Table 2: Latent Class Model Identification and Fit Summary

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. of class | AIC | BIC | G^2 (LR/ Deviance  Statistic) |  | Class1  % | Class2  % | Class3  % | Class4  % | Class5  % | Entropy |
| 1 | 27947.4 | 28070.7 | 7802.4 | ECPS | 100 |  |  |  |  | - |
| PCM | 100 |  |  |  |  |
| 2 | 26970.6 | 27222.5 | 6777.5 | ECPS | 25.8 | 74.2 |  |  |  | 0.772 |
| PCM | 24.4 | 75.6 |  |  |  |
| 3 | **26435.1** | **26865.7** | **6194.1** | **ECPS** | **65.4** | **20.7** | **13.8** |  |  | **0.795** |
| **PCM** | **67.1** | **20.2** | **12.7** |  |  |
| 4 | 26067.6 | 26876.8 | 5778.6 | ECPS | 22.8 | 46.4 | 13.4 | 17.5 |  | 0.758 |
| PCM | 20.6 | 49.3 | 12.4 | 17.8 |  |
| 5 | 25941.7 | 26779.5 | 5604.6 | ECPS | 11.3 | 9.1 | 41.9 | 20.9 | 16.8 | 0.773 |
| PCM | 10.8 | 7.8 | 44.8 | 19.5 | 17.2 |
| LR: Likelihood ration; ECPS: Estimated class population shares; PCM: Predicted class memberships  Note: AIC-Akaike Information Criterion; BIC-Bayesian Information Criterion; G^2 [Likelihood ratio/deviance statistic]. The identified model is represented by a bolded row. | | | | | | | | | | |

Table 3: Estimated probabilities of three class model by latent class membership

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Health lifestyle behaviors | | | Class-1 (Healthy and active)  n=1055 (67.1) | Class-2  (High-risk substance use cluster)  n=318 (20.2) | Class-3  (High digital engagement sedentary group)  n=199 (12.7) |
| **Substance use** | Drank alcohol | No | 0.918 | 0.361 | 0.821 |
| Yes | 0.083 | 0.639 | 0.179 |
| Cigarette smoking | No | 0.955 | 0.129 | 0.792 |
| Yes | 0.046 | 0.871 | 0.208 |
| Tried cannabis/marijuana | No | 0.998 | 0.413 | 0.920 |
| Yes | 0.002 | 0.587 | 0.080 |
| **Sleep** | Sleep duration | ≤5 hours | 0.021 | 0.126 | 0.134 |
| 6-8 hours | 0.593 | 0.715 | 0.603 |
| > 8 hours | 0.386 | 0.159 | 0.263 |
| **Media use** | Time spent on internet (weekday) | <3 hours | 0.447 | 0.274 | 0.043 |
| 3-4 hours | 0.433 | 0.507 | 0.388 |
| >=5 hours | 0.120 | 0.219 | 0.569 |
| Time spent on electronic games (weekday) | <4 hours | 1.000 | 0.954 | 0.361 |
| 4-7 hours | 0.000 | 0.042 | 0.451 |
| >7 hours | 0.000 | 0.004 | 0.188 |
| Time spent on electronic games (weekend) | <4 hours | 0.899 | 0.883 | 0.178 |
| 4-7 hours | 0.097 | 0.117 | 0.448 |
| >7 hours | 0.005 | 0.000 | 0.375 |
| **Other than school activities** | Participation in clubs, groups | Never | 0.166 | 0.345 | 0.417 |
| ≤1 | 0.234 | 0.221 | 0.258 |
| >1 | 0.600 | 0.434 | 0.325 |
| **Anthropo-metric Measurements** | BMI | Thin | 0.052 | 0.044 | 0.013 |
| Normal | 0.719 | 0.679 | 0.605 |
| Overweight | 0.179 | 0.227 | 0.287 |
| Obese | 0.051 | 0.050 | 0.095 |
| **Protective factors** | More exercise or sport | No | 0.640 | 0.498 | 0.723 |
| Yes | 0.360 | 0.502 | 0.277 |
| Improve diet | No | 0.780 | 0.657 | 0.887 |
| Yes | 0.220 | 0.343 | 0.113 |
| Meditated/relaxation therapy | No | 0.919 | 0.887 | 0.921 |
| Yes | 0.081 | 0.113 | 0.079 |
| Stop using drugs | No | 0.999 | 0.927 | 1.000 |
| Yes | 0.001 | 0.073 | 0.000 |
| Sought support from friends | No | 0.776 | 0.677 | 0.795 |
| Yes | 0.224 | 0.323 | 0.205 |
| Online support seeking | No | 0.966 | 0.882 | 0.912 |
| Yes | 0.034 | 0.118 | 0.088 |
| Support from books, magazine, or TV | No | 0.926 | 0.909 | 0.924 |
| Yes | 0.074 | 0.092 | 0.076 |
| Note: n-unweighted; %-weighted; **Protective factors:** Adolescents engaged more in exercise or sports, improved their diets, participated in meditation/relaxation therapy, stopped using drugs, sought support from friends, utilized online support, and sought guidance from books, magazines, or TV to help manage emotional or behavioral problems, or to avoid having problems. | | | | | |

Table 4: Suicidality, any service utilization by overall adolescents and adolescents with suicidality, demographic characteristics, and parental cohabitation by latent classes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Class-1  (Healthy and active)  n=1055 (67.1) | Class-2(High-risk substance use cluster)  n=318 (20.2) | Class-3 [High digital engagement sedentary group]  n=199 (12.7) | P-value |
| Suicidality | n (%) | n (%) | n (%) |  |
| No | 1017 (96.6) | 253 (79.1) | 173 (85.5) | <0.001 |
| Yes | 38 (3.4) | 65 (20.9) | 26 (14.5) |  |
| ASUOVAD |  |  |  |  |
| No | 774 (74.5) | 188 (58.5) | 132 (66.7) | <0.001 |
| Yes | 281 (25.5) | 130 (41.5) | 67 (33.3) |  |
| ASUADSUI |  |  |  |  |
| No | 1033 (98.2) | 267 (83.8) | 179 (89.2) | <0.001 |
| Yes | 22 (1.8) | 51 (16.2) | 20 (10.8) |  |
| Age (Mean 15.36, SD 1.38) | |  |  |  |
| 11-14 years | 397 (49.2) | 27 (15.4) | 49 (34.7) | <0.001 |
| 15-17 years | 658 (50.8) | 291 (84.6) | 150 (65.3) |  |
| Sex |  |  |  |  |
| Male | 610 (57.3) | 184 (56.1) | 158 (78.6) | <0.001 |
| Female | 445 (42.7) | 134 (43.9) | 41 (21.4) |  |
| Parental Cohabitation (Lived with parents) | | |  |  |
| No | 236 (0.23) | 138 (0.46) | 72 (0.37) | <0.001 |
| Yes | 819 (0.77) | 180 (0.54) | 127 (0.63) |  |
| Major Depression (Diagnostic status) | | | | |
| No disorder | 948 (90.2) | 218 (68.7) | 156 (79.1) | <0.001 |
| Sub-threshold | 59 (5.5) | 27 (8.7) | 16 (8.4) |  |
| Threshold | 48 (4.3) | 73 (22.6) | 27 (12.5) |  |
| n=unweighted; %=weighted; ASUOVAD- Any service utilization by overall adolescents; ASUADSUI- Any service utilization by adolescents with suicidality | | | | |

Table 5: Model estimates predicting suicidality and service utilization.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Suicidality  OR (95% CI) | ASUOVAD  OR (95% CI) | ASUADSUI  OR (95% CI) |
| Latent classes (ref. class 1-Healthy and active) |  |  |  |
| Class 2- High-risk substance use cluster | 3.47\*\*\*(2.03-5.93) | 1.21 (0.89-1.65) | 4.50\*\*\*(2.38-8.48) |
| Class 3- High digital engagement sedentary group | 2.97\*\*\*(1.54-5.70) | 1.29 (0.90-1.85) | 4.46\*\*\*(2.08-9.55) |
| Age (ref: 11 to <15 years) | 0.69 (0.39-1.23) | 1.35\*(1.03-1.77) | 0.65(0.33-1.28) |
| Sex (ref. Male) | 1.81\*(1.13-2.89) | 2.07\*\*\*(1.63-2.62) | 2.67\*\*\*(1.54-4.62) |
| Parental Cohabitation (Lived with parents; ref: no) | 0.60\*(0.38-0.96) | 0.89 (0.68-1.15) | 0.80 (0.47-1.37) |
| Major Depression (ref. No disorder) |  |  |  |
| Sub-threshold | 11.12\*\*\*(5.92-20.88) | 2.36\*\*\*(1.56-3.59) | 8.79\*\*\*(3.99-19.39) |
| Threshold | 34.92\*\*\*(20.61-59.18) | 7.05\*\*\*(4.67-10.63) | 33.60\*\*\* (18.11-62.35) |

A diagram of different sizes and colors

Description automatically generated

**Fig 1:** Predictive Margins of Suicidality and Service Utilization Among Adolescents