## DATA ANALYSIS SCRIBBLES

Frequency Table of Accelerator Variables for Combined data Set N = 938

|  |  |  |
| --- | --- | --- |
| **Variable** | **Frequency** | **Percentage %** |
| **Absolute Poverty 1 (IWI 50)** |  |  |
| Poor | 58 | 6.2 |
| Not poor | 880 | 93.8 |
| **Relative Poverty 2 (IWI 60.65- ISD)** |  |  |
| Poor | 178 | 19.0 |
| Not poor | 760 | 81.0 |
| **Literacy and cognitive stimulation** |  |  |
| Yes | 580 | 61.4 |
| No | 364 | 38.6 |
| **Student-teacher ratio (OECD average 13.1)** |  |  |
| Low | 756 | 80.9 |
| High | 179 | 19.1 |

Defining “Poverty”

The International Wealth Index (IWI)(Smits and Steendijk, 2015) is an assets-based measure of wealth derived from principal component analysis of items used in various national surveys (including Demographic and Health Surveys and UNICEF’s MICS surveys) from 2.1 million households in 97 countries, which have been computed into a numeric scale of 0 to 100. National IWI values are highly correlated with the Human Development Index, life expectancy, national income, educational outcomes and Poverty Headcount Ratios (PHR). Further, a Pearson’s Correlation analysis of national IWI values indicated a correlation of 0.875 with the World Bank’s extreme poverty line of US$1.25/day when the IWI cut-off was set at 30. When the IWI score cut-off however was set at 50, it was found that national IWI values had an *r* of 0.914 with the World Bank’s poverty line of US$2.00/day.

Ghana is a lower-middle income country with the last estimated PHR being 12% below the poverty line of US$2.0/day in 2012, which was slightly below the world average at the time of 12.8% (World Bank, 2015). Given this fact, and the fact that even by local standards, the cohort studied would appear to be a relatively wealthy one (mean IWI score 77.98 on a scale of 0 – 100), it was surmised that using the PHR cut off of the World Bank poverty line of US$2.0/day would be more meaningful in discriminating between those living in relative poverty in this cohort, as opposed to using the extreme poverty cut-off line of US$1.25/day, since relatively few in this cohort would probably fall below this line. The IWI score of 50, which corresponds most closely with the chosen PHR level of US$2.0/day, was therefore chosen as the cut-off point for “poverty” versus “no poverty”, with those scoring above IWI score 50 being classified as “no poverty”. This would give a more accurate reflection of the state of poverty in absolute terms in the sample.

Alternatively, poverty could also be divided according to relative terms, where based on the average wealth of the cohort, a reasonable but arbitrary line is drawn below which the participant would be deemed to be relatively “poor” (relative to the wider cohort). For this purpose, the 1 standard deviation line was chosen as the arbitrary but reasonable cut-off point. This 1SD mark fell at IWI score 60.65. Thus, all participants with IWI score less than 60.65 (below 1SD) were deemed to be relatively poor, and those above relatively not poor.

Defining student-teacher ratio cut-offs

In 2015, the average student-teacher ratios for 15-year-olds in OECD countries was 13.1 students per teacher (SD 3.84) (OECD, 2019). For comparison, UNESCO also placed the student-teacher ratio for HICs for 2018 at 12.6 with the world average being 17.0 (UNESCO, 2019). As a LMIC country aspiring to attain the improved educational levels of the OECD countries (who are presumably much closer to attaining the SDGs than Ghana), the cut off for student-teacher ratio was set at the OECD average of 13.1, with participants in schools having student-teacher ratio at or below the OECD average being considered as “low student-teacher ratio” and those having above being considered as “high student-teacher ratio”. The research hypothesis being tested here is that exposing adolescents to low student-teacher ratios and thus presumably to improved contact-time with teachers, will have an accelerator effect on multiple SDG-targets.

Frequency Table of SDG-aligned target indicators for Combined data Set N = 938

|  |  |  |
| --- | --- | --- |
| **Variable** | **Frequency** | **Percentage %** |
| **3.4 Presence of internalizing disorders (DSM V mood and anxiety disorders)** |  |  |
| Yes | 34 | 3.6 |
| No | 910 | 96.4 |
| **6.1 Access to safe drinking water** |  |  |
| Safe | 699 | 74.1 |
| Unsafe | 760 | 81.0 |
| **6.2 Open Defaecation** |  |  |
| Yes | 846 | 89.7 |
| No | 97 | 10.3 |
| **7.1 access to electricity (modern Energy forms)** |  |  |
| Yes | 921 | 97.6 |
| No | 23 | 2.4 |
| **9.c internet access (access to ICT)** |  |  |
| Yes | 577 | 61.1 |
| No | 367 | 38.9 |
| **4.1 above average cognitive function** |  |  |
| Yes | 480 | 50.9 |
| No | 463 | 49.1 |
| **4.1 well above average cognitive function (above 1SD)** |  |  |
| Yes | 116 | 12.5 |
| No | 815 | 87.5 |

**TABLE 4.6**

**Mean Scores and Standard Deviations for the RSPM for**

**Ages 6 Years to 19 Years**

**N=614**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Age in years | N | Mean | Std. Deviation | 1 SD above |
| 6 | 28 | 13.5 | 6.3 | 19.8 |
| 7 | 38 | 14.6 | 6.5 | 21.1 |
| 8 | 43 | 14.1 | 7.0 | 21.1 |
| 9 | 47 | 16.2 | 9.0 | 25.2 |
| 10 | 40 | 22.2 | 11.1 | 33.3 |
| 11 | 51 | 27.0 | 12.8 | 39.8 |
| 12 | 45 | 27.5 | 11.9 | 39.4 |
| 13 | 55 | 32.2 | 13.2 | 45.4 |
| 14 | 48 | 30.5 | 10.5 | 41.0 |
| 15 | 47 | 33.7 | 12.0 | 45.7 |
| 16 | 43 | 39.6 | 11.0 | 50.6 |
| 17 | 50 | 34.7 | 12.6 | 47.3 |
| 18 | 53 | 37.8 | 9.6 | 47.4 |
| 19 | 26 | 40.4 | 8.8 | 49.2 |
| Total | 614 | 27.9 | 13.8 |  |

**New RSPM Mean Scores and SDs by Age and Area of residence**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Age in years | Old N | New N | Area of residence | Old Mean | New Mean | Old SD | New SD |
| 6 | 12  16  28 | 56 | Rural  Urban  Total | 13.5  13.4  13.5 | 15.5 | 5.7  6.8  6.3 | 7.2 |
| 7 | 12  26  38 | 70 | Rural  Urban  Total | 12.8  15.5  14.6 | 16.4 | 2.7  7.6  6.5 | 7.5 |
| 8 | 19  24  43 | 75 | Rural  Urban  Total | 15.3  13.1  14.1 | 17.9 | 7.8  6.2  7.0 | 8.2 |
| 9 | 18  29  47 | 86 | Rural  Urban  Total | 12.8  18.2  16.2 | 19.4 | 2.9  10.8  9.0 | 9.3 |
| 10 | 14  26  40 | 80 | Rural  Urban  Total | 22.1  22.2  22.2 | 22.5 | 12.4  10.6  11.1 | 9.7 |
| 11 | 18  33  51 | 110 | Rural  Urban  Total | 23.4  29.0  27.0 | 25.2 | 12.1  12.9  12.8 | 10.9 |
| 12 | 17  28  45 | 97 | Rural  Urban  Total | 28.6  26.9  27.5 | 25.6 | 11.4  12.4  11.9 | 10.8 |
| 13 | 17  38  55 | 118 | Rural  Urban  Total | 24.7  35.6  32.2 | 31.3 | 10.8  12.9  13.2 | 12.0 |
| 14 | 20  28  48 | 97 | Rural  Urban  Total | 26.2  33.6  30.5 | 30.9 | 8.7  10.7  10.5 | 10.2 |
| 15 | 16  31  47 | 81 | Rural  Urban  Total | 25.6  37.8  33.7 | 36.8 | 9.1  11.3  12.0 | 10.1 |
| 16 | 11  32  43 | 67 | Rural  Urban  Total | 36.5  40.6  39.6 | 39.0 | 12.2  10.6  11.0 | 10.1 |
| 17 | 19  31  50 | 80 | Rural  Urban  Total | 31.6  36.6  34.7 | 36.5 | 13.0  12.1  12.6 | 12.1 |
| 18 | 21  32  53 | 33 | Rural  Urban  Total | 37.6  38.0  37.8 | 38.0 | 9.7  9.7  9.6 | 9.7 |
| 19 | 4  22  26 | 24 | Rural  Urban  Total | 37.5  41.0  40.4 | 40.9 | 17.2  6.9  8.8 | 6.8 |
| Total | **218**  **397**  **614** |  | Rural  Urban  Total | 24.5  29.7  27.9 |  | 12.6  14.2  13.8 |  |

=IF (AND(B8=11, N8>27), “YES”, “no”)

A close up of SDG 4 sign

Description automatically generated A close up of SDG 6

Description automatically generated

 A close up of SDG 7

Description automatically generated

A close up of a sign

Description automatically generated 



VARIABLES TO DO BIVARIATE ANALYSIS ON FOR COGNITIVE FUNCTION

1. Sex
2. Residence: rural/urban
3. Type of school: private Vs public
4. Active reading/cognitive stimulation
5. Internet access
6. Caregiver education
7. Student-teacher ratio

**Bivariate Analysis of accelerators for Cognitive Function**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **RSPM Score** | | **Independent sample t-test** | **P value** |
|  | Mean Score | SD |  |  |
| **Sex** |  |  | -0.45903 | 0.6463 |
| Male | 30.90476 |  |  |  |
| Female | 30.53846 |  |  |  |
| **Area** **of residence** |  |  |  |  |
| Rural | 28.72611 |  | -2.2539 | 0.02517 |
| Urban | 31.11183 |  |  |  |
| **Type of School** |  |  |  |  |
| Private | 32.90263 |  | 4.7678 | 0.000002187 |
| Public | 29.16606 |  |  |  |
| **Active reading habit** |  |  |  | <0.001 |
| Yes | 34.04000 |  | -11.28 |  |
| No | 25.39444 |  |  |  |
| **Internet Access** |  |  |  |  |
| Yes | 34.62522 |  | -13.589 | <0.001 |
| No | 24.57143 |  |  |  |
| **Caregiver Education** |  |  |  |  |
| None/Basic | 27.95 | 11.49 | F= 37.13 | <0.001 |
| Secondary | 30.67 | 11.64 |  |  |
| Tertiary | 36.34 | 11.56 |  |  |
| **Student/teacher ratio Vs RSPM score** |  |  | Pearson’s correlation R = -0.305, t= -9.4827, 95% CI (-0.36 - -0.24) | <0.001 |
|  |  |  |  |  |

Table. Multiple linear regression of accelerators for cognitive function

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Regression Coefficient β | 95% CI for β | P value |
| Age | 9.934 | 1.27 – 1.90 | < 2e-16 |
|  |  |  |  |
| Area of residence |  |  |  |
| Urban Vs rural | 0.720 | -1.25 - 2.69 | 0.472021 |
|  |  |  |  |
| Type of School |  |  |  |
| Private Vs Public | 3.543 | 1.24 - 4.33 | 0.000416 |
|  |  |  |  |
| Active reading habit |  |  |  |
| No Vs Yes | 5.655 | 2.78 - 5.73 | 2.11e-08 |
|  |  |  |  |
| Internet Access |  |  |  |
| No Vs Yes | 3.360 | 1.23 - 4.68 | 0.000815 |
|  |  |  |  |
| Caregiver Education |  |  |  |
| Tertiary Vs Basic | -3.250 | -4.92 - -1.22 | 0.001197 |
| Tertiary Vs secondary | -1.758 | -4.38 - -0.82 | 0.004266 |
|  |  |  |  |
| Student/teacher ratio | -1.758 | -0.135 - 0.007 | 0.079051 |

POVERTY

**Bivariate Analysis of accelerators for Absolute Poverty N= 938**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Absolute Poverty (IWI>50)** | | **Total** | **Chi square** | **P value** |
|  |  |  |  |  |  |
| **Sex** | **Yes** | **no** |  | 0.058713 | 0.8085 |
| Male | 26 (5.9) | 417 (94.1) | 443 |  |  |
| Female | 32 (6.5) | 463 (93.5) | 495 |  |  |
| **Area** **of residence** | **Yes** | **No** |  |  |  |
| Rural | 38 (24.8) | 115 (75.2) | 153 | 105.85 | <0.001 |
| Urban | 20 (2.5) | 765 (97.5) | 785 |  |  |
| **Type of School** | **Yes** | **No** |  |  |  |
| Private | 3 (0.8) | 377 (99.2) | 380 | 30.561 | <0.001 |
| Public | 55 (9.9) | 502 (91.1) | 557 |  |  |
| **Active reading habit** | **Yes** | **No** |  |  |  |
| Yes | 21 (3.6) | 556 (96.4) | 577 | 15.604 | <0.001 |
| No | 37 (10.2) | 324 (89.8) | 361 |  |  |
| **Internet Access** | **Yes** | **No** |  |  |  |
| Yes | 21 (3.7) | 553 (96.3) | 574 | 15.152 | <0.001 |
| No | 37 (10.2) | 327 (89.8) | 364 |  |  |
| **Caregiver Education** | **Yes** | **No** |  |  |  |
| None/Basic | 46 (12.3) | 327 (87.7) | 373 | 46.958 | <0.001 |
| Secondary | 4 (1.4) | 290 (98.6) | 294 |  |  |
| Tertiary | 3 (1.3) | 223 (98.7) | 226 |  |  |
| **Student-teacher ratio (OECD average 13.1)** | **Yes** | **No** |  |  |  |
| Low | 29 (3.9) | 724 (97.1) | 753 | 28.621 | <0.001 |
| High | 26 (14.8) | 150 (85.2) | 176 |  |  |

Table. Binary logistic regression of accelerators for Absolute Poverty

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Estimated Coefficient | P value | Odds Ratio | 95% CI for OR |
| Area of residence |  |  |  |  |
| Urban Vs rural | 1.8374 | <0.001 | 6.28 | 3.19 - 13.0 |
|  |  |  |  |  |
| Type of School |  |  |  |  |
| Private Vs Public | 1.4434 | 0.063 | 4.24 | 1.12 - 27.6 |
|  |  |  |  |  |
| Active reading habit |  |  |  |  |
| Yes Vs No | 0.5861 | 0.102 | 1.80 | 0.898 - 3.68 |
|  |  |  |  |  |
| ~~Internet Access\*~~ |  |  |  |  |
| ~~No Vs Yes~~ |  |  |  |  |
|  |  |  |  |  |
| Caregiver Education |  |  |  |  |
| Tertiary Vs Basic | 1.2008 | 0.062 | 3.32 | 1.07 - 14.6 |
| Secondary Vs Basic | 1.9982 | 0.001 | 7.38 | 2.55 - 31.3 |
|  |  |  |  |  |
| Student/teacher ratio |  |  |  |  |
| Low Vs High | 0.4716 | 0.17476 | 1.60 | 0.807 - 3.17 |

\*Taking out ‘internet access’ from model reduces the AIC number from 285.42 to 283.49 without it, and only slightly increases Residual deviance from 269.42 to 269.49 without it. This makes the logistic model without the variable ‘internet access’ the most accurate model predicting being in or out of absolute poverty.

When absolute poverty was considered, caregiver having at least a secondary education was the most important factor in determining whether or not an adolescent would grow up in absolute poverty, with OR 7.38 (95%CI 2.55 - 31.3, p<0.001) over and above caregiver having up to basic education, when all other factors were controlled for. Also worthy of note was the fact that the adolescent reporting having an active reading habit was quite robustly predictive of their living above the absolute poverty line with OR 1.8 (95% CI 0.89 – 3.68), even when controlling for other significant factors like area of residence and caregiver education.

**Bivariate Analysis of accelerators for Relative Poverty**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Relative Poverty (IWI> 60.65)** | | **Total** | **Chi square** | **P value** |
| **Sex** | **Yes** | **No** |  |  |  |
| Male | 87 (19.8) | 352 (20.2) | 439 | 0.40865 | 0.5227 |
| Female | 88 (18.0) | 402 (82.0) | 490 |  |  |
| **Area** **of residence** | **Yes** | **No** |  |  |  |
| Rural | 67 (45.6) | 80 (54.4) | 147 | 79.612 | <0.001 |
| Urban | 108 (13.8) | 674 (86.2) | 782 |  |  |
| **Type of School** | **Yes** | **No** |  |  |  |
| Private | 39 (10.3) | 339 (89.7) | 378 | 29.327 | <0.001 |
| Public | 136 (24.7) | 415 (75.3) | 551 |  |  |
| **Active reading habit** | **Yes** | **No** |  |  |  |
| Yes | 85 (14.9) | 486 (85.1) | 571 | 14.468 | <0.001 |
| No | 90 (25.1) | 268 (74.9) | 358 |  |  |
| **Internet Access** | **Yes** | **No** |  |  |  |
| Yes | 113 (31.2) | 249 (68.8) | 362 | 58.119 | <0.001 |
| No | 62 (10.9) | 505 (89.1) | 567 |  |  |
| **Caregiver Education** | **Yes** | **No** |  |  |  |
| None/Basic | 117 (31.8) | 251 (68.2) | 368 | 93.764 | <0.001 |
| Secondary | 39 (13.3) | 254 (86.7) | 293 |  |  |
| Tertiary | 3 (1.3) | 220 (98.7) | 223 |  |  |
| **Student-teacher ratio (OECD average 13.1)** | **Yes** | **No** |  |  |  |
| Low | 125 (16.6) | 628 (83.4) | 753 | 12.251 | <0.001 |
| High | 50 (28.4) | 126 (71.6) | 176 |  |  |

Table. Binary logistic regression of accelerators for Relative Poverty

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Estimated Coefficient | P value | Odds Ratio | 95% CI for OR |
| Area of residence |  |  |  |  |
| Urban Vs rural | 1.5297 | <0.001 | 4.62 | 2.85 - 7.55 |
|  |  |  |  |  |
| Type of School |  |  |  |  |
| Private Vs Public | 0.2405 | 0.326 | 1.27 | 0.79 - 2.07 |
|  |  |  |  |  |
| Active reading habit |  |  |  |  |
| Yes Vs No | -0.2034 | 0.330 | 0.816 | 0.54 - 1.23 |
|  |  |  |  |  |
| Internet Access\* |  |  |  |  |
| No Vs Yes | 0.9694 | <0.001 | 2.64 | 1.67 - 4.19 |
|  |  |  |  |  |
| Caregiver Education |  |  |  |  |
| Tertiary Vs Basic | 3.0031 | <0.001 | 20.1 | 7.22 - 84.0 |
| Secondary Vs Basic | 0.7290 | <0.001 | 2.07 | 1.36 - 3.21 |
|  |  |  |  |  |
| Student/teacher ratio |  |  |  |  |
| Low Vs High | -0.5149 | 0.056 | 0.598 | 0.349 - 1.01 |

\*The most accurate logistic regression model for relative poverty includes the variable ‘internet access’ as a predictor of relative poverty, with a removal of ‘internet access’ resulting in an increase of AIC number from 675.22 to 690.01 without it, and Residual deviance from 659.22 to 676.81 without it. Thus ‘internet access’ was retained in the model

The biggest predictor of being out of relative poverty is caregiver being educated to tertiary level, with OR of 20.1 (95%CI 7.22 – 84.0, p<0.001) over and above caregiver having up to basic education, when all other factors were controlled for. This was markedly different when absolute poverty was considered, where instead caregiver having at least a secondary education was the most important factor in determining whether or not an adolescent would grow up in absolute poverty, with OR 7.38 (95%CI 2.55 - 31.3, p<0.001) over and above caregiver having up to basic education, when all other factors were controlled for. Having an internet access was also fairly robustly predictive of living above the relative poverty line with OR 2.64 (95%CI 1.67 - 4.19, p<0.001), even when other factors were controlled for.

MENTAL HEALTH AND WELLBEING

**Bivariate Analysis of accelerators for Mental Wellbeing**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Presence internalising disorders** | | **Total** | **Chi square** | **P value** |
|  |  |  |  |  |  |
| **Sex** | **No** | **Yes** |  |  |  |
| Male | 437 (98.0) | 9 (2.0) | 446 | 5.2736 | 0.02165 |
| Female | 473 (95.0) | 25 (5.0) | 498 |  |  |
| **Area** **of residence** | **No** | **Yes** |  |  |  |
| Rural |  |  |  | 3.2538 | 0.07126 |
| Urban |  |  |  |  |  |
| **Type of School** | **No** | **Yes** |  |  |  |
| Private | 377 (98.7) | 5 (1.3) | 382 | 8.6656 | 0.003243 |
| Public | 532 (94.8) | 29 (5.2) | 561 |  |  |
| **Active reading habit** | **No** | **Yes** |  |  |  |
| Yes |  |  |  | 1.6785 | 0.1951 |
| No |  |  |  |  |  |
| **Internet Access** | **No** | **Yes** |  |  |  |
| Yes | 550 (95.3) | 27 (4.7) | 577 | 4.1983 | 0.04046 |
| No | 360 (98.1) | 7 (1.9) | 367 |  |  |
| **Caregiver Education** | **No** | **Yes** |  |  |  |
| None/Basic |  |  |  | 1.5444 | 0.462 |
| Secondary |  |  |  |  |  |
| Tertiary |  |  |  |  |  |
| **Student-teacher ratio (OECD average 13.1)** | **No** | **Yes** |  | 3.1692 | 0.07504 |
| Low |  |  |  |  |  |
| High |  |  |  |  |  |
| **Relative Poverty (IWI< 60.65)** |  |  |  |  |  |
| Relative poverty |  |  |  | 5.0578 | 0.02452 |
| No poverty |  |  |  |  |  |

Table. Binary logistic regression of accelerators for Mental Wellbeing

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Estimated Coefficient | P value | Odds Ratio | 95% CI for OR |
| Sex |  |  |  |  |
| Female Vs Male | 0.92542 | 0.02346 | 2.52 | 1.17 5.92 |
|  |  |  |  |  |
| ~~Area of residence\*~~ |  |  |  |  |
| ~~Urban Vs rural~~ |  |  |  |  |
|  |  |  |  |  |
| Type of School |  |  |  |  |
| Public Vs private | 1.58337 | 0.00180 | 4.87 | 1.95 14.8 |
|  |  |  |  |  |
| Active reading habit |  |  |  |  |
| Yes Vs No | 0.40154 | 0.34871 | 1.49 | 0.664 3.62 |
|  |  |  |  |  |
| Internet Access |  |  |  |  |
| Yes Vs No | 1.15903 | 0.02847 | 3.19 | 1.21 9.92 |
|  |  |  |  |  |
| Caregiver Education |  |  |  |  |
| None/Basic Vs tertiary | 0.4702 | 0.39863 | 1.6 | 0.549 5.04 |
| Secondary vs tertiary | 0.3801 | 0.48642 | 1.46 | 0.511 4.52 |
|  |  |  |  |  |
| Student-teacher ratio (OECD average 13.1) |  |  |  |  |
| Low Vs high | 1.1334 | 0.16202 | 3.11 | 0.759 21.2 |
|  |  |  |  |  |
| Relative Poverty (IWI< 60.65) |  |  |  |  |
| Rel. poverty Vs no poverty | 1.1669 | 0.00759 | 3.21 | 1.35 7.57 |
|  |  |  |  |  |

\*Taking out ‘area of residence’ from model reduces the AIC number from 262.4 to 260.5 without it, and only slightly increases Residual deviance from 242.40 to 269.47 without it. This makes the logistic model without the variable ‘area of residence’ the most accurate model predicting having an internalising disorder or not.

Internet access was independently predictive of having internalizing disorder, OR 3.19. Also attending public school was independently predictive of having internalising disorders, OR 4.87.

Safe Drinking Water

**Bivariate Analysis of accelerators for Safe Drinking Water**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Access to Safe Drinking water** | | **Total** | **Chi square** | **P value** |
| **Sex** | **Safe** | **unsafe** |  |  |  |
| Male | 319 (71.3) | 127 (28.5) | 446 | 2.732 | 0.09836 |
| Female | 380 (76.5) | 117 (23.5) | 497 |  |  |
| **Area** **of residence** | **Safe** | **Unsafe** |  |  |  |
| Rural | 58 (37.2) | 98 (62.8) | 156 | 130.73 | <0.001 |
| Urban | 641 (81.4) | 146 (18.6) | 787 |  |  |
| **Type of School** | **Safe** | **Unsafe** |  |  |  |
| Private | 312 (81.7) | 70 (18.3) | 382 |  |  |
| Public | 386 (68.9) | 174 (31.1) | 560 |  |  |
| **Active reading habit** | **Safe** | **Unsafe** |  |  |  |
| No | 247 (67.9) | 117 (32.1) | 364 | 11.617 | <0.001 |
| Yes | 452 (78.1) | 127 (21.9) | 579 |  |  |
| **Internet Access** | **Safe** | **Unsafe** |  |  |  |
| No | 225 (61.3) | 142 (38.7) | 367 | 50.375 | <0.001 |
| Yes | 474 (82.3) | 102 (17.7) | 576 |  |  |
| **Caregiver Education** | **Safe** | **Unsafe** |  |  |  |
| None/Basic | 229 (61.1) | 146 (39.9) | 375 | 86.13 | <0.001 |
| Secondary | 228 (77.0) | 68 (23.0) | 296 |  |  |
| Tertiary | 215 (94.7) | 12 (5.3) | 227 |  |  |
| **Student-teacher ratio (OECD average 13.1)** | **Safe** | **Unsafe** |  |  |  |
| Low |  |  |  |  |  |
| High |  |  |  |  |  |
| **Absolute Poverty (IWI< 50)** | **Safe** | **Unsafe** |  |  |  |
| poverty | 4 (6.9) | 54 (93.1) | 58 | 143.41 | <0.001 |
| No poverty | 693 (78.8) | 187 (21.3) | 880 |  |  |

Table. Binary logistic regression of accelerators for Safe Drinking Water

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Estimated Coefficient | P value | Odds Ratio | 95% CI for OR |
| Area of residence |  |  |  |  |
| Rural Vs urban | 1.7434 | <0.001 | 5.72 | 3.56 - 9.26 |
|  |  |  |  |  |
| Type of School |  |  |  |  |
| Public Vs private | -0.3953 | 0.0585 | 0.673 | 0.446 1.01 |
|  |  |  |  |  |
| Caregiver Education |  |  |  |  |
| Basic Vs tertiary | 2.0927 | <0.001 | 8.11 | 4.30 - 16.7 |
| Secondary Vs tertiary | 1.8201 | <0.001 | 6.17 | 3.22 - 12.9 |
|  |  |  |  |  |
| Absolute Poverty (IWI< 50) |  |  |  |  |
| poverty Vs no poverty | 3.1632 | <0.001 | 23.6 | 8.70 84.5 |

**Bivariate Analysis of accelerators for ‘End open defeacation’**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | Open defeacation | | **Total** | **Chi square** | **P value** |
|  |  |  |  |  |  |
| **Sex** | **No** | **Yes** |  |  |  |
| Male |  |  |  |  |  |
| Female |  |  |  |  |  |
| **Area** **of residence** | **No** | **Yes** |  | 130.53 | <0.001 |
| Rural |  |  |  |  |  |
| Urban |  |  |  |  |  |
| **Type of School** | **No** | **Yes** |  | 70.264 | <0.001 |
| Private | 380 (100) | 0 | 380 |  |  |
| Public | 462 (82.9) | 95 (17.1) | 557 |  |  |
| **Active reading habit** | **No** | **Yes** |  |  |  |
| No | 310 85.9) | 51 (14.1) | 361 | 9.6114 | 0.001934 |
| Yes | 533 (92.4) | 44 (7.6) | 577 |  |  |
| **Internet Access** | **No** | **Yes** |  |  |  |
| Yes |  |  |  | 27.551 | <0.001 |
| No |  |  |  |  |  |
| **Caregiver Education** | **No** | **Yes** |  |  |  |
| None/Basic | 298 | 75 (20.1) | 373 | 63.313 | <0.001 |
| Secondary | 280 | 14 (4.8) | 294 |  |  |
| Tertiary | 221 | 5 (2.2) | 226 |  |  |
| **Absolute Poverty (IWI< 50)** |  |  |  |  |  |
| No poverty | 813 | 67 (7.6) | 880 | 94.426 | <0.001 |
| poverty | 30 | 28 (48.2) | 58 |  |  |

Table. Binary logistic regression of accelerators for Ending Open Defeacation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Estimated Coefficient | P value | Odds Ratio | 95% CI for OR |
| Age |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Area of residence |  |  |  |  |
| Urban Vs rural | 1.7471 | <0.001 | 5.74 | 3.42 9.66 |
|  |  |  |  |  |
| ~~Type of School~~ |  |  |  |  |
| ~~Private Vs Public~~ | ~~18.0240~~ |  |  |  |
|  |  |  |  |  |
| Active reading habit |  |  |  |  |
| No Vs Yes | 0.1682 | 0.53071 |  |  |
|  |  |  |  |  |
| Internet Access |  |  |  |  |
| No Vs Yes | 0.8175 |  | 2.26 | 1.33 3.90 |
|  |  |  |  |  |
| Caregiver Education |  |  |  |  |
| Tertiary Vs None/Basic | 1.5696 | 0.00194 | 4.80 | 1.93 14.6 |
| Tertiary Vs secondary | 0.6072 | 0.27297 | 1.84 | 0.655 6.00 |
|  |  |  |  |  |
| Absolute Poverty (IWI< 50) |  |  |  |  |
| poverty Vs no poverty | 1.3704 | <0.001 | 3.94 | 2.00 7.76 |

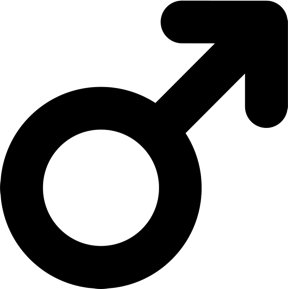
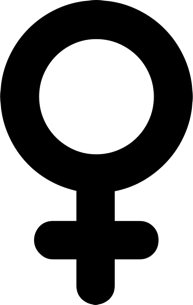
Access to Modern Energy

**Bivariate Analysis of accelerators for Access to Modern Energy Forms**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Modern energy forms** | | **Total** | **Chi square** | **P value** |
|  |  |  |  |  |  |
| **Sex** | **No** | **Yes** |  |  |  |
| Male |  |  |  |  |  |
| Female |  |  |  |  |  |
| **Area** **of residence** | **No** | **Yes** |  | 17.859 | <0.001 |
| Rural |  |  |  |  |  |
| Urban |  |  |  |  |  |
| **Type of School** | **No** | **Yes** |  | 3.2596 | 0.071 |
| Private |  |  |  |  |  |
| Public |  |  |  |  |  |
| **Active reading habit** | **No** | **Yes** |  | 6.0395 | 0.01399 |
| Yes |  |  |  |  |  |
| No |  |  |  |  |  |
| **Internet Access** | **No** | **Yes** |  |  |  |
| Yes |  |  |  |  |  |
| No |  |  |  |  |  |
| **Caregiver Education** | **No** | **Yes** |  | Fishers | 0.001536 |
| None/Basic | 15 | 358 (96) | 373 |  |  |
| Secondary | 4 | 290 (98.6) | 294 |  |  |
| Tertiary | 0 | 226 (100) | 226 |  |  |
| **Absolute Poverty (IWI< 50)** |  |  |  | 169.35 | <0.001 |
| No poverty | 5 | 875 (99.4) | 880 |  |  |
| poverty | 16 | 42 (72.4) | 58 |  |  |

Table. Binary logistic regression of accelerators for Access to Modern Energy forms

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Estimated Coefficient | P value | Odds Ratio | 95% CI for OR |
| Age |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Area of residence |  |  |  |  |
| Urban Vs rural |  |  |  |  |
|  |  |  |  |  |
| Type of School |  |  |  |  |
| Private Vs Public |  |  |  |  |
|  |  |  |  |  |
| Active reading habit |  |  |  |  |
| No Vs Yes |  |  |  |  |
|  |  |  |  |  |
| Internet Access |  |  |  |  |
| No Vs Yes |  |  |  |  |
|  |  |  |  |  |
| Caregiver Education |  |  |  |  |
| Tertiary Vs None/Basic |  |  |  |  |
| Tertiary Vs secondary |  |  |  |  |
|  |  |  |  |  |
| Absolute Poverty (IWI< 50) |  |  |  |  |
| poverty Vs no poverty | 4.4102 | <0.001 | 82.3 | 19.5 4.77e 2 |

A close up of a logo

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