**Supplementary file 1.**

**Diagnostic test for the study model resulted from multivariable logistic regression of study primary outcome (waterpipe smoking cessation)**

**1) Hosmer-Lemeshow goodness of fit test:**

|  |  |
| --- | --- |
| **Number of observations** | 466 |
| **Number of groups** | 10 |
| **Hosmer-Lemeshow chi2(8)** | 13.90 |
| **Prob > chi2** | 0.0845 |

**2) Variance Inflation Factor (VIF):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **VIF** | **SORT VIF** | **Tolerance** | **R-Squared** |
| Age | 2.95 | 1.72 | 0.3391 | 0.6609 |
| Gender | 1.24 | 1.12 | 0.8039 | 0.1961 |
| Marital status | 1.48 | 1.22 | 0.6739 | 0.3261 |
| Level of Education | 1.33 | 1.15 | 0.7501 | 0.2499 |
| Wealth index | 1.22 | 1.11 | 0.8170 | 0.1830 |
| Number of people living at home | 1.52 | 1.23 | 0.6565 | 0.3435 |
| Having children under 18 years of age | 1.07 | 1.04 | 0.9315 | 0.0685 |
| Smoking rules in the house | 1.12 | 1.06 | 0.8931 | 0.1069 |
| Comorbidity | 1.10 | 1.05 | 0.9129 | 0.0871 |
| Nicotine dependency LWDS\_11 scale | 1.29 | 1.14 | 0.7724 | 0.2276 |
| Withdrawal symptoms MPSS scale | 1.39 | 1.18 | 0.7204 | 0.2796 |
| Smoking duration | 2.43 | 1.56 | 0.4109 | 0.5891 |
| Age at starting smoking | 1.42 | 1.19 | 0.7034 | 0.2966 |
| Sharing waterpipe with others | 1.12 | 1.06 | 0.8943 | 0.1057 |
| Dual smoker status | 1.16 | 1.08 | 0.8649 | 0.1351 |
| Waterpipe session length | 1.07 | 1.03 | 0.9345 | 0.0655 |
| Smoking frequency | 1.26 | 1.12 | 0.7951 | 0.2049 |
| Past quit attempt | 1.24 | 1.11 | 0.8062 | 0.1938 |
| **Mean VIF** | **1.41** |  |  |  |

**3)** **Receiver Operating Characteristic (ROC) curve:**

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**4)** **Box-Tidwell procedure:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Coef.** | | **Std. Err.** | **z** | **P>z** | **95% CI** | | | |
| **I(Age)\_1** | | 14.561 | | 30.382 | 0.480 | 0.632 | -44.987 | | 74.108 | |
| **I(Age)\_p1** | | 0.689 | | 42.254 | 0.020 | 0.987 | -82.127 | | 83.504 | |
| **I(LWDS)\_1** | | -0.058 | | 0.150 | -0.390 | 0.696 | -0.352 | | 0.235 | |
| **I(LWDS)\_p1** | | 0.000 | | 0.140 | 0.000 | 1.000 | -0.275 | | 0.275 | |
| **I(MPSS)\_1** | | -1.429 | | 0.803 | -1.780 | 0.075 | -3.002 | | 0.144 | |
| **I(MPSS)\_p1** | | 0.001 | | 2.989 | 0.000 | 1.000 | -5.857 | | 5.859 | |
| **I(Waterpipe session length)\_1** | | 1416.988 | | 1924.286 | 0.740 | 0.462 | -2354.543 | | 5188.519 | |
| **I(gender)\_1** | | 1.020 | | 0.360 | 2.840 | 0.005 | 0.315 | | 1.725 | |
| **I(Marital status)\_1** | | -0.129 | | 0.239 | -0.540 | 0.590 | -0.598 | | 0.340 | |
| **I(Level of education)\_1** | | -0.040 | | 0.260 | -0.150 | 0.879 | -0.550 | | 0.471 | |
| **I(Wealth index)\_1** | | 0.283 | | 0.243 | 1.170 | 0.244 | -0.193 | | 0.760 | |
| **I(Number of people living at home)\_1** | | 0.083 | | 0.262 | 0.320 | 0.752 | -0.430 | | 0.596 | |
| **I(Having children < 18 years)\_1** | | -0.283 | | 0.242 | -1.170 | 0.242 | -0.758 | | 0.192 | |
| **I(Smoking rules in the house)\_1** | | 1.006 | | 0.511 | 1.970 | 0.049 | 0.004 | | 2.008 | |
| **I(Comorbidity)\_1** | | 0.455 | | 0.611 | 0.750 | 0.456 | -0.742 | | 1.652 | |
| **I(Smoking duration)\_1** | | 0.194 | | 0.356 | 0.540 | 0.586 | -0.504 | | 0.891 | |
| **I(Age at starting smoking)\_1** | | -0.090 | | 0.269 | -0.330 | 0.739 | -0.617 | | 0.438 | |
| **I(Sharing waterpipe with others)\_1** | | 1.117 | | 0.372 | 3.000 | 0.003 | 0.388 | | 1.847 | |
| **I(Dual smoker status)\_1** | | 1.076 | | 0.238 | 4.520 | 0.000 | 0.609 | | 1.543 | |
| **I(Smoking frequency)\_1** | | 0.722 | | 0.294 | 2.460 | 0.014 | 0.146 | | 1.298 | |
| **I(Past quit attempt)\_1** | | 0.768 | | 0.321 | 2.390 | 0.017 | 0.139 | | 1.397 | |
| **\_cons** | | -2.704 | | 0.565 | -4.790 | 0.000 | -3.812 | | -1.597 | |
| **Age** | | -0.003 | 0.012 | | -0.221 | Nonlin.dev. | | 3.514 | | (P: 0.061) |
| **p1** | | -3.081 | 2.785 | | -1.106 |  | |  | |  |
| **LWDS\_11** | | -0.102 | 0.031 | | -3.309 | Nonlin.dev. | | 0.947 | | (P: 0.330) |
| **p1** | | 3.386 | 2.397 | | 1.413 |  | |  | |  |
| **MPSS** | | 0.072 | 0.026 | | 2.829 | Nonlin.dev. | | 2.676 | | (P: 0.102) |
| **p1** | | -1.944 | 2.092 | | -0.929 |  | |  | |  |
| **Waterpipe session length** | | 0.005 | 0.011 | | 0.433 | Nonlin.dev. | | 2.530 | | (P: 0.112) |
| **p1** | | -1.443 | . | | . |  | |  | |  |
|  | | | | |  | |  | |  |