# Results of a Community Mental Health Assessment in Lira District, Northern Uganda

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## Introduction

The dataset used in this analysis originates from a community health assessment conducted by the University of Southern California's Global Research Implementation and Training Lab in Lira District, Eastern Uganda. According to the World Health Organization (WHO), mental health disorders currently affect more than one billion people, including one in seven adolescents. However, despite the growing health and economic burden, governments spend only around 2% of their health budgets on these disorders and people with mental health conditions often experience severe human rights violations, discrimination, and stigma. In response to the call for greater attention to mental health challenges in low-income and post-conflict communities, a community-based participatory research (CBPR) study was carried out in Lira District, Uganda in the Spring of 2022.

The political history of Lira District, the epicenter of the decades-long conflict between the Lord's Resistance Army (LRA) and the Ugandan government, makes for an especially interesting case study of the political and social determinants of mental health of those directly impacted by conflict, and generations growing up in post-conflict communities. Data collected by this study aimed to evaluate the current mental health outcomes of adolescents (14-17 years of age). This dataset has been used previously for other analyses and was submitted for publication in the journal Conflict and Health, published by the British Medical Journal.

Data was collected through an adolescent questionnaire assessing general demographics, physical health status, diet, substance use, violence and risky behaviors, mental health knowledge, and behaviors, Adverse Childhood Experiences Score (ACE-IQ), and WHO-5 Wellbeing Index Scores. Used consistently in research, the ACE-IQ survey is intended to measure some of frequently occurring sources of stress that children may suffer early in life. Questions cover family dysfunction; physical, sexual and emotional abuse and neglect by parents or caregivers; peer violence; witnessing community violence, and exposure to collective violence. Scores have been used as general predictors of future adolescent health outcomes. The WHO Wellbeing Index scores are measured out of 100 and assess current adolescent states of wellbeing, this survey has been used as a screening tool for depression. Both the WHO Wellbeing Index and ACE scores have been validated in a number of studies with regard to both clinical and psychological validity.

The main research question explored through this dataset is using measures including ACE-IQ and WHO Wellbeing Index scores as predictors, what are current mental health outcomes among adolescents in Lira District, specifically looking at how might factors, such as gender and participant subcounty affect these outcomes among this population.

## Methods

Upon loading the dataset into R, inspection of the head and tail was done to gain a preliminary understanding of the structure and contents. The dataset was then checked for missing values. Missing values did not seem significant enough to drop and were included in the analysis but dropped from visualizations.

In order to be able to answer the research question, a total ACE score variable was created by summing variables q88-q100. The ACE score total variable and the WHO wellbeing Index variable were also checked for outliers, this dataset did not contain any.

The age variable recorded in the dataset was transformed into a dichotomous variable with a value of 1 meaning adolescents were between the ages of 14-15, and 2 meaning they were 16-17. The number of friends respondents reported having while also dichotomized with a 1 being representative of 0-2 friends and a 2 having 3 or more friends.

Exploratory data analysis was conducted by creating summary statistics for each variable of interest. For continuous variables, including the total ACE scores and the WHO Wellbeing Index scores, means, medians, standard deviations, minimum and maximum values were computed. Categorical variables were summarized using frequency tables, displaying counts and percentages for each category. Summary tables were created from summary statistics.

*Visualization*

Plots and graphs were used to visually analyze the relationship between ACE scores and WHO wellbeing scores across respondents gender and sub-county. Multiple histograms were used to see the distribution of ACE scores and WHO wellbeing index scores among respondents. In addition to histograms, boxplots were used to illustrate the distribution of ACE-IQ and Wellbeing Index scores across the three subcounties and for males and females.

Scatterplots were also created to show the potential relationship between ACE scores and Wellbeing Index scores.

# Results

The final dataset had 33 variables and 307 observations. Data were collected from 307 adolescents living in the households in three sub-counties in the Lira district of Uganda.

*Demographics*

Amongst the surveyed youth, 45.42% were male and 54.58% were female, the majority of which (61.8%) were 14 and 15 years old and enrolled in school (87.5%). The youth primarily shared their sleeping space with other family members, and 64.17% of youth indicated that their mother was their primary caretaker. Most of the respondents listed their mother (64.38%) or father (31.37%) as their primary caretaker. The three most prominent religious belief systems were Roman Catholic (36.93%), Anglican (33.93%), and Pentecostal (27.45%).

| | Overall (N=307) |
|---|---|
| **Subcounty** | |
| Ayami | 72 (23.5%) |
| Aromo | 141 (45.9%) |
| Agweng | 93 (30.3%) |
| Missing | 1 (0.3%) |
| **Age Category** | |
| 14-15 | 189 (61.6%) |
| 16-17 | 117 (38.1%) |
| Missing | 1 (0.3%) |
| **Gender** | |
| Male | 139 (45.3%) |
| Female | 167 (54.4%) |
| Missing | 1 (0.3%) |
| **Religion** | |
| Anglican | 104 (33.9%) |
| Roman Catholic | 113 (36.8%) |
| Muslim | 3 (1.0%) |
| Pentecostal | 84 (27.4%) |
| Jewish | 2 (0.7%) |
| Missing | 1 (0.3%) |
| **People in Home** | |
| Mother | 84 (27.4%) |
| Father | 130 (42.3%) |
| Brother/Sister | 59 (19.2%) |
| Grandparent | 33 (10.7%) |
| Missing | 1 (0.3%) |
| **Caretaker** | |
| I sleep alone | 197 (64.2%) |
| 2 people | 96 (31.3%) |
| 3 people | 3 (1.0%) |
| 4 people | 9 (2.9%) |
| 5 or more people | 1 (0.3%) |
| Missing | 1 (0.3%) |

| | Overall (N=307) |
|---|---|
| **School** | |
| Enrolled | 268 (87.3%) |
| Not enrolled | 38 (12.4%) |
| Missing | 1 (0.3%) |

Mean and Median ACE Scores by Subcounty

| Subcounty | Mean | Median |
|---|---|---|
| Ayami | 3.291667 | 3 |
| Aromo | 3.425532 | 3 |
| Agweng | 3.290323 | 3 |
| NA | 0.000000 | 0 |

Mean and Median ACE Scores by Gender

| gender | Mean | Median |
|---|---|---|
| Male | 3.071942 | 3 |
| Female | 3.586826 | 3 |
| NA | 0.000000 | 0 |

Mean Wellbeing Scores by Subcounty

| Subcounty | Mean |
|---|---|
| Ayami | 47.66667 |
| Aromo | 50.72340 |
| Agweng | 45.37634 |
| NA | NaN |

Mean Wellbeing Scores by Gender

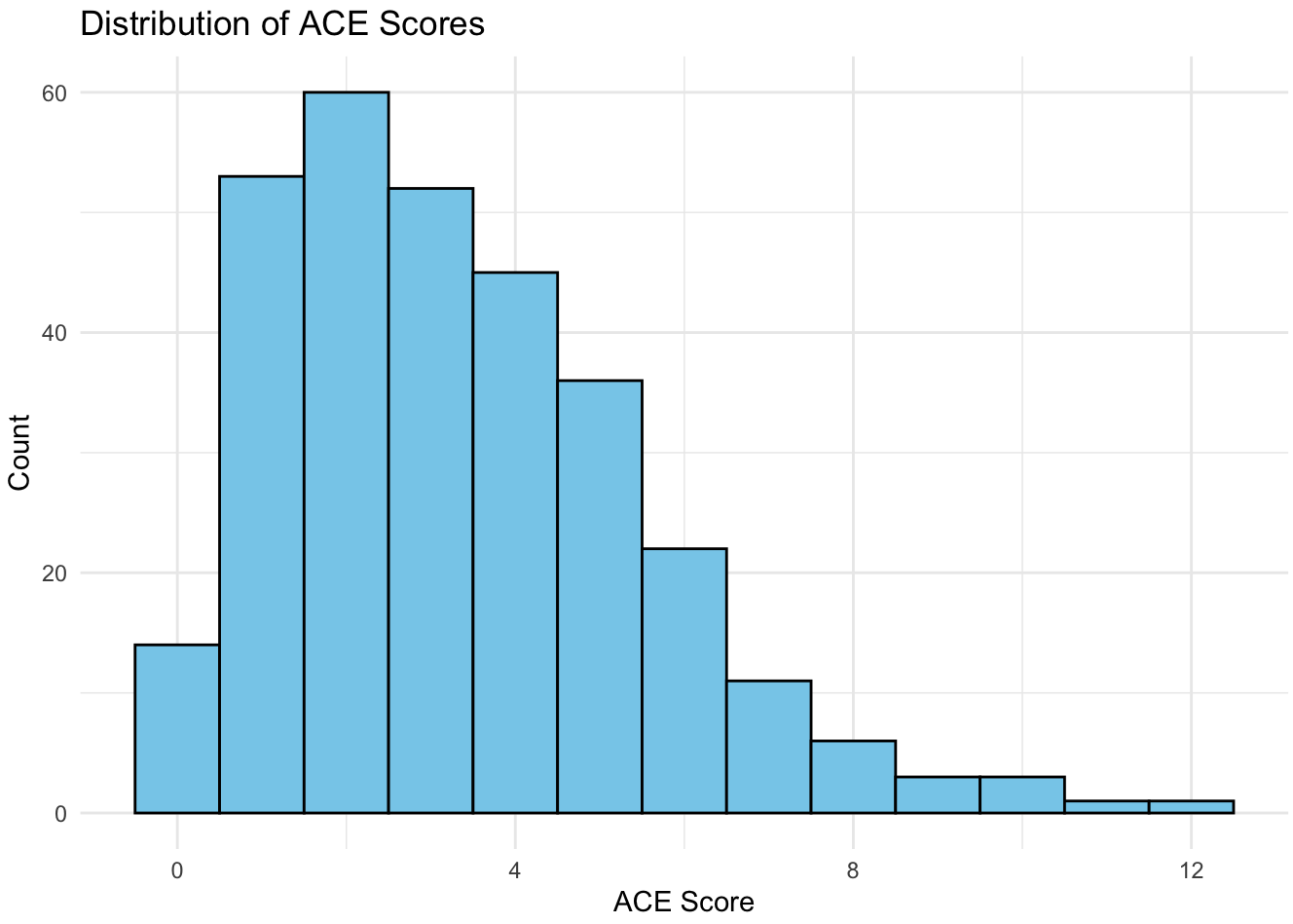
| gender | Mean |
|---|---|
| Male | 46.87770 |
| Female | 49.62874 |
| NA | NaN |

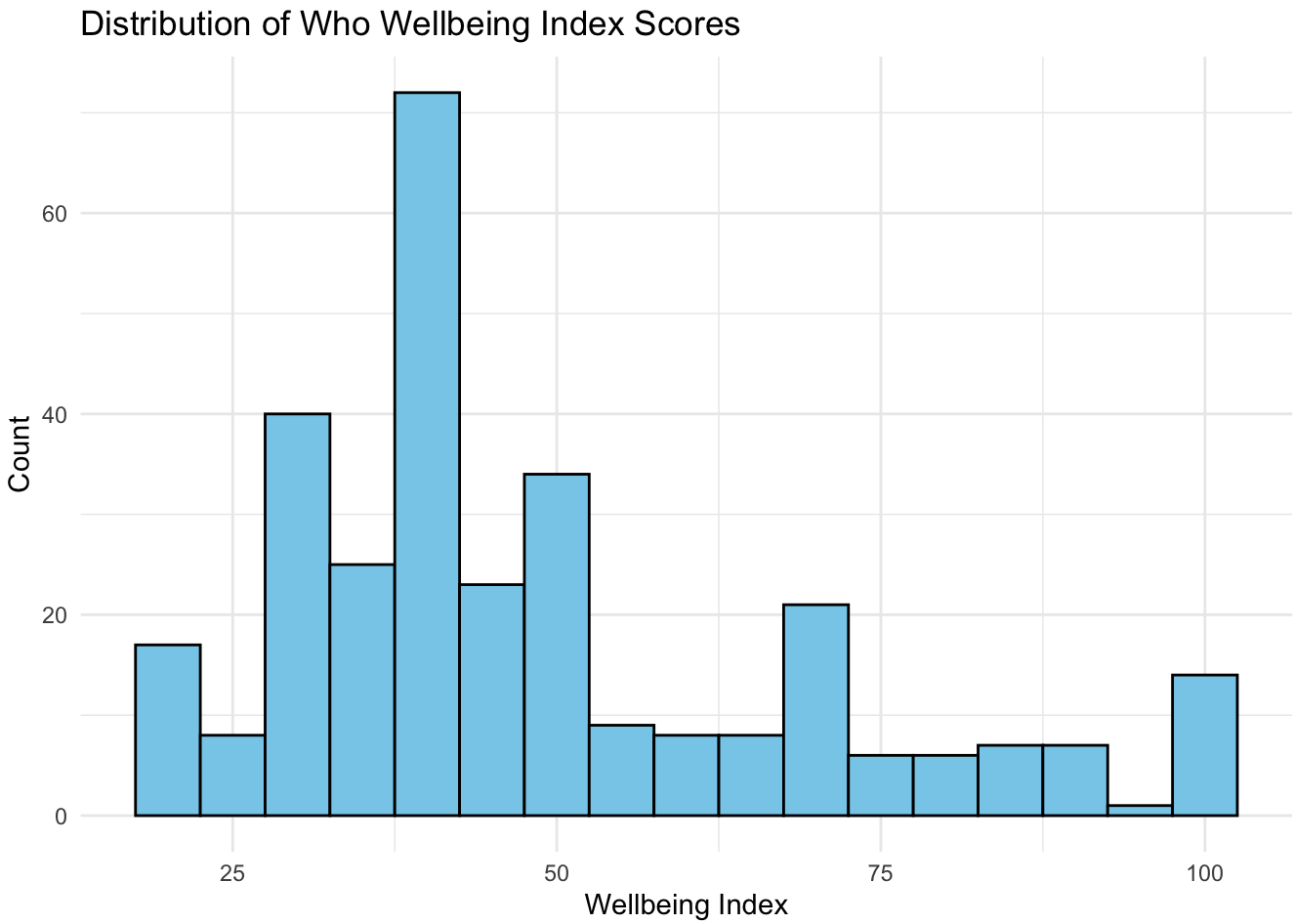
*Adverse Childhood Experience and WHO Wellbeing Index Scores*

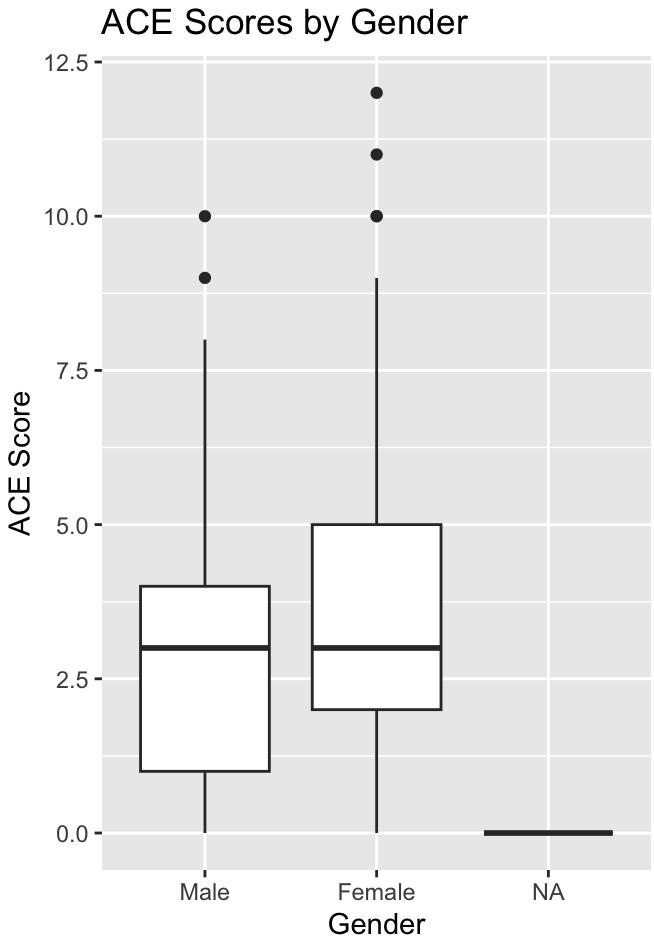
Adverse Childhood Experience (ACE-IQ) scores for adolescents ranged from 0-11, with an average score of 3. Out of 13.41% of adolescents had ACE-IQ scores of 4 or higher. In all 3 sub-counties,

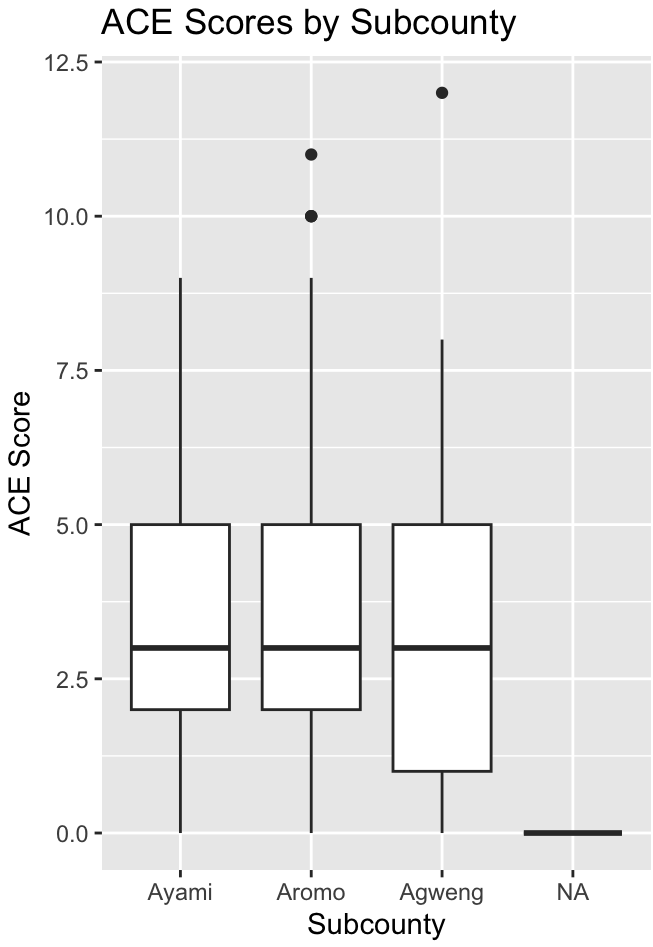
females scored higher than males, with females in Agweng scoring the highest on the ACE-IQ survey tool indicating having experienced the most adverse childhood experiences.

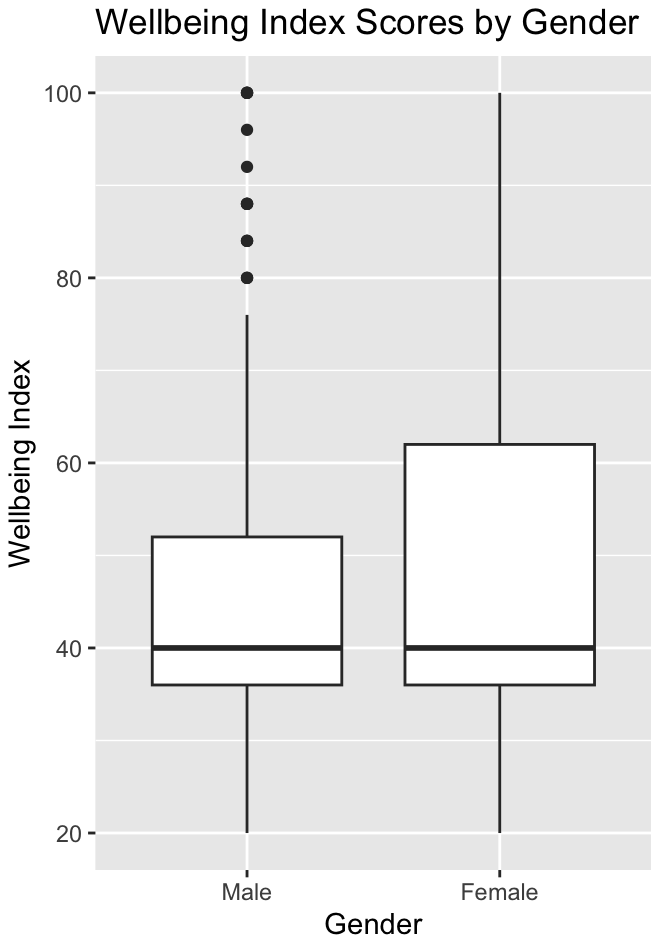
WHO Wellbeing Index scores ranged from 20-100, with an average score of 48.38. While there was not as high of a gender variation in these scores, males still scored higher in the wellbeing index. Adolescents from Agweng had the lowest scores.

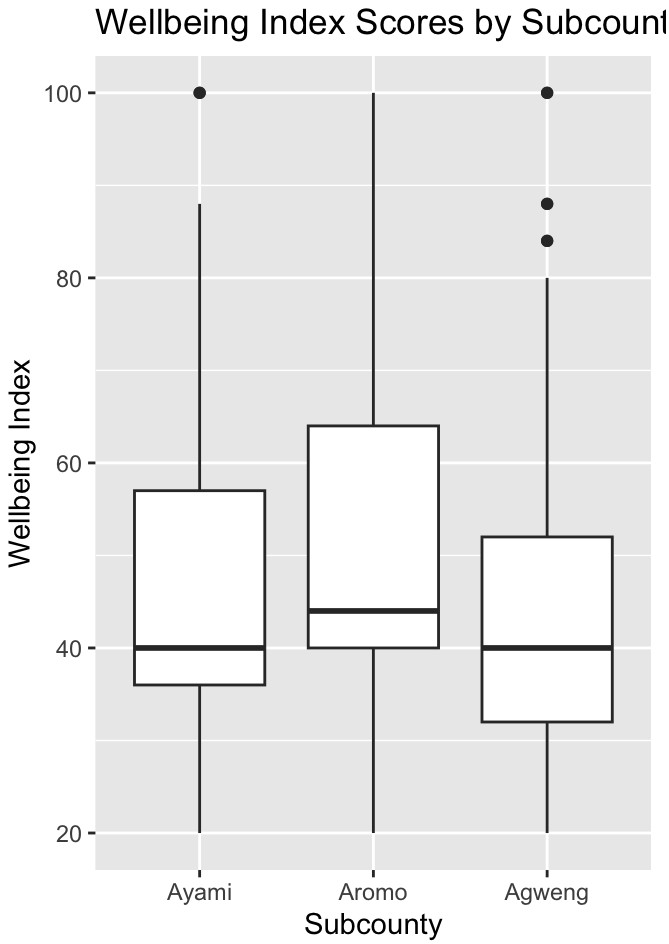


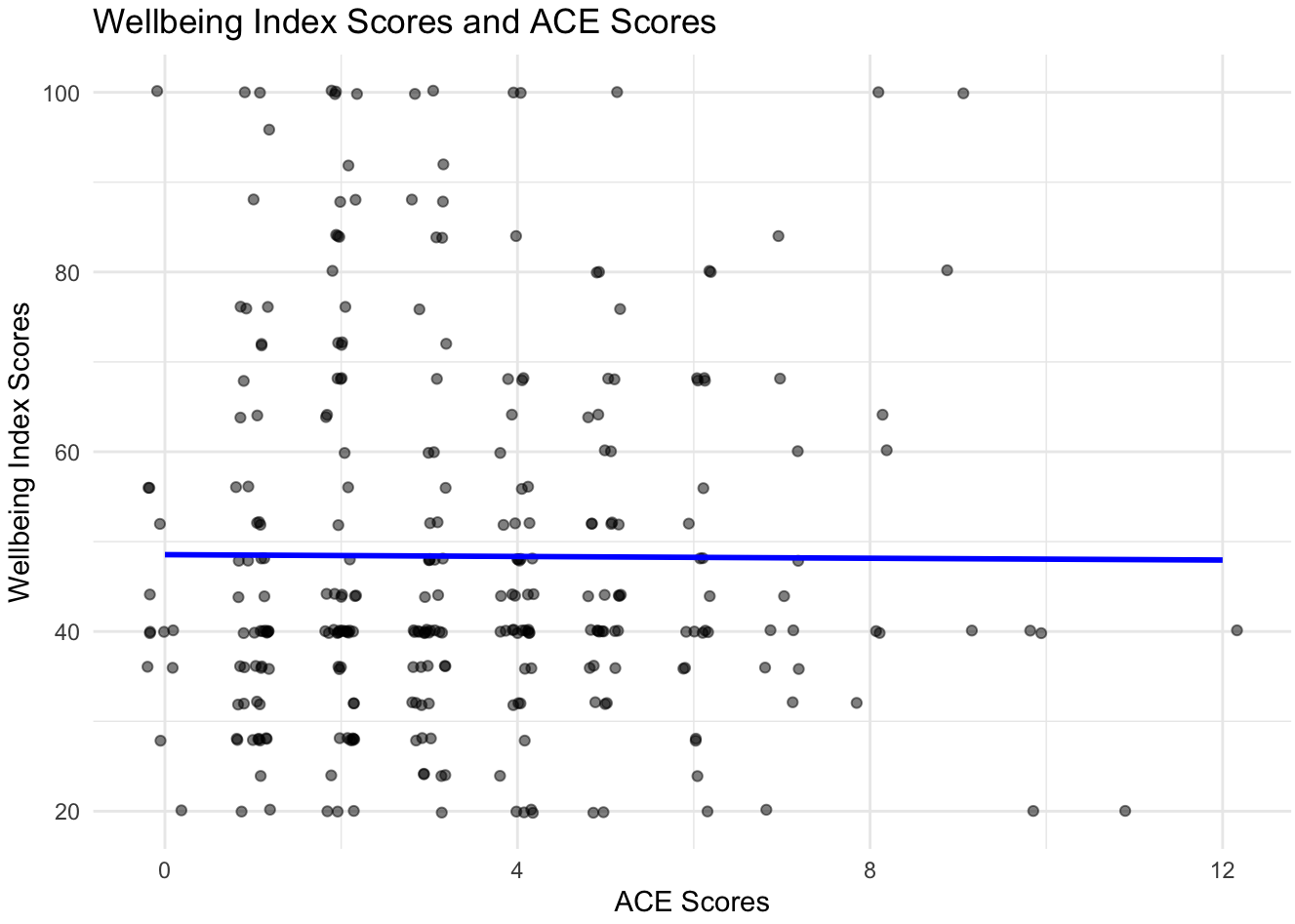

Distribution of Who Wellbeing Index Scores
Count
0
20
40
60
25
50
75
100
Wellbeing Index


ACE Scores by Gender
ACE Score
0.0
2.5
5.0
7.5
10.0
12.5
Male
Female
NA
Gender


ACE Scores by Subcounty
ACE Score
0.0
2.5
5.0
7.5
10.0
12.5
Ayami
Aromo
Agweng
NA
Subcounty


Wellbeing Index Scores by Gender
Wellbeing Index
100
80
60
40
20
Male
Female
Gender


Wellbeing Index Scores by Subcount
Wellbeing Index
100
80
60
40
20
Ayami
Aromo
Agweng
Subcounty


Wellbeing Index Scores and ACE Scores
Wellbeing Index Scores
100
80
60
40
20
0
4
8
12
ACE Scores

Visualization of ACE scores and Wellbeing Index Scores confirmed this relationship between ACE and Wellbeing Index scores and key demographic variables. From the scatterplot of ACE scores and Wellbeing index scores they seem to have a moderate inverse relationship, higher ACE scores indicate lower Wellbeing scores.

**Conclusions**

The study results indicate that adolescents surveyed throughout Lira District in northern Uganda exhibited poor mental health status. Evaluation of the WHO-5 Wellbeing Index scores found that the majority of scores were low enough to be considered for further clinical screening and treatment for depression.

Nearly half of adolescents surveyed reported ACE-IQ scores of 4 or higher which has had a strong positive association with depression symptom severity and suicidal ideation as well as heavy alcohol consumption among a younger population of emerging adults in Southwestern Uganda. In addition, other studies done in Uganda have found that ACE exposure has also been associated with early initiation of alcohol consumption among youths and alcohol consumption behaviors among adults.

Results highlighted apparent gender differences between ACE and WHO Index scores. Notably, girls were more likely to report higher instances of abuse, neglect, family dysfunction, and violence. Female respondents also reported lower wellbeing scores when compared to males in the same communities.

Although few households in the region were not impacted by the decades-long turmoil, because of its location, Agweng was ground zero during the LRA conflict. Compared to Aromo and Ayami, sub-county Agweng reported the poorest outcomes on both the WHO-5 Index and ACE-IQ scales. Findings from this sub-county, also being the furthest north, lowest income, and most rural potentially links household and community poverty and accessibility to poorer mental health outcomes.

The adolescents surveyed have no living memory of the war, however, they do have memories of the immediate aftermath, have grown up in communities struggling to rebuild post-conflict, and have been raised by parents who most likely suffered directly. High levels of verbal abuse, physical abuse, neglect, and family dysfunction reported are likely in part due to trauma-induced mental health conditions among parents and other caretakers. Poor adolescent wellness scores could also reflect intergenerational trauma, which also places them at increased risk for mental illness and other chronic diseases.

This study provides useful insight into the impact of the conflict on the health and wellness of the subsequent generation of youth in the region. Ultimately, results shows that poor mental health outcomes disproportionately impact the weakest and often most marginalized populations in society; namely poor, rural, women and girls.

Past international evaluations of mental health have focused on the importance of treatment using Western diagnostic tools and interventions and have failed to address persistent societal determinants, cultural myths, and traditional practices. Mental health response by politically informed analyses and interventions should be a priority focus for building positive adolescent health outcomes.