

There is a problem in the fixed part of the model

Description

There is a problem in the fixed portion of the model. A near singularity is likely. Possible sources are a collinearity or multicollinearity among the predictors. We suggest that you examine a correlation matrix among the fixed effect predictors.

This error message indicates that there are some of the fixed effects that have essentially the same relationship with the outcome variable. In order to perform iterations, the design matrix of predictors included in the analysis must be independent. In the example below, an example is given for a level-2 unit with 5 level-1 units nested within the level-2 unit. The first column represents the intercept term, which is by default included in any **HLM** model. The second column represents the scores of the 5 respondents from this level-2 unit. As the scores of all 5 respondents are very similar, the second column is almost a multiple of the first.

Intercept Score

```
1 20
1 20
1 20
1 20
1 21
```

Solution

This problem can be resolved in the following ways:

1. If retaining a variable that is a multiple of the intercept term is essential, the intercept term may be deleted from the model.
2. Use a correlation matrix of predictors within each higher level unit to find the pair or pairs of variables responsible for this problem. If, for example, a correlation close to 1 is observed for the predictors representing age and income, only one of the two predictors should be used in the model. Alternatively, a transformation of income could be considered in order to keep both variables in the model.