There is a problem in the fixed part of the model

One possible cause of the error message

"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."

is 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

This problem can be resolved in the following ways:

- If retaining a variable that is a multiple of the intercept term is essential, the intercept term may be deleted from the model.
- 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.

Another common reason for this problem is a large disparity in the scales of the variables in the model. Variables where the scale of the variable differs by more than order 3 of magnitude are likely to cause this

type of problem too. In these cases, rescaling the large variables can sometimes fix the problem.