**Supplementary Table 1.** Comparison of individual and household characteristics of adolescents who were lost to follow up (N=65) with those who remained in the study (N=511)

|  |  |  |
| --- | --- | --- |
| **Characteristics** |  |  |
| **Missing case (N=65)** | **Included case (N=511)** | **P-value\***  |
| **n** | **%** | **n** | **%** |  |
| **Adolescent characteristics** |  |  |  |  |  |
| Sex  |  |  |  |  |  |
| Boys, n (%) | 31 | 47.7 | 257 | 50.3 | 0.784 |
| Girls, n (%) | 34 | 52.3 | 254 | 49.7 | 0.776 |
| Age group  |  |  |  |  |  |
| 10 - ≤ 14 y | 15 | 23.1 | 203 | 39.7 | 0.202 |
| >15 - ≤ 19 y | 50 | 76.9 | 308 | 60.3 | 0.024 |
| Adolescent occupation, n (%) |  |  |  |  |  |
| Unemployed  | 22 | 33.8 | 45 | 8.8 | 0.011 |
| Student | 41 | 63.1 | 407 | 79.7 | 0.014 |
| Work | 2 | 3.1 | 59 | 11.7 | 0.707 |
| Smoking Status (yes), n (%) | 17 | 26.2 | 86 | 16.8 | 0.365 |
| Pubertal status (based on PBIP), n (%) |  |  |  |  |  |
| Pre-pubertal | 4 | 6.2 | 63 | 12.3 | 0.715 |
| Early pubertal | 40 | 61.5 | 288 | 56.4 | 0.542 |
| Late pubertal |  21 | 32.3 | 160 | 31.3 | 0.926 |
| Nutritional status (BMI z-score), n (%) |  |  |  |  |  |
| Severely thin | 2 | 3.1 | 4 | 0.9 | 0.841 |
| Thin  | 3 | 4.7 | 35 | 7.9 | 0.841 |
| Normal | 49 | 76.4 | 320 | 71.9 | 0.511 |
| Overweight | 5 | 7.8 | 53 | 11.9 | 0.784 |
| Obese | 6 | 7.9 | 33 | 7.4 | 0.966 |
| Diet diversity (Inadequate), n (%) | 5 | 7.7 | 8 | 1.6 | 0.583 |
| Risk consumption, , n (%) |  |  |  |  |  |
| High | 45 | 69.2 | 167 | 32.7 | <0.001 |
| Moderate | 8 | 12.3 | 140 | 27.4 | 0.347 |
| Low | 12 | 18.5 | 204 | 39.9 | 0.139 |
| **Household characteristic** |  |  |  |  |  |
| Paternal education, n (%) |  |  |  |  |  |
| No education | 4 | 6.4 | 24 | 4.7 | 0.885 |
| Elementary school | 38 | 60.3 | 323 | 63.2 | 0.726 |
| Senior high school | 19 | 30.1 | 145 | 28.4 | 0.877 |
| University | 2 | 3.2 | 19 | 3.7 | 0.971 |
| Maternal education, n (%) |  |  |  |  |  |
| No education | 4 | 6.4 | 16 | 3.1 | 0.756 |
| Elementary school | 46 | 73.0 | 358 | 70.1 | 0.685 |
| Senior high school | 8 | 12.7 | 107 | 20.9 | 0.578 |
| University | 5 | 7.9 | 30 | 5.9 | 0.864 |
| Paternal occupation, n (%) |  |  |  |  |  |
| Unemployed  | 1 | 1.6 | 3 | 0.6 | 0.765 |
| Unsecured job | 31 | 49.2 | 293 | 57.3 | 0.387 |
| Secured Job | 31 | 49.2 | 215 | 42.1 | 0.455 |
| Maternal occupation, n (%) |  |  |  |  |  |
| Unemployed | 19 | 30.6 | 188 | 36.8 | 0.592 |
| Unsecured job | 34 | 53.3 | 269 | 52.6 | 0.939 |
| Secured job | 111 | 16.1 | 54 | 10.6 | 0.344 |
| Number of household members > 5 people, n (%) | 12 | 18.5 | 84 | 16.4 | 0.855 |
| Household income, n (%) |  |  |  |  |  |
| Low | 55 | 84.6 | 441 | 86.3 | 0.731 |
| Moderate | 7 | 10.7 | 56 | 11.0 | 0.981 |
| High | 3 | 4.5 | 14 | 2.7 | 0.869 |
| Food security classification, n (%) |  |  |  |  |  |
| Food secure | 37 | 56.9 | 345 | 67.5 | 0.194 |
| Mildly Food Insecure Access  | 13 | 20.0 | 88 | 17.2 | 0.804 |
| Moderately Food Insecure Access  | 6 | 9.2 | 26 | 5.1 | 0.700 |
| Severely Food Insecure Access  | 9 | 13.9 | 52 | 10.2 | 0.741 |

\*P values were generated using a two-sample test of proportion



**Supplementary Figure 1.** Direct Acyclic Graph (DAG) with BMI Z-score, Diet Diversity, Food insecurity, and Haemoglobin as exposures and Depression as an outcome. Potential confounding variables considered for adjustment included adolescent occupation, age, household income, number of household members, pubertal status, sex, and smoking status. A regression analysis with an interaction term was used to identify the association between variables. The DAG was created using DAGitty.net, adhering to established causal inference.

1. Overall



1. Girls



1. Boys



**Supplementary Figure 2.** a) Two-way scatter plot of BMI z-score and depression score of the adolescents in 2021 and 2022. b) scatter plot of BMI z-score and depression score of the adolescent girls and c) scatter plot of BMI z-score and depression score of the adolescent boys.