A model with high error due to bias can fail to capture the regularities in the data, resulting in an inaccurate model underfitting the data. Increasing the complexity of the model, such as adding more parameters in the model, can reduce this bias. However, an excessively complex model, such as having too many parameters compared to the number of patients, can describe random error or noise instead of the meaningful relationships, referred to as overfitting of the data. This results in an increase in error due to variance and a reduced generalizability to previously unseen data. The complexity of a model should, therefore, be a tradeoff between bias and variance [1].

1)
Jordan MI, Mitchell TM. Machine learning: trends, perspectives, and prospects. Science . 2015;349(6245):255-260.