | .95                             | 85               | 334              | 118              | 122         | Norma          |         | 5.81         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 48           | .95                             | 96               | 356              | 112              | 73          | Norma          |         | 5.87         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 49<br>50     | 1.03                            | 88<br>87         | 291<br>360       | 157<br>292       | 122<br>128  | Norma<br>Norma |         | 5.67<br>5.89 |      |      |        |     |     |       | -      |      |       |     |       |      |        |           |     |
| 51           | .07                             | 94               |                  | 292              | 233         | Norma          |         | 5.09         |      |      |        |     |     |       |        |      |       |     |       |      |        |           | -   |
| 52           | 1.17                            | 93               |                  | 220              | 132         | Norma          |         | 5.72         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 53           | .83                             | 86               | 319              | 144              | 138         | Norma          | I 4.45  | 5.77         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 54           | .82                             | 86               | 349              | 109              | 83          | Norma          |         | 5.86         |      |      |        |     |     |       |        |      |       |     |       |      |        |           |     |
| 55           | 86<br>Variable Vi               | 96               | 332              | 151              | 109         | Norma          | 4 56    | 5 81         |      |      | 1      |     | 1   |       |        |      | 1     | 1   |       |      | 1      |           | L   |

# Highlight the two variables, and click the *Build Terms* arrow.

|            |                                  | t1] - SPSS D   |               |                      | 10.00      |                  |                 |                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------------|----------------------------------|----------------|---------------|----------------------|------------|------------------|-----------------|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|            |                                  | n Analyze Grap |               |                      | неф        |                  |                 |                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>U</b> • | 🐡 🔤 L?                           | M 1 🛉 🗄        | ere itte      |                      |            |                  |                 |                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|            |                                  |                |               |                      |            |                  | In such of      | terretat. I     |     | 1   | 1   | 1   |     | r   | 1   | 1   | T   | T   | 1   | 1   | 1   | 1   | 1   |
|            | variate                          |                |               |                      | ×          | group<br>Normal  | loggluf<br>4.38 | logglut<br>5.87 | var |
| (III-the   | anistas M                        | odol           |               |                      |            |                  | 4.57            | 5.67            |     | -   |     |     |     |     | -   |     |     |     |     |     | 1   |     |     |
|            | ariate: M                        | odel           |               |                      |            |                  | 4.65            | 5.77            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|            | ify Model                        |                | ~~ .          |                      |            |                  | 4.50            | 5.87            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|            | ll factorial<br>rs & Covariates: |                | Custom<br>Mod | dalı                 |            |                  | 4.50            | 5.78            |     | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |
| group      |                                  |                | ara           | up                   |            |                  | 4.45<br>4.61    | 5.94<br>5.86    |     | -   | -   |     |     |     | -   | _   |     |     |     | _   | -   |     |     |
| logglu     | uf(C)                            | -              | log           | ggluf                |            |                  | 4.01            | 5.71            |     |     |     |     |     |     | -   |     |     |     | -   |     | -   |     | -   |
|            |                                  | Build Term(s)  |               |                      |            |                  | 4.57            | 5.94            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|            |                                  | • •            | _             |                      |            |                  | 4.57            | 5.69            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|            |                                  | Interaction    | ~             |                      |            |                  | 4.51            | 5.87            |     | _   |     |     |     |     |     |     |     |     |     |     |     |     |     |
|            |                                  |                |               |                      |            |                  | 4.47<br>4.36    | 5.72<br>5.67    |     | -   | -   | -   |     | -   | -   | -   |     |     | -   | -   | -   |     |     |
|            |                                  |                |               |                      |            |                  | 4.50            | 5.92            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|            |                                  |                |               |                      |            |                  | 4.45            | 5.74            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| L          |                                  |                |               |                      |            |                  | 4.38            | 5.97            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Sum of     | f squares:                       | Type III 💉     | <b>V</b> I    | Include intercept in | n model    |                  | 4.50            | 5.90            |     | -   |     |     |     |     | -   |     |     |     | -   |     | -   |     |     |
|            |                                  |                |               | Continue             | Cancel     | Help             | 4.60            | 5.88<br>5.69    |     | -   |     |     |     |     | -   | -   |     | -   |     | -   | -   |     |     |
| 20         | .93                              | 90             | 345           | 123                  | 50         | Normal           | 4.50            | 5.84            |     | -   |     |     |     |     | -   |     |     |     | -   |     | -   |     |     |
| 21         | .95                              |                | 378           | 136                  | 47         | Normal           | 4.50            | 5.93            |     |     |     |     |     | 1   |     |     |     |     |     |     |     |     |     |
| 22         | .74                              |                | 304           | 134                  | 50         | Normal           | 4.48            | 5.72            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 23<br>24   | .95<br>.97                       |                | 347<br>327    | 184<br>192           | 91         | Normal           | 4.55            | 5.85            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 24         | .97                              |                | 327           | 279                  | 124<br>74  | Normal<br>Normal | 4.50<br>4.52    | 5.79<br>5.96    |     |     |     |     |     |     |     |     |     |     | -   |     | -   |     |     |
| 26         | 1.11                             |                | 365           | 228                  | 235        | Normal           | 4.30            | 5.90            |     | 1   |     |     |     | -   | 1   |     |     |     | -   | -   | 1   |     |     |
| 27         | 1.20                             |                | 365           | 145                  | 158        | Normal           | 4.58            | 5.90            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 28         | 1.13                             |                | 352           | 172                  | 140        | Normal           | 4.61            | 5.86            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 29<br>30   | 1.00                             |                | 325<br>321    | 179<br>222           | 145<br>99  | Normal<br>Normal | 4.45<br>4.58    | 5.78<br>5.77    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 31         | 1.00                             |                | 360           | 134                  | 90         | Normal           | 4.25            | 5.89            |     |     |     |     |     | -   | -   |     |     |     | -   |     | -   |     |     |
| 32         | 1.00                             |                | 336           | 143                  | 105        | Normal           | 4.60            | 5.82            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 33         | .71                              |                | 352           | 169                  | 32         | Normal           | 4.32            | 5.86            |     | -   |     |     |     |     | -   |     |     |     |     |     | 4   |     |     |
| 34<br>35   | .76                              |                | 353<br>373    | 263<br>174           | 165<br>78  | Normal           | 4.50            | 5.87<br>5.92    |     |     |     |     |     |     |     | _   |     |     |     | _   |     |     |     |
| 36         | .09                              |                | 375           | 174                  | 80         | Normal<br>Normal | 4.44            | 5.92            |     | -   |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 37         | 1.17                             |                | 367           | 182                  | 54         | Normal           | 4.61            | 5.91            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 38         | .85                              |                | 335           | 241                  | 175        | Normal           | 4.36            | 5.81            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 39         | .97                              |                | 396           | 128                  | 80         | Normal           | 4.66            | 5.98            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 40<br>41   | 1.00                             |                | 277<br>378    | 222<br>165           | 186        | Normal<br>Normal | 4.58<br>4.62    | 5.62<br>5.93    |     | -   |     |     |     |     |     |     |     |     |     | _   |     |     |     |
| 41         | .89                              |                | 360           | 282                  | 160        | Normal           | 4.62            | 5.89            |     |     |     |     |     |     | -   |     |     |     |     |     |     |     | -   |
| 43         | .98                              |                | 291           | 94                   | 71         | Normal           | 4.54            | 5.67            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 44         | .78                              |                | 269           | 121                  | 29         | Normal           | 4.38            | 5.59            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 45         | .74                              |                | 318           | 73                   | 42         | Normal           | 4.53            | 5.76            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 46<br>47   | .91                              |                | 328<br>334    | 106<br>118           | 56<br>122  | Normal<br>Normal | 4.45            | 5.79<br>5.81    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 47         | .95                              |                | 356           | 112                  | 73         | Normal           | 4.44            | 5.87            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 49         | 1.03                             |                | 291           | 157                  | 122        | Normal           | 4.48            | 5.67            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 50         | .87                              |                | 360           | 292                  | 128        | Normal           | 4.47            | 5.89            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 51         | .87                              |                | 313           | 200                  | 233        | Normal           | 4.54            | 5.75            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 52<br>53   | 1.17                             |                | 306<br>319    | 220                  | 132<br>138 | Normal<br>Normal | 4.53            | 5.72<br>5.77    |     |     |     |     |     |     | -   |     |     |     |     |     |     |     |     |
| 53         | .03                              |                | 349           | 109                  | 83         | Normal           | 4.45            | 5.86            |     | -   | -   |     |     |     | -   |     |     |     |     |     | -   |     |     |
| 55         | R6<br>Variable Viev              | 96             | 332           | 151                  | 109        | Normal           | 4 56            | 5.81            |     |     |     | -   |     |     |     |     |     |     |     |     |     | -   |     |

#### The Custom model has been built. Click Continue.

|      |                        | ] - SPSS Data E   |                     | ( John     |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     | _        | _ |
|------|------------------------|-------------------|---------------------|------------|------------------|--------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|---|
|      |                        | Analyze Graphs Ut |                     |            |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      |                        |                   |                     |            |                  |              |              |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
| T En | Jnivariate             |                   |                     | ×          | group            | loggluf      | logglut      | var      | T |
| 1    | Sintrariace            |                   |                     | - 64       | Normal           | 4.38         | 5.87         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | nivariate: Mo          | del               |                     |            |                  | 4.57         | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | Specify Model          |                   |                     |            |                  | 4.65<br>4.50 | 5.77<br>5.87 |     |     |     |     |     | -   |     |     |     |     |     | -   |     |     |          | _ |
|      | Full factorial         | 💿 Custon          | n                   |            |                  | 4.50         | 5.78         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | - |
|      | actors & Covariates:   |                   | odel:               |            |                  | 4.45         | 5.94         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | - |
|      | group(F)<br>loggluf(C) | <u>g</u><br>k     | jroup<br>oggluf     |            |                  | 4.61         | 5.86 [       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      |                        | Build Term(s)     | roup*loggluf        |            |                  | 4.44         | 5.71         |     |     |     |     |     |     |     |     |     |     |     | -   |     |     |          | _ |
| 9    |                        | I                 |                     |            |                  | 4.57<br>4.57 | 5.94<br>5.69 |     |     | -   |     |     |     | -   | -   |     | -   | -   | -   |     |     |          |   |
|      |                        |                   |                     |            |                  | 4.57         | 5.69         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | - |
|      |                        | Interaction 💌     |                     |            |                  | 4.47         | 5.72         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | - |
| 3    |                        |                   |                     |            |                  | 4.36         | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      |                        |                   |                     |            |                  | 4.50         | 5.92         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | -                      |                   |                     |            |                  | 4.45<br>4.38 | 5.74<br>5.97 |     |     | -   | -   |     |     |     | -   | -   |     | -   |     |     |     |          | _ |
|      | um of squares:         | ype III 🔽 🔽       | Include intercept i | in model   |                  | 4.38         | 5.97         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | + |
|      |                        |                   |                     |            |                  | 4.60         | 5.88         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | - |
|      |                        |                   | Continue            | Cancel     | Help             | 4.44         | 5.69         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 20 .93                 | 90 345            | 123                 | 50         | Normal           | 4.50         | 5.84         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 21 .95                 | 90 378            | 136                 | 47         | Normal           | 4.50         | 5.93         |     |     |     |     |     |     |     |     |     |     |     | _   |     |     |          | _ |
|      | 22 .74<br>23 .95       | 88 304<br>95 347  | 134                 | 50<br>91   | Normal<br>Normal | 4.48<br>4.55 | 5.72<br>5.85 |     |     | -   |     |     |     | -   |     |     | -   | -   | -   |     |     |          | - |
|      | 24 .97                 | 90 327            | 192                 | 124        | Normal           | 4.50         | 5.79         |     |     |     |     |     |     |     |     |     | -   |     |     |     | -   | -        | - |
|      | 25 .72                 | 92 386            | 279                 | 74         | Normal           | 4.52         | 5.96         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 26 1.11                | 74 365            | 228                 | 235        | Normal           | 4.30         | 5.90         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 27 1.20<br>28 1.13     | 98 365            | 145<br>172          | 158<br>140 | Normal           | 4.58<br>4.61 | 5.90         |     |     | -   |     |     |     |     |     |     | -   | -   | -   |     |     |          | _ |
|      | 28 1.13                | 100 352<br>86 325 | 172                 | 140        | Normal<br>Normal | 4.61         | 5.86<br>5.78 |     |     |     |     |     |     | -   | -   |     |     | -   | -   |     |     |          | - |
|      | 30 .78                 | 98 321            | 222                 | 99         | Normal           | 4.58         | 5.77         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | - |
|      | 31 1.00                | 70 360            | 134                 | 90         | Normal           | 4.25         | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | _ |
|      | 32 1.00                | 99 336            | 143                 | 105        | Normal           | 4.60         | 5.82         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 33 .71<br>34 .76       | 75 352            | 169                 | 32         | Normal           | 4.32         | 5.86<br>5.87 |     |     | -   |     | _   |     | -   | -   | -   | -   |     | -   |     |     |          | _ |
|      | 34 .76<br>35 .89       | 90 353<br>85 373  | 263<br>174          | 165<br>78  | Normal<br>Normal | 4.50<br>4.44 | 5.87         |     |     | -   |     |     |     |     | -   |     | -   |     |     |     |     |          | - |
|      | 36 .88                 | 99 376            | 134                 | 80         | Normal           | 4.60         | 5.93         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | - |
| 1 :  | 37 1.17                | 100 367           | 182                 | 54         | Normal           | 4.61         | 5.91         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 38 .85                 | 78 335            | 241                 | 175        | Normal           | 4.36         | 5.81         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | _ |
|      | 39 .97<br>40 1.00      | 106 396<br>98 277 | 128<br>222          | 80<br>186  | Normal<br>Normal | 4.66<br>4.58 | 5.98<br>5.62 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | _ |
|      | 41 1.00                | 102 378           | 165                 | 100        | Normal           | 4.50         | 5.62         |     |     |     |     |     |     | -   | -   |     |     |     |     |     |     |          | + |
|      | 42 .89                 | 90 360            | 282                 | 160        | Normal           | 4.50         | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | + |
| 3 4  | 43                     | 94 291            | 94                  | 71         | Normal           | 4.54         | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 44 .78                 | 80 269            | 121                 | 29         | Normal           | 4.38         | 5.59         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | _ |
|      | 45                     | 93 318<br>86 328  | 73<br>106           | 42<br>56   | Normal           | 4.53<br>4.45 | 5.76<br>5.79 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | _ |
|      | 46 .91                 | 85 334            | 118                 | 122        | Normal<br>Normal | 4.45         | 5.79         |     |     |     |     |     |     | -   |     |     |     | -   |     |     |     |          | + |
|      | 4895                   | 96 356            | 112                 | 73         | Normal           | 4.56         | 5.87         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | + |
| 3 4  | 49 1.03                | 88 291            | 157                 | 122        | Normal           | 4.48         | 5.67         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 50 .87                 | 87 360            | 292                 | 128        | Normal           | 4.47         | 5.89         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          |   |
|      | 51 .87<br>52 1.17      | 94 313<br>93 306  | 200                 | 233        | Normal           | 4.54<br>4.53 | 5.75         |     |     |     |     |     |     |     |     |     |     |     |     |     |     | <u> </u> | _ |
|      | 52 1.17<br>53 .83      | 93 306<br>86 319  | 220<br>144          | 132<br>138 | Normal<br>Normal | 4.53         | 5.72<br>5.77 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | + |
|      | 54 .82                 | 86 349            | 109                 | 83         | Normal           | 4.45         | 5.86         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |          | + |
|      | w X Variable View      | , 96 332          | 151                 | 109        | Normal           | 4 56         | 5.81         |     | 1   |     |     | 1   |     |     |     |     |     |     |     |     |     |          | - |

### The model is now built. On the General Linear Model dialog, click Options.

Select Parameter Estimates and Residual plot

| es.sav [Data     | iet1] - SP         | SS Data    | Editor                       |             |                  |                 |                 |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     | >   |
|------------------|--------------------|------------|------------------------------|-------------|------------------|-----------------|-----------------|-----|-----|-----|-----|-----------|-----|-----|-----------|-----|-----|-----|-----|-----|-----|-----|-----|
| lew Data Trans   |                    |            |                              | low Help    |                  |                 |                 |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 🖽 🕈 🖗 🐂          | <b>8 M 1</b> ∏ f   | h 🖩 🕸      | <b>F</b> 🔊 🍳                 |             |                  |                 |                 |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
|                  |                    |            |                              | 1700        | <b>a</b> ,       |                 |                 |     |     | T   |     | · · · · · |     |     |           |     | ·   | r   | T   |     |     |     |     |
| 🗆 Univariate     | 9                  |            |                              | ×           | group<br>Normal  | loggluf<br>4.38 | logglut<br>5.87 | var | var | var | var | var       | var | var | var       | var | var | var | var | var | var | Var | var |
| Au               | 0.11               |            |                              |             | Normal           | 4.57            | 5.67            |     | 1   |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| Univaria         | e: Option          | IS         |                              | <u> </u>    | Normal           | 4.65            | 5.77            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| Estimated Ma     |                    |            |                              |             | Normal<br>Normal | 4.50<br>4.50    | 5.87<br>5.78    |     | _   |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| Factor(s) and    | Factor Interaction | ns: D      | isplay Means for:            |             | Normal           | 4.50            | 5.70            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| group            |                    |            |                              |             | Normal           | 4.61            | 5.86            |     | 1   |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
|                  |                    |            |                              |             | Normal           | 4.44            | 5.71            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
|                  |                    |            | Compare main e               | ffects      | Normal<br>Normal | 4.57<br>4.57    | 5.94<br>5.69    |     | -   | -   |     |           |     |     |           |     |     |     |     | -   |     |     |     |
|                  |                    | 100        | onfidence interval           | adjustment: | Normal           | 4.57            | 5.87            |     | -   |     |     |           |     |     |           |     |     |     | -   | -   |     | _   |     |
| 10               |                    | 1          | .SD (none)                   | *           | Normal           | 4.47            | 5.72            |     | 1   |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| Display          |                    |            |                              |             | Normal           | 4.36            | 5.67            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| Descriptiv       |                    |            | Homogeneity te               |             | Normal<br>Normal | 4.50<br>4.45    | 5.92<br>5.74    |     |     | _   |     |           |     |     |           |     | -   |     | -   |     |     |     |     |
| Estimates        |                    |            | Spread vs. leve              | l plot      | Normal           | 4.45            | 5.74            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| Paramete         |                    |            | Residual plot<br>Lack of fit |             | Normal           | 4.50            | 5.90            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 1111             | pefficient matrix  |            | General estimat              | le function | Normal           | 4.60            | 5.88            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| - P              |                    |            |                              |             | Normal<br>Normal | 4.44<br>4.50    | 5.69<br>5.84    |     | _   |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| Significance lev | el:U5              |            | intervals are 95%            |             | Normal           | 4.50            | 5.93            |     | -   |     |     |           |     |     | · · · · · |     |     |     | -   | 3   |     |     |     |
|                  |                    | Cor        | ntinue Cance                 | Help        | Normal           | 4.48            | 5.72            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 23 .9            |                    | 347        | 184                          | 91          | Normal           | 4.55            | 5.85            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 24 .9<br>25 .7   |                    | 327<br>386 | 192<br>279                   | 124<br>74   | Normal<br>Normal | 4.50<br>4.52    | 5.79<br>5.96    |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 25 .7.           |                    | 365        |                              | 235         | Normal           | 4.52            | 5.96            |     | -   |     |     |           |     |     |           | -   |     |     | -   | -   |     |     |     |
| 27 1.2           |                    | 365        |                              | 158         | Normal           | 4.58            | 5.90            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     | -   |
| 28 1.1           |                    | 352        |                              | 140         | Normal           | 4.61            | 5.86            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 29 1.0<br>30 .71 |                    | 325        |                              | 145<br>99   | Normal           | 4.45            | 5.78            |     | -   |     |     |           |     |     | -         |     |     |     |     |     |     |     |     |
| 30 .71<br>31 1.0 |                    | 321<br>360 | 222<br>134                   | 99          | Normal<br>Normal | 4.58<br>4.25    | 5.77<br>5.89    |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 32 1.0           |                    | 336        |                              | 105         | Normal           | 4.60            | 5.82            |     |     | -   |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 33 .7            |                    | 352        |                              | 32          | Normal           | 4.32            | 5.86            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 34 .71           |                    | 353        |                              | 165         | Normal           | 4.50            | 5.87            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 35 .8<br>36 .8   |                    | 373<br>376 |                              | 78<br>80    | Normal<br>Normal | 4.44            | 5.92<br>5.93    |     | -   |     |     |           |     |     |           |     |     |     | -   |     |     |     |     |
| 37 1.1           |                    | 367        | 182                          | 54          | Normal           | 4.60            | 5.91            |     |     |     |     |           |     |     |           |     |     |     | -   | 1   |     |     |     |
| 38 .8            | 78                 | 335        | 241                          | 175         | Normal           | 4.36            | 5.81            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 39 .97           |                    | 396        |                              | 80          | Normal           | 4.66            | 5.98            |     |     |     |     |           |     |     |           |     |     |     | -   |     |     |     |     |
| 40 1.0<br>41 1.0 |                    | 277<br>378 | 222<br>165                   | 186<br>117  | Normal<br>Normal | 4.58<br>4.62    | 5.62<br>5.93    |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 41 1.0           |                    | 360        |                              | 160         | Normal           | 4.50            | 5.89            |     | 1   |     |     |           |     |     |           |     |     |     |     |     |     |     | i   |
| 43 .91           |                    | 291        | 94                           | 71          | Normal           | 4.54            | 5.67            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 44 .71           |                    | 269        |                              | 29          | Normal           | 4.38            | 5.59            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 45 .7<br>46 .9   |                    | 318<br>328 |                              | 42<br>56    | Normal<br>Normal | 4.53<br>4.45    | 5.76<br>5.79    |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 40 .9            |                    | 334        |                              | 122         | Normal           | 4.43            | 5.81            |     |     |     |     |           |     |     | -         |     | -   |     |     |     |     |     |     |
| 48 .9            | 96                 | 356        | 112                          | 73          | Normal           | 4.56            | 5.87            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 49 1.0           |                    | 291        |                              | 122         | Normal           | 4.48            | 5.67            |     | -   |     |     |           |     |     | -         |     | -   |     |     |     |     |     |     |
| 50 .8<br>51 .8   |                    | 360<br>313 |                              | 128<br>233  | Normal<br>Normal | 4.47<br>4.54    | 5.89<br>5.75    |     | -   |     |     |           |     |     | -         |     |     |     | -   | -   |     | -   |     |
| 52 1.1           |                    | 306        |                              | 132         | Normal           | 4.54            | 5.75            |     |     |     |     |           |     |     |           |     |     |     |     | -   |     |     |     |
| 53 .8            | 86                 | 319        | 144                          | 138         | Normal           | 4.45            | 5.77            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     |     |
| 54 .8.           |                    | 349        |                              | 83          | Normal           | 4.45            | 5.86            |     |     |     |     |           |     |     |           |     |     |     |     |     |     |     | 1   |
| View (Variable   | /iew / 96          | 332        | 151                          | 109         | Normal           | 4 56            | 5.81            |     |     |     |     |           |     |     |           |     |     |     |     | 4   |     |     | >   |

15

# The output is generated.

|              | v [DataSet1] -     |  |                          |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
|--------------|--------------------|--|--------------------------|--------------------------------------|--------------|-----------|-----------------------------|---------------|----------------------|--------------|-----------------|--------|-------------|---------------|------|-----|-----|----------|-----|-----|-----|-----|---|
|              | lata Transform Ana |  |                          | dow Help                             |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
|              | > 🕫 🚈 🛛 👫 🔸        |  | • 🕑 🄕                    |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
|              |                    |  |                          |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| id           | relwt glufast      |  | instest                  | sspg                                 | group        |           | luf logglut                 |               | var                  | var          | var             | var    | var         | var           | var  | var | var | var      | var | var | var | var | 1 |
| 1 1          |                    | 30 356<br>37 289   | 124                      | 55                                   | Nori         | 00000     | 4.38 5.8                    | 22            |                      |              |                 |        |             | -             | -    |     | -   | -        | -   | -   |     |     | _ |
| 2 2          |                    | 97 289<br>05 319   | 117<br>143               | 76<br>105                            | Nor          |           | 4.57 5.6<br>4.65 5.7        |               | _                    |              |                 |        |             |               | -    |     |     |          |     |     |     |     | _ |
| 4 4          |                    | 10   |                          |                                      | NUT          | rnal      | 4.65 5.7                    | (             |                      |              |                 |        |             |               |      |     | -   |          |     |     |     |     | - |
| 5 5          |                    | 👸 🖼 Outpu  | t3 - SPSS                | 5 Viewer                             |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          | -   | -   |     |     | - |
| 6 6          |                    | B6 File Edit   | View Data                | Transform I                          | insert Forma | t Analyze | Graphs Utilit               | es Windo      | w Help               |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 7 7          |                    | and a second |                          | - 🚸 🛄 🏪                              | D 🙆 📠        | die .     |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 8 8          |                    | 35   |                          |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 9 9          | (172T)             | 51   | - @ []                   |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     | -   |     |     |   |
| 0 10         |                    | 97 🖃 – 📒 Outp  | ut                       |                                      |              |           | 🔶 Univa                     | iate An       | alysis of            | f Varianc    | e               |        |             |               |      |     |     | ^        |     |     |     |     |   |
| 1 11         |                    | 91 🖻 🖪 L   | Jnivariate Analy<br>Tale | sis of Variance                      |              |           | all and reacted to had wate |               |                      |              |                 |        |             |               |      |     |     |          |     | 1   |     |     |   |
| 2 12         |                    | 37   | Title<br>Notes           |                                      |              |           | [Dete?e                     | -11 C.) R     | ork\Course           | -) 204) gpg  | 7) Dicheron     |        |             |               |      |     |     |          | _   |     |     |     | _ |
| 3 13<br>4 14 |                    |  | Active Datas             |                                      |              |           | [Dacase                     | cil c:/m      | ULK (COULSE          | 8(204(SPS    | of Diameres     | . Sav  |             |               |      |     |     |          |     |     |     |     |   |
| 14           |                    |  | Between-Su               | ubjects Factors<br>Ivveen-Subjects E | ((           |           |                             |               |                      |              |                 |        |             |               |      |     |     |          | -   | -   |     |     | - |
| 5 16         |                    |  | Parameter Es             |                                      | neus         |           |                             | Between-      | Subjects Fact        | ors          |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 7 17         |                    | 90   |                          | Predicted * Std. R                   | esidual Plot |           | ∥                           |               | -                    |              | 1               |        |             |               |      |     |     |          |     |     |     |     | + |
| 18           |                    | 39   |                          |                                      |              |           | Clinica                     | 1             | Value Label<br>Overt |              |                 |        |             |               |      |     |     |          |     |     |     |     | + |
| 19           | .83                | 35   |                          |                                      |              |           | Group                       |               | Diabetic             | 32           |                 |        |             |               |      |     |     | =        |     |     |     |     |   |
| 20           |                    | 90   |                          |                                      |              |           |                             | 2             | Chemically           | 36           |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 21           |                    | 30   |                          |                                      |              |           |                             |               | Diabetic             |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 22           |                    | 88   |                          |                                      |              |           |                             | 3             | Normal               | 76           |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 23           | .95                | 95<br>90   |                          |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 24           |                    |  |                          |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 5 25<br>5 26 |                    | 92<br>74   |                          |                                      |              |           |                             |               | Tests                | of Between-S | ibjects Effect: | 3      |             |               |      |     |     |          |     |     |     |     |   |
| 7 27         |                    | 98   |                          |                                      |              |           | Depen                       | ient Variable | e: Log(GluTes        | t            |                 |        |             |               |      |     |     |          |     |     |     |     | - |
| 8 28         |                    |  |                          |                                      |              |           |                             |               | Type III Sum         |              |                 |        |             |               |      |     |     |          |     |     |     |     | - |
| 9 29         |                    | 36   |                          |                                      |              |           | Source                      |               | of Squares           | df           | Mean Squar      |        | Sig.        |               |      |     |     |          |     |     |     |     | - |
| 0 30         |                    | 98   |                          |                                      |              |           | Correct<br>Interce          | ed Model      | 27.187               |              | 5.43            |        |             |               |      |     |     |          |     |     |     |     |   |
| 1 31         |                    | 70   |                          |                                      |              |           | group                       | л             | .973<br>.104         |              | .97             |        |             |               |      |     |     |          |     |     |     |     |   |
| 2 32         |                    | 39   |                          |                                      |              |           | loggiuf                     |               | .675                 |              | .67             |        |             |               |      |     |     |          |     |     |     |     |   |
| 3 33         |                    | 75   |                          |                                      |              |           |                             | loggiuf       | .155                 |              | .07             |        |             |               |      |     |     |          |     |     |     |     |   |
| 4 34         |                    | 90<br>85   |                          |                                      |              |           | Error                       |               | 1.318                | 138          | .01             | 0      |             |               |      |     |     |          |     |     |     |     |   |
| 5 35<br>6 36 |                    | 35   |                          |                                      |              |           | Total                       |               | 5509.040             |              |                 |        |             |               |      |     |     |          |     |     |     |     | _ |
| 37           |                    | 59<br>DO   |                          |                                      |              |           |                             | ed Total      | 28.504               |              |                 |        |             |               |      |     |     |          |     |     |     |     | - |
| 38           |                    | 78   |                          |                                      |              |           | a. R                        | Squared = .   | 954 (Adjusted        | R Squared =  | 952)            |        |             |               |      |     |     |          |     |     |     |     | - |
| 39           |                    | 06   |                          |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     | - |
| 40           |                    | 38   |                          |                                      |              |           |                             |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 41           |                    | 32   |                          |                                      |              |           |                             |               |                      | Paran        | neter Estimate  | s      |             |               |      |     |     |          |     |     |     |     |   |
| 42           |                    | 30   |                          |                                      |              |           | Denen                       | tent Variable | e: Log(GluTes        | ħ            |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 8 43         |                    | 94   |                          |                                      |              |           |                             |               | . Log(oldroo         | Í            |                 |        | 95% Conf    | idence Interv | (al  |     |     |          |     |     |     |     |   |
| 44           |                    | 80   |                          |                                      |              |           | Param                       | eter          | в                    | Std. Error   | t               | Sig. I | Lower Bound |               |      |     |     |          |     |     |     |     |   |
| 45           |                    | 93 <b>-</b>  |                          |                                      |              |           | Interne                     | ht            | 4 60 4               | 660          | l nan o         | 000    | 0.000       |               | 00.0 |     |     | >        |     |     |     |     | _ |
| 6 46<br>7 47 |                    | 36<br>35   |                          |                                      |              |           |                             |               | CREC                 | Deserves is  |                 |        |             |               |      |     |     | <u> </u> |     |     |     |     | _ |
| 47           |                    | 356 356  | 112                      | 73                                   | Nori         | mal       | 4.56 5.8                    | 7             | 5855                 | Processor is | reauy           |        |             |               |      | _   | -   |          |     |     |     |     | _ |
| 3 40         |                    | 38 291   | 112                      | 122                                  | Nor          |           | 4.48 5.6                    |               | -                    | -            |                 |        |             |               |      |     |     |          |     | -   |     |     | - |
| 0 50         |                    | 37 360   | 292                      | 122                                  | Nori         |           | 4.47 5.8                    |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     | - |
| 1 51         |                    | 34 313   | 200                      | 233                                  | Nori         |           | 4.54 5.7                    |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     | - |
| 2 52         |                    | 93 306   | 220                      | 132                                  | Nor          |           | 4.53 5.7                    |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 3 53         |                    | 36 319   | 144                      | 138                                  | Nor          | mal       | 4.45 5.7                    |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 4 54         | .82                | 349  | 109                      | 83                                   | Nori         |           | 4.45 5.8                    |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     |     |   |
| 55           | 86                 | 96 332   | 151                      | 109                                  | Nor          |           | 456 .58                     |               |                      |              |                 |        |             |               |      |     |     |          |     |     |     | 1   |   |

The ANOVA table describes the results. It can be read in the same way as an <sup>17</sup> ordinary ANOVA table. We note significant main effects and interaction.

#### **Tests of Between-Subjects Effects**

Dependent Variable: Log(GluTest)

| Course          | Type III Sum        | df  | Maan Cauara | F                  | Cia               |
|-----------------|---------------------|-----|-------------|--------------------|-------------------|
| Source          | of Squares          | df  | Mean Square | F                  | Sig.              |
| Corrected Model | 27.187 <sup>a</sup> | 5   | 5.437       | <del>569.463</del> | . <del>000.</del> |
| Intercept       | .973                |     | .973        | 101.906            | .000              |
| group           | .104                | 2   | .052        | 5.447              | .005              |
| loggluf         | .675                | 1   | .675        | 70.702             | .000              |
| group * loggluf | .155                | 2   | .077        | 8.099              | .000              |
| Error           | 1.318               | 138 | .010        |                    |                   |
| -Total          | 5509 040            | 144 |             |                    |                   |
|                 | 5509.040            | 144 |             |                    |                   |
| Corrected Total | 28.504              | 143 |             |                    |                   |

a. R Squared = .954 (Adjusted R Squared = .952)

The high R squared value means that the model fit is quite good overall.

The parameter estimates/standard errors are also computed.

The SPSS parameterization of the model is used.

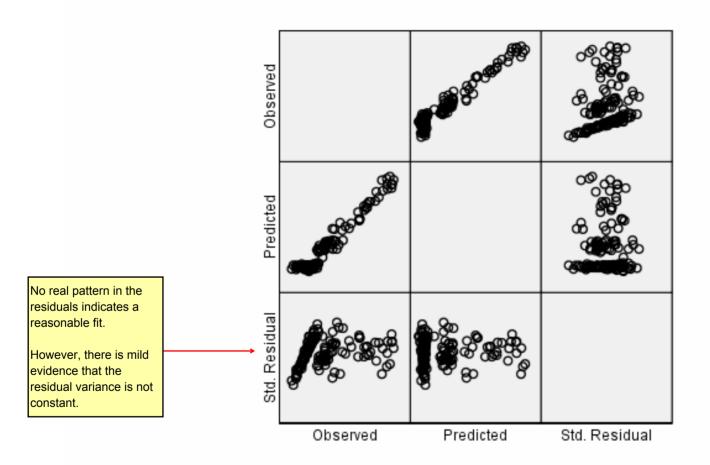
#### **Parameter Estimates**

Dependent Variable: Log(GluTest)

|                     |                |            |        |      | 95% Confidence Interval |             |  |  |  |
|---------------------|----------------|------------|--------|------|-------------------------|-------------|--|--|--|
| Parameter           | В              | Std. Error | t      | Sig. | Lower Bound             | Upper Bound |  |  |  |
| Intercept           | 4.504          | .559       | 8.060  | .000 | 3.399                   | 5.608       |  |  |  |
| [group=1]           | -2.037         | .619       | -3.289 | .001 | -3.262                  | 813         |  |  |  |
| [group=2]           | -1.436         | .958       | -1.499 | .136 | -3.330                  | .458        |  |  |  |
| [group=3]           | 0 <sup>a</sup> |            |        |      |                         |             |  |  |  |
| loggluf             | .299           | .124       | 2.414  | .017 | .054                    | .544        |  |  |  |
| [group=1] * loggluf | .535           | .134       | 4.001  | .000 | .270                    | .799        |  |  |  |
| [group=2] * loggluf | .382           | .210       | 1.820  | .071 | 033                     | .797        |  |  |  |
| [group=3] * loggluf | 0 <sup>a</sup> | •          | •      |      |                         |             |  |  |  |

a. This parameter is set to zero because it is redundant.

In the main effects plus interaction model, there are six parameters; we are fitting three separate straight lines to the three subgroups, and there are two parameters in each straight line.



Dependent Variable: Log(GluTest)

Model: Intercept + group + loggluf + loggluf