**Table 1.** Pearson and Spearman correlations between all variables in the dataset leveraged in the current study following feature engineering

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables |  | Gender | Age | Race | NPHH | NPF | NCFYY | NCSSY | AHHI | RFIP | CHGS | CHGSM | CHGSB | Weight | Height | BMI | WC | ASAD |
| Gender | Correlation | 1.000 | -0.065 | -0.029 | 0.041 | 0.036 | 0.092 | 0.076 | -0.024 | -0.013 | -.508\*\* | -.359\*\* | -.501\*\* | -.214\*\* | -.500\*\* | 0.015 | -0.006 | -0.020 |
|  | *P* Value |  | 0.243 | 0.602 | 0.466 | 0.522 | 0.101 | 0.176 | 0.667 | 0.810 | <.001 | <.001 | <.001 | <.001 | <.001 | 0.795 | 0.910 | 0.719 |
| Age | Correlation | -0.065 | 1.000 | 0.046 | -0.083 | -0.083 | -0.029 | -.235\*\* | -0.008 | -0.028 | .511\*\* | .191\*\* | .350\*\* | .345\*\* | .444\*\* | .209\*\* | .203\*\* | .205\*\* |
|  | *P* Value | 0.243 |  | 0.409 | 0.139 | 0.138 | 0.607 | <.001 | 0.892 | 0.623 | <.001 | 0.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| Race | Correlation | -0.029 | 0.046 | 1.000 | -.153\*\* | -.146\*\* | -0.080 | -.111\* | .139\* | .132\* | 0.060 | 0.047 | 0.095 | -0.026 | .124\* | -0.091 | -.150\*\* | -0.086 |
|  | *P* Value | 0.602 | 0.409 |  | 0.006 | 0.009 | 0.155 | 0.047 | 0.013 | 0.018 | 0.283 | 0.404 | 0.089 | 0.642 | 0.026 | 0.103 | 0.007 | 0.122 |
| NPHH | Correlation | 0.041 | -0.083 | -.153\*\* | 1.000 | .952\*\* | .425\*\* | .638\*\* | -0.034 | -.230\*\* | -0.089 | 0.044 | -0.008 | -.121\* | -.121\* | -0.100 | -0.084 | -0.062 |
|  | *P* Value | 0.466 | 0.139 | 0.006 |  | <.001 | <.001 | <.001 | 0.545 | <.001 | 0.110 | 0.429 | 0.885 | 0.031 | 0.030 | 0.075 | 0.135 | 0.270 |
| NPF | Correlation | 0.036 | -0.083 | -.146\*\* | .952\*\* | 1.000 | .404\*\* | .620\*\* | -0.043 | -.164\*\* | -0.080 | 0.068 | 0.013 | -.124\* | -.114\* | -0.108 | -0.086 | -0.065 |
|  | *P* Value | 0.522 | 0.138 | 0.009 | <.001 |  | <.001 | <.001 | 0.439 | 0.003 | 0.155 | 0.223 | 0.814 | 0.026 | 0.042 | 0.053 | 0.125 | 0.246 |
| NCFYY | Correlation | 0.092 | -0.029 | -0.080 | .425\*\* | .404\*\* | 1.000 | 0.054 | -0.004 | -.175\*\* | -0.024 | -0.081 | -0.089 | 0.048 | -0.030 | 0.078 | 0.099 | 0.086 |
|  | *P* Value | 0.101 | 0.607 | 0.155 | <.001 | <.001 |  | 0.339 | 0.937 | 0.002 | 0.669 | 0.149 | 0.112 | 0.393 | 0.591 | 0.162 | 0.078 | 0.126 |
| NCSSY | Correlation | 0.076 | -.235\*\* | -.111\* | .638\*\* | .620\*\* | 0.054 | 1.000 | -0.031 | -.123\* | -.180\*\* | 0.052 | -0.040 | -.213\*\* | -.215\*\* | -.167\*\* | -.171\*\* | -.135\* |
|  | *P* Value | 0.176 | <.001 | 0.047 | <.001 | <.001 | 0.339 |  | 0.583 | 0.027 | 0.001 | 0.349 | 0.479 | <.001 | <.001 | 0.003 | 0.002 | 0.015 |
| AHHI | Correlation | -0.024 | -0.008 | .139\* | -0.034 | -0.043 | -0.004 | -0.031 | 1.000 | .758\*\* | 0.011 | 0.024 | 0.076 | -0.028 | .122\* | -0.081 | -0.055 | -0.077 |
|  | *P* Value | 0.667 | 0.892 | 0.013 | 0.545 | 0.439 | 0.937 | 0.583 |  | <.001 | 0.846 | 0.670 | 0.172 | 0.614 | 0.029 | 0.146 | 0.328 | 0.170 |
| RFIP | Correlation | -0.013 | -0.028 | .132\* | -.230\*\* | -.164\*\* | -.175\*\* | -.123\* | .758\*\* | 1.000 | -0.026 | 0.025 | 0.059 | -0.042 | .110\* | -0.094 | -0.081 | -0.101 |
|  | *P* Value | 0.810 | 0.623 | 0.018 | <.001 | 0.003 | 0.002 | 0.027 | <.001 |  | 0.647 | 0.654 | 0.289 | 0.455 | 0.050 | 0.092 | 0.149 | 0.072 |
| CHGS | Correlation | -.508\*\* | .511\*\* | 0.060 | -0.089 | -0.080 | -0.024 | -.180\*\* | 0.011 | -0.026 | 1.000 | .448\*\* | .691\*\* | .588\*\* | .744\*\* | .336\*\* | .317\*\* | .332\*\* |
|  | *P* Value | <.001 | <.001 | 0.283 | 0.110 | 0.155 | 0.669 | 0.001 | 0.846 | 0.647 |  | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| CHGSM | Correlation | -.359\*\* | .191\*\* | 0.047 | 0.044 | 0.068 | -0.081 | 0.052 | 0.024 | 0.025 | .448\*\* | 1.000 | .900\*\* | -.402\*\* | .139\* | -.589\*\* | -.612\*\* | -.571\*\* |
|  | *P* Value | <.001 | 0.001 | 0.404 | 0.429 | 0.223 | 0.149 | 0.349 | 0.670 | 0.654 | <.001 |  | <.001 | <.001 | 0.012 | <.001 | <.001 | <.001 |
| CHGSB | Correlation | -.501\*\* | .350\*\* | 0.095 | -0.008 | 0.013 | -0.089 | -0.040 | 0.076 | 0.059 | .691\*\* | .900\*\* | 1.000 | -0.090 | .513\*\* | -.393\*\* | -.370\*\* | -.349\*\* |
|  | *P* Value | <.001 | <.001 | 0.089 | 0.885 | 0.814 | 0.112 | 0.479 | 0.172 | 0.289 | <.001 | <.001 |  | 0.107 | <.001 | <.001 | <.001 | <.001 |
| Weight | Correlation | -.214\*\* | .345\*\* | -0.026 | -.121\* | -.124\* | 0.048 | -.213\*\* | -0.028 | -0.042 | .588\*\* | -.402\*\* | -0.090 | 1.000 | .633\*\* | .890\*\* | .885\*\* | .866\*\* |
|  | *P* Value | <.001 | <.001 | 0.642 | 0.031 | 0.026 | 0.393 | <.001 | 0.614 | 0.455 | <.001 | <.001 | 0.107 |  | <.001 | <.001 | <.001 | <.001 |
| Height | Correlation | -.500\*\* | .444\*\* | .124\* | -.121\* | -.114\* | -0.030 | -.215\*\* | .122\* | .110\* | .744\*\* | .139\* | .513\*\* | .633\*\* | 1.000 | .253\*\* | .350\*\* | .329\*\* |
|  | *P* Value | <.001 | <.001 | 0.026 | 0.030 | 0.042 | 0.591 | <.001 | 0.029 | 0.050 | <.001 | 0.012 | <.001 | <.001 |  | <.001 | <.001 | <.001 |
| BMI | Correlation | 0.015 | .209\*\* | -0.091 | -0.100 | -0.108 | 0.078 | -.167\*\* | -0.081 | -0.094 | .336\*\* | -.589\*\* | -.393\*\* | .890\*\* | .253\*\* | 1.000 | .926\*\* | .909\*\* |
|  | *P* Value | 0.795 | <.001 | 0.103 | 0.075 | 0.053 | 0.162 | 0.003 | 0.146 | 0.092 | <.001 | <.001 | <.001 | <.001 | <.001 |  | <.001 | <.001 |
| WC | Correlation | -0.006 | .203\*\* | -.150\*\* | -0.084 | -0.086 | 0.099 | -.171\*\* | -0.055 | -0.081 | .317\*\* | -.612\*\* | -.370\*\* | .885\*\* | .350\*\* | .926\*\* | 1.000 | .927\*\* |
|  | *P* Value | 0.910 | <.001 | 0.007 | 0.135 | 0.125 | 0.078 | 0.002 | 0.328 | 0.149 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |  | <.001 |
| ASAD | Correlation | -0.020 | .205\*\* | -0.086 | -0.062 | -0.065 | 0.086 | -.135\* | -0.077 | -0.101 | .332\*\* | -.571\*\* | -.349\*\* | .866\*\* | .329\*\* | .909\*\* | .927\*\* | 1.000 |
|  | *P* Value | 0.719 | <.001 | 0.122 | 0.270 | 0.246 | 0.126 | 0.015 | 0.170 | 0.072 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |  |
| CMBR | Correlation | -.126\* | 0.025 | -0.045 | <.001 | -0.024 | 0.092 | -0.051 | -0.006 | -.116\* | .129\* | -.329\*\* | -.210\*\* | .415\*\* | .110\* | .460\*\* | .481\*\* | .491\*\* |
|  | *P* Value | 0.024 | 0.651 | 0.424 | 0.996 | 0.670 | 0.098 | 0.361 | 0.912 | 0.037 | 0.021 | <.001 | <.001 | <.001 | 0.049 | <.001 | <.001 | <.001 |

Abbreviations: Number of People in Household, NPHH; Number of People in Family, NPF; Number of Children Five Years or Younger, NCFYY; Number of Children Six to Seventeen Years, NCSSY; Annual Household Income, AHHI; Ratio of family Income to Poverty, RFIP; Combined Handgrip Strength, CHGS; Combined Handgrip Strength normalized to body mass, CHGSM; Combined Handgrip Strength normalized to BMI, CHGSB; Body Mass Index, BMI; Waist Circumference, WC; Average Sagittal Abdominal Diameter, ASAD; Cardiometabolic Risk, CMBR. .