SPSS TUTORIAL CONTINUOUS INTERACTION METHOD TYPE D PERSONALITY

The type of regression model appropriate to do this analysis depends on the measurement level of your outcomes. Regardless of whether you use a linear or logistic model, the continuous Type D effect is modeled similar in both situations.

You start out with calculating the total score separately for NA and SI. You have probably already done this because you also need those variables to calculate the dichotomous Type D variable. Next, you have to make five new variables before you can use the continuous method:

First, you need to calculate mean-centred versions of the NA and SI total scores. This is important to reduce the correlation between these sum scores on the one hand and on the other hand their interaction term that you will calculate later on. This means that you use descriptive statistics to find out what the mean NA and SI total score is. Subsequently in SPSS you use 'transform -> compute new variable' to create a separate **NA_meancentered** and **SI_meancentered** variable by subtracting from all NA scores the mean NA score. The same for SI. As a check, mean of the resulting mean-centred variables will be equal to zero.

Next, you can use these mean centred variables to calculate the interaction term between NA and SI. This interaction term represents the Type D effect. You use 'transform -> compute new variable' to calculate:
NASI = NA_meancentered * SI_meancentered

My attached paper in personality and individual differences showed that it is important to check whether the interaction effect is not confounded by quadratic NA or quadratic SI effects. Therefore you also need to calculate the quadratic terms for these variables. You use 'transform -> compute new variable' to calculate:
NA2 = NA_meancentered * NA_meancentered
SI2= SI_meancentered * SI_meancentered

Lastly, you can include all these variables in a hierarchical regression analysis. This means that you use separate predictor blocks in SPSS. You could for instance use the following predictor blocks:

1) Demographic and clinical covariates
2) NA_meancentered + SI_meancentered
3) NA_meancentered + SI_meancentered + NASI
4) NA_meancentered + SI_meancentered + NA2 + SI2 + NASI
5) NA_meancentered + SI_meancentered + NA2 + SI2

1. Model 1 is used as a baseline to make sure that all effects in subsequent models are adjusted for the demographic and/or clinical covariates. If you also want unadjusted effect estimates than you could of course remove model 1 from the list above.
2. Model 2 will inform you whether the personality traits NA and SI are related to the outcomes.
3. Model 3 tests whether the interaction between NA and SI (the Type D effect) adds anything on top of the effects of the NA and SI main effects. This is important because the Type D effect is claimed to be more than the sum of its NA and SI parts. If if is the combination of high scores on both NA and SI that is especially detrimental to outcomes, then you expect a significant interaction effect.
4. Model 4 tests whether the Type D effect as the interaction between NA and SI remains significant after adjusting it for the possible confounding influence of the NA and SI quadratic effects. If it is still significant then this is great. If not, then it could mean the quadratic effect of NA and/or SI is driving the outcome rather than a Type D effect. However, sometimes the interaction estimate is still of the same size, but the standard error increases due to adding the quadratic effects to the model, which are correlated with the interaction term and therefore increase the standard error of these effects. In that case you can run model 5.
5. Model 5 excludes the interaction term but includes the NA and Si quadratic effects. Now you can compare the fit of models 3 and 5. This will allow you to determine whether the quadratic effects or the interaction effect best explains the individual variation in the outcome. In a logistic model you can use the fit indices (e.g., AIC/BIC) reported on top of the SPSS output. In the linear model you can compare the R-squared of these models.

Please make sure that in case of a significant interaction you also visualise the interaction effect, because not all interactions are Type D effects. It could for instance also be possible that you find a significant interaction that suggests that high NA scores together with low SI scores increase the risk on poor outcomes. That would likely not be in line with the predictions of Type D theory.