Supplementary

**Supplemental material** - Summary of Principal Component Analysis (PCA) relative to Vitamin (Vit D), Length of stay in hospital (Days), Weight (kg) and COVID-19 status. PC4 shows grouping classification between COVID-19 (+) and COVID-19 (−).

The Principle Component Analysis (PCA) results projected on to the key variables as shown in the supplemental material revealed that there are distinctions between COVID(+) and COVID(−) status. It was noted in the projections of PC4 (y-axis) onto the variable (x-axis) that negative COVID patients were grouped at the bottom whilst the positive COVID were scattered on the same projections for Vitamin D serum concentration, Days of hospital stay and Weight(kg). These plots provide clues regarding discriminations with respect to COVID status. As the focus in this study is the effect of vitamin D, COVID-19 status, the relationships between these variables and associated comorbidities were further examined in detail.