**Supplementary Material for Integrated exposomic analysis of lipid phenotypes: leveraging GE.db in environment by environment association studies**

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**Introduction**

This document provides supplementary materials for the paper titled "Integrated Exposomic Analysis of Lipid Phenotypes: Leveraging GE.db in Environment by Environment Association Studies." The supplementary materials include additional figures and tables that support the findings presented in the main paper. These materials provide further details on the data, methods, and results, including extended descriptions of results and full details of models used in the study. The data were collected from the National Health and Nutrition Examination Survey (NHANES) spanning from 1999 to 2018. Known imperfections and anomalies in the data are discussed, including the limitations of self-reported data and adjustments made for cholesterol-lowering medications.

**Figure S-1**. Bar charts showing the sample counts by survey cycle of participants who either did or did not have cholesterol data and if they took cholesterol medications.

A graph of samples per cycle

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A graph of samples per cycle

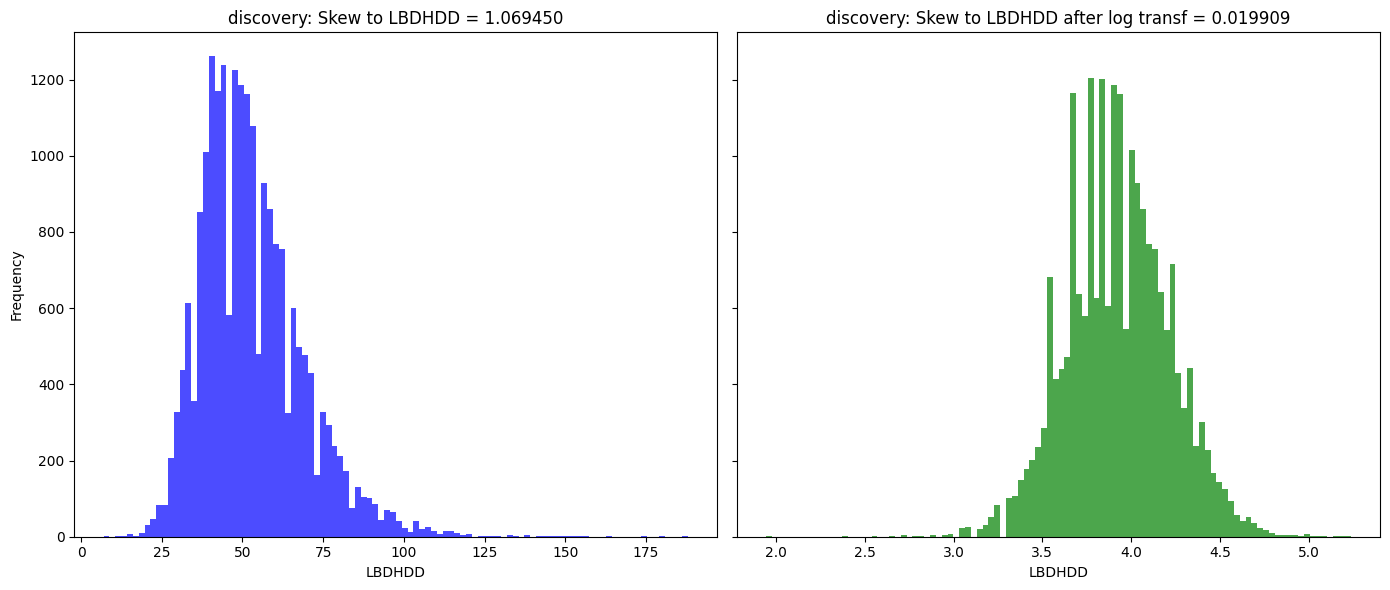
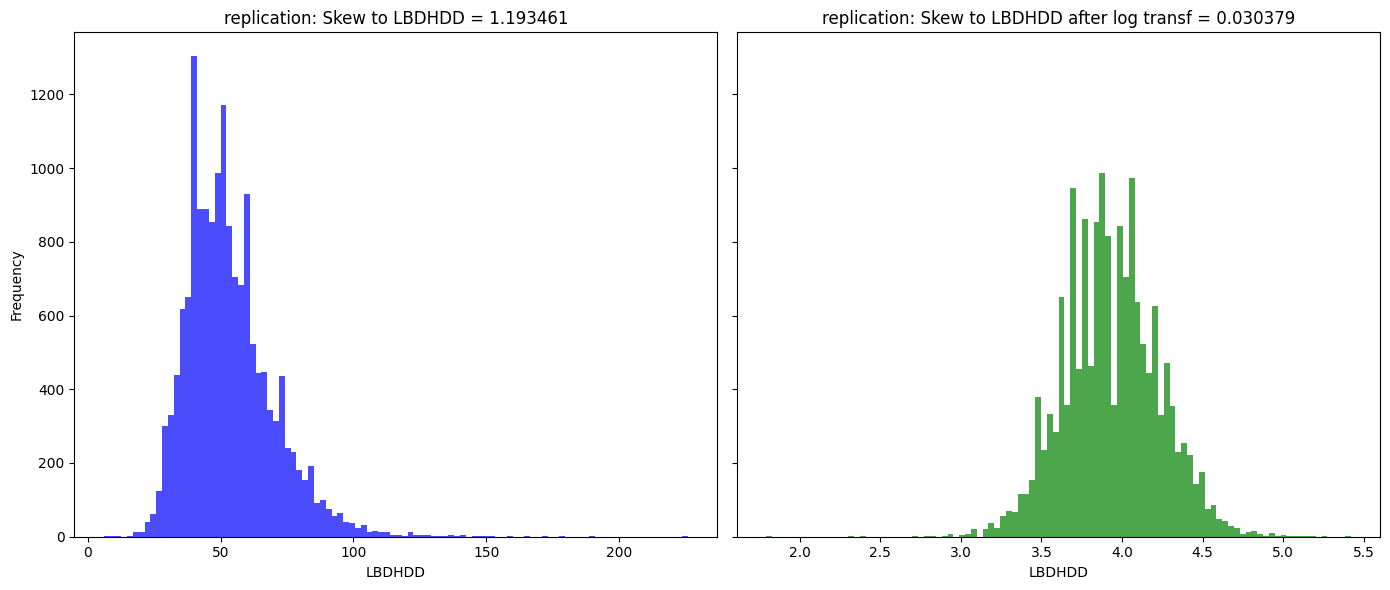
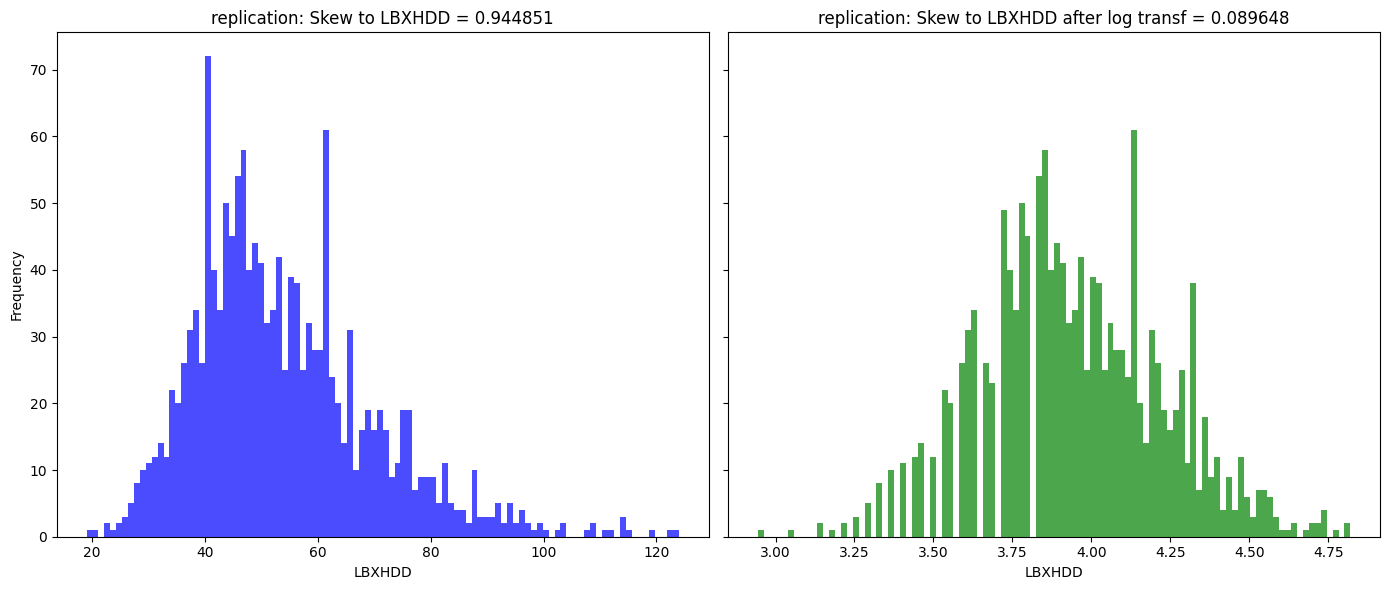
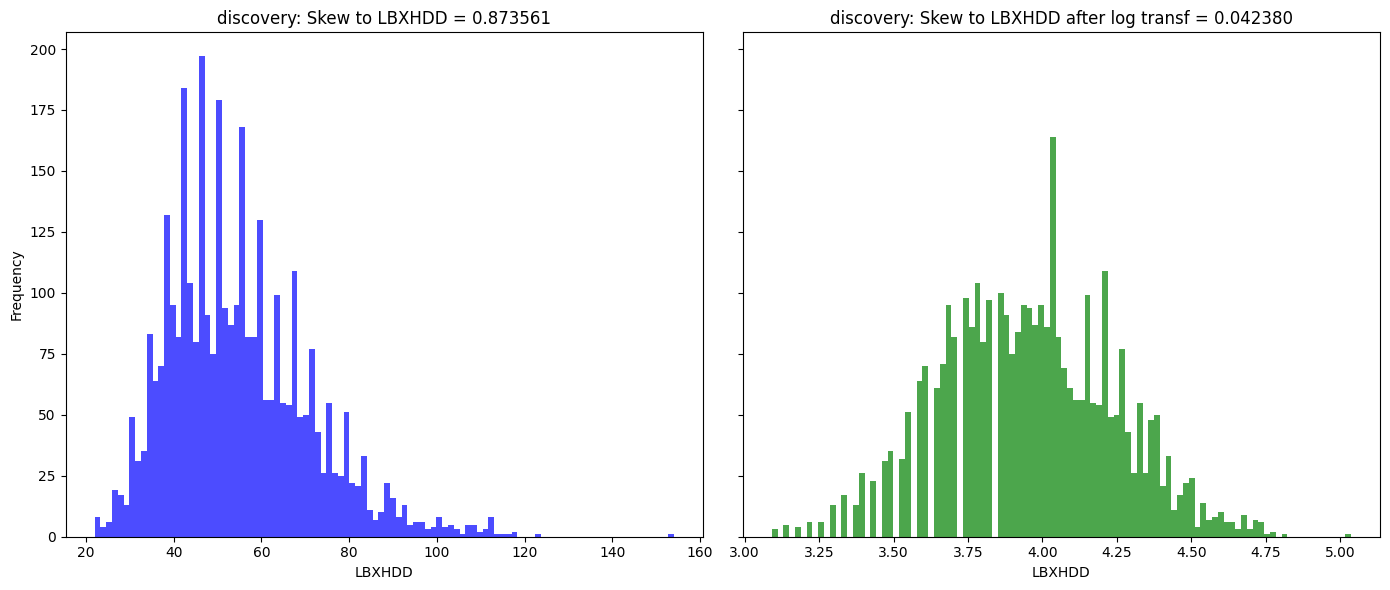
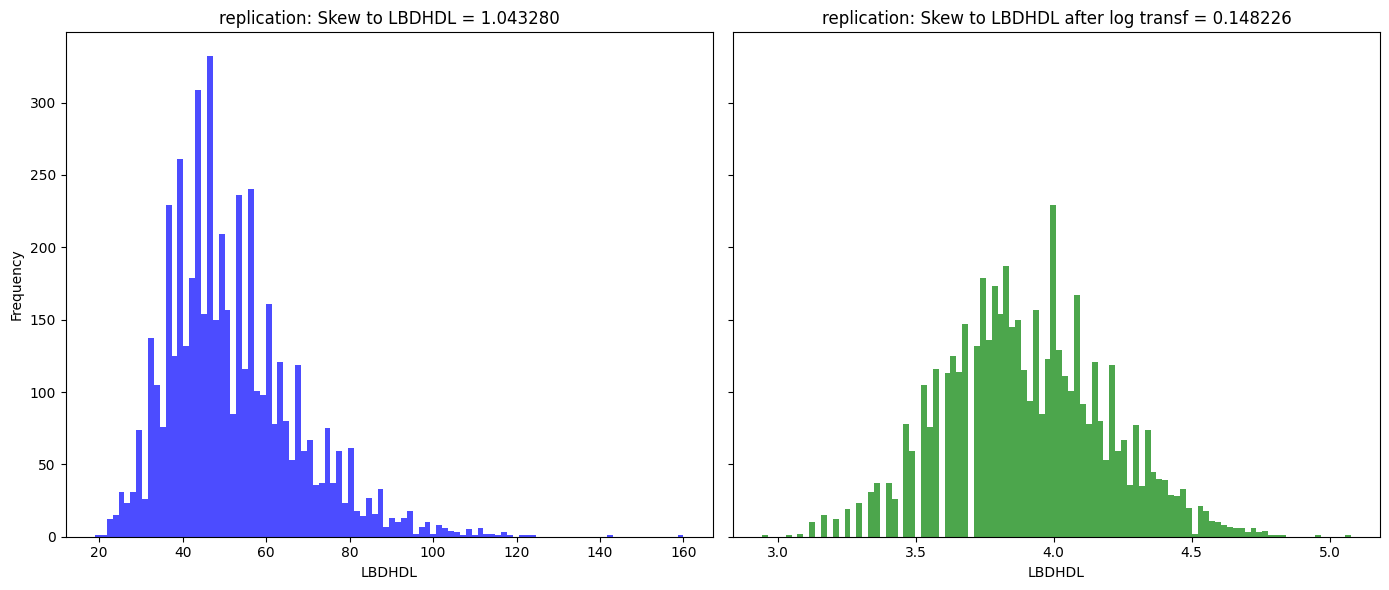
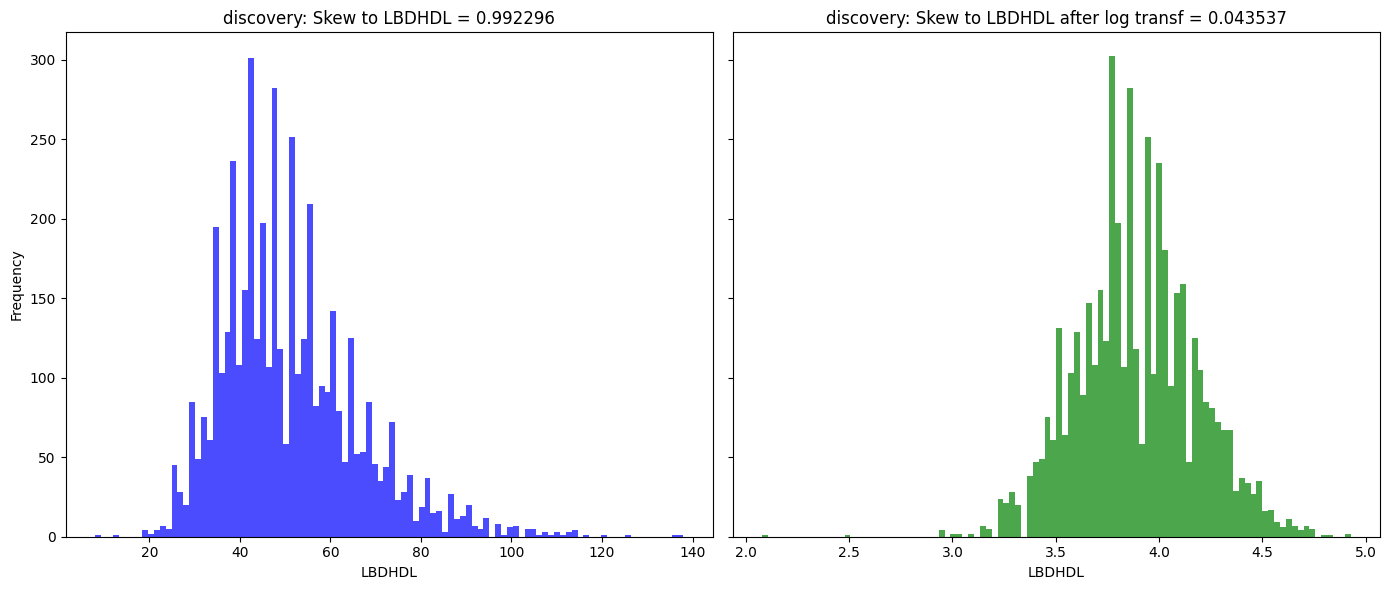
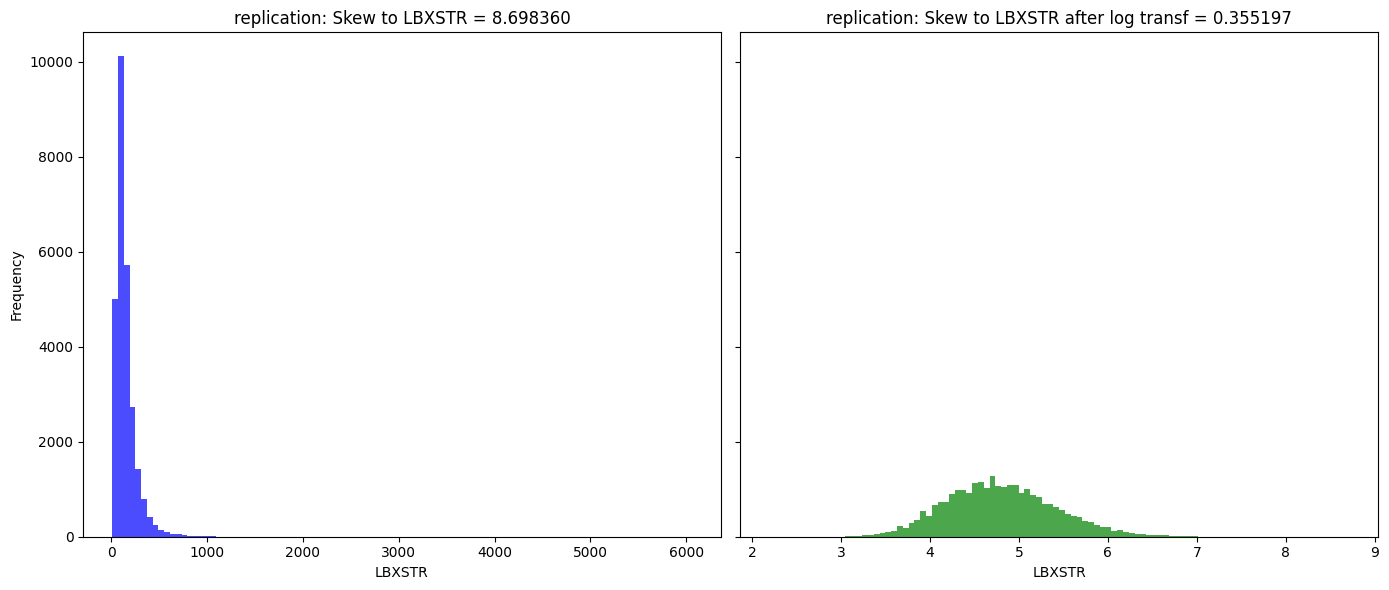
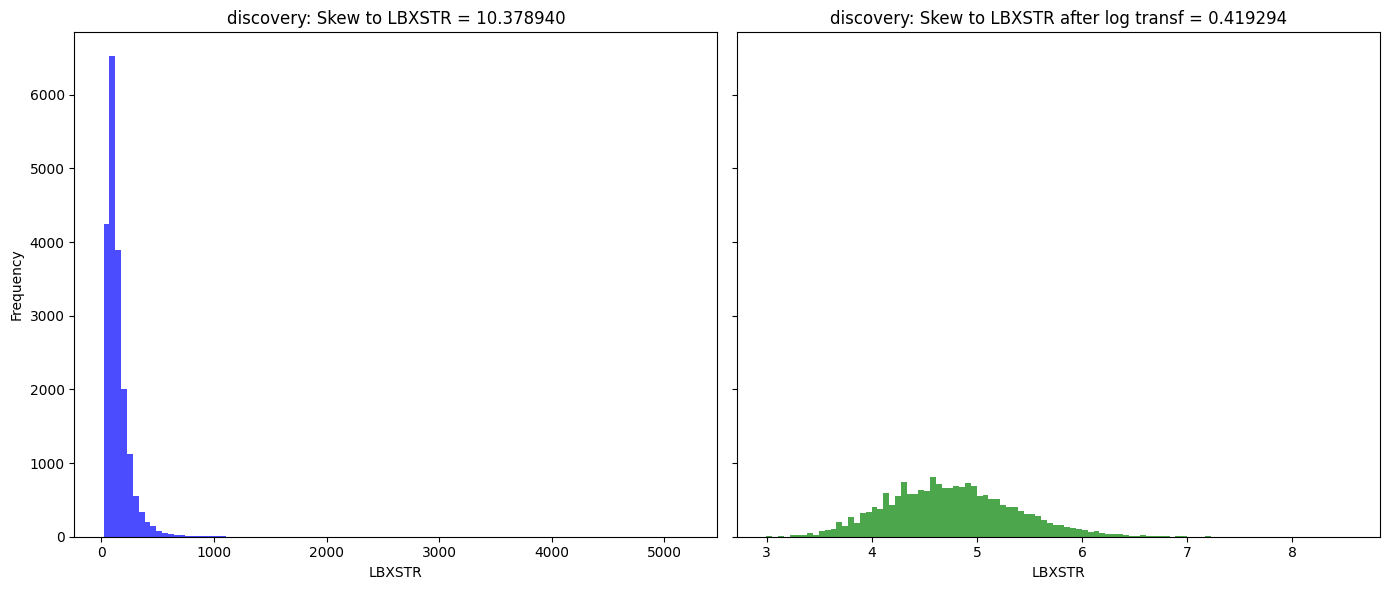
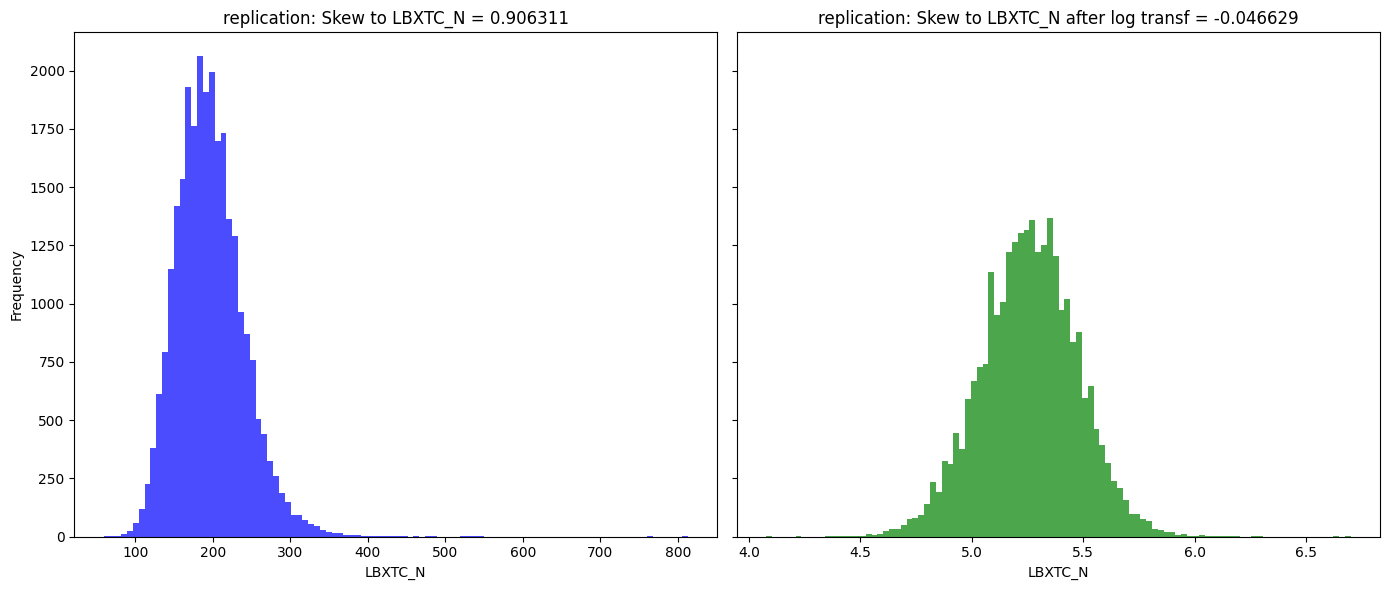
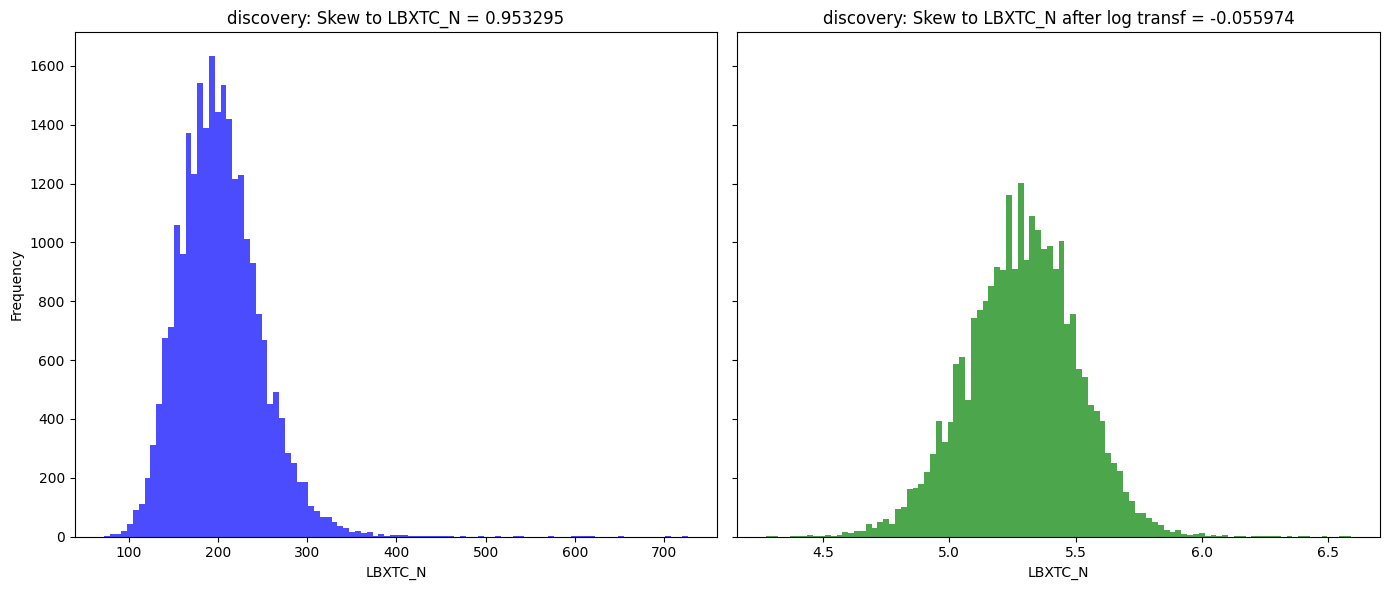
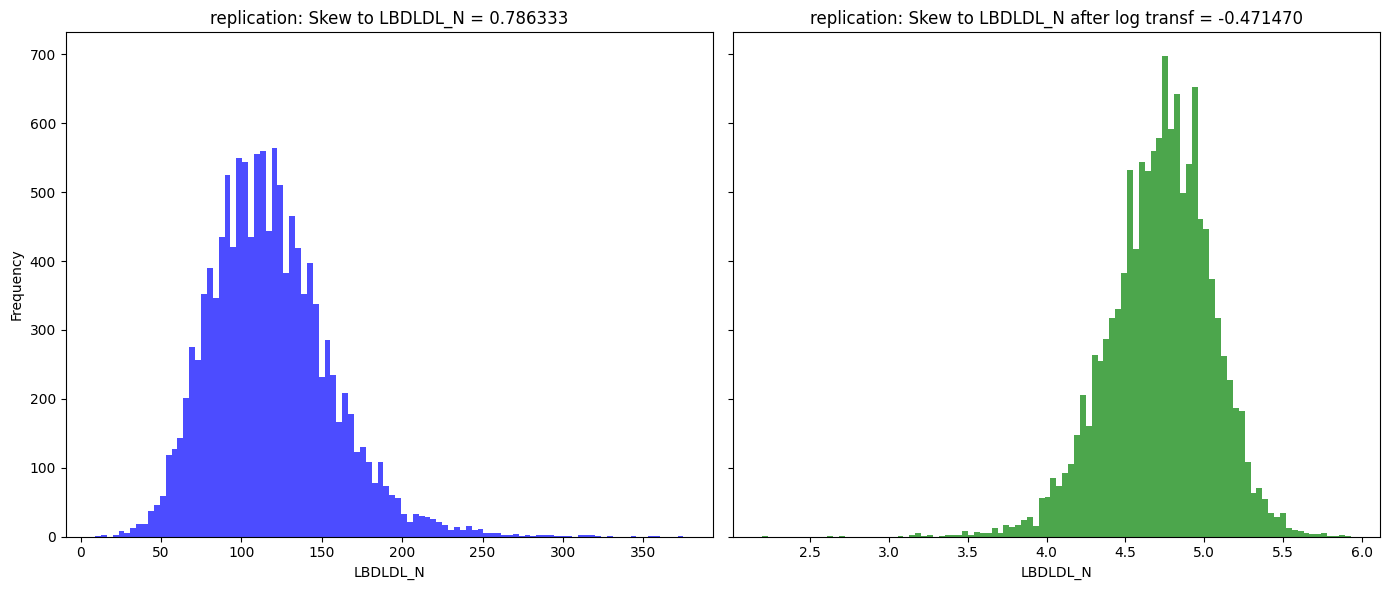
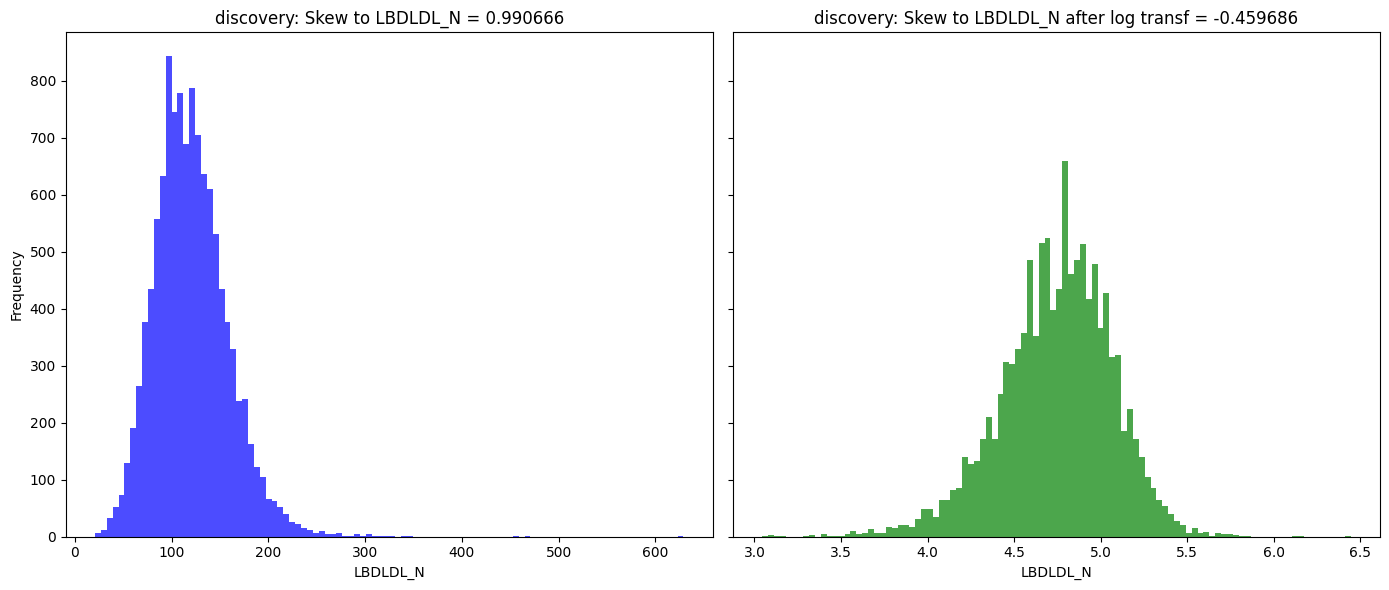
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**Figure S-2.** Bar chart featuring only the samples who used cholesterol medication organized by survey cycle.

A graph of blue bars

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**Figure S-3.** Histograms displaying the frequencies before and after log transformation of the lipid phenotypes in the discovery and replication datasets.



**Table S-1.** All twenty-one Bonferroni adjusted p < 0.05 significant interactions listing their p-values, sample sizes, full interaction beta and full main-effect betas.

A table of numbers with black text

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