**Supplementary file 4.**

**Outlier tests for the study model resulted from multivariable logistic regression of study key secondary outcome (Smoking cessation at any duration including abstinence from cigarette smoking)**

**1) Pregibon dbeta:**

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**2) Pearson’s Residuals:**

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**3)** **Deviance Residuals:**

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- **Study model (without outlier covariate patterns):**

Adjusted odds ratio (aOR), 95% Confidence interval (95% CI), and p-value of waterpipe smoking cessation including abstinence from cigarette (key secondary outcome) after dropping outlier covariate patterns (128, 418, 459, 153, 290, 154, 147, 446, 414, 332, and 429):

|  |  |  |  |
| --- | --- | --- | --- |
| **Explanatory Variables** | **OR** | **95% CI** | **P-value** |
| **Age** | 1.02 | (0.99-1.05) | 0.189 |
| **Sex** |  |  |  |
| Female  | R\* |  |  |
| Male  | 0.79 | (0.36 -1.77) | 0.573 |
| **Level of Education**  |  |  |  |
| No formal education | R |  |  |
| At least primary school education  | 0.68 | (0.35-1.32) | 0.254 |
| **Marital status** |  |  | 0.189 |
| Married | R |  |  |
| Widowed/Separated/Divorced | 0.15 | (0.02-1.44) | 0.101 |
| Single | 1.58 | (0.49-5.07) | 0.439 |
| **Wealth index** |  |  |  |
| Low wealth | R |  |  |
| High wealth | 1.16 | (0.64-2.10) | 0.634 |
| **Number of people living at home** |  |  |  |
| ≤ 5 people | R |  |  |
| > 5 people | 0.73 | (0.41-1.31) | 0.292 |
| **Smoking rules in the house**  |  |  |  |
| No restrictions | R |  |  |
| Some restrictions or not allowed to smoke | 6.82 | (2.50-18.58) | 0.041 |
| **Having children under 18 years of age** |  |  |  |
| Yes | R |  |  |
| No | 1.03 | (0.53-2.02) | 0.922 |
| **Comorbidity** |  |  |  |
| No | R |  |  |
| Yes | 1.00 |  |  |
| **Nicotine dependency LWDS\_11 scale** | 0.88 | (0.82-0.95) | 0.002 |
| **Withdrawal symptoms MPSS scale** | 1.05 | (0.98-1.11) | 0.156 |
| **Dual smoker status**  |  |  |  |
| No | R |  |  |
| Yes | 0.94 | (0.52 -1.68) | 824 |
| **Sharing waterpipe with others**  |  |  |  |
| Yes | R |  |  |
| No | 1.52 | (0.68 -3.42) | 0.306 |
| **Age at starting smoking** |  |  |  |
| <20 years  | R |  |  |
| > 20 years | 0.75 | (0.39-1.45) | 0.393 |
| **Smoking duration** |  |  |  |
| <25 years | R |  |  |
| >25 years | 0.87 | (0.38-1.96) | 0.732 |
| **Smoking frequency** |  |  |  |
| Whole day (continuously for several hours)  | R |  |  |
| Less than whole day | 1.27 |  (0.62 -2.63) | 0.512 |
| **Waterpipe session length** | 0.95 | (0.89-1.01) | 0.095 |
| **Past quit attempt** |  |  |  |
| Yes | R |  |  |
| No | 2.61 | (1.28-5.29) | 0.0.08 |
| **Trial arm** |  |  |  |
| Intervention | R |  |  |
| Control | 0.82 | (0.48-1.42) | 0.481 |

**\*Reference**