

Children in Kisumu, Africa

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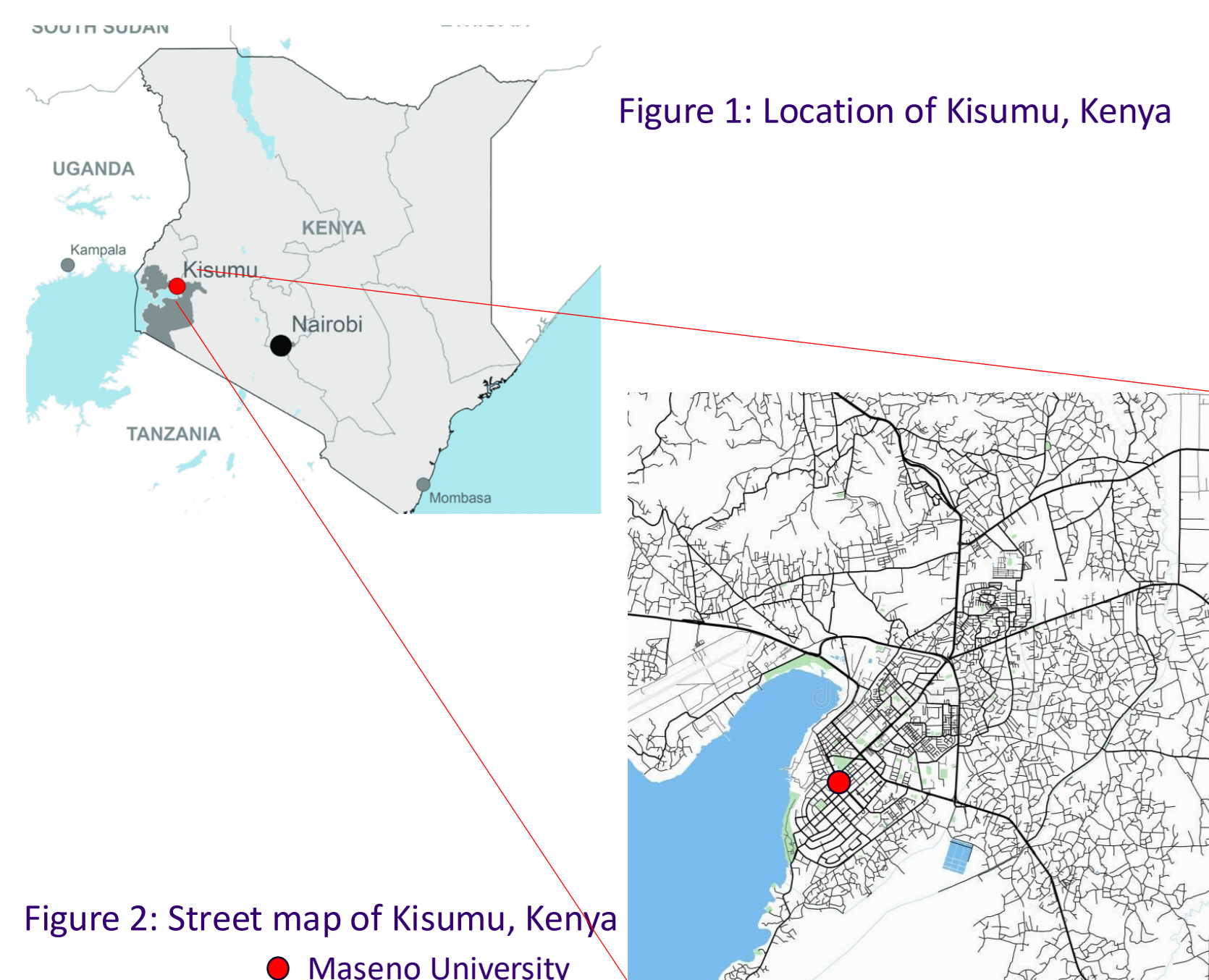


Objectives

- The World Health Organization estimates that HIV affects approximately 1.4 million children worldwide, with 1.2 million of those children located in Africa. 62,000 of these children live in Kenya.
- Studies show increased incidence of dental caries in children affected with HIV. (1)
- Dental caries have been shown to decrease quality of life in children aged 3-6. (2).
- Determine the impact that oral health has on Quality of life in children in Kisumu, Kenya
- Determine if HIV infection status affects the oral health related quality of life in this cohort of children.

Methods

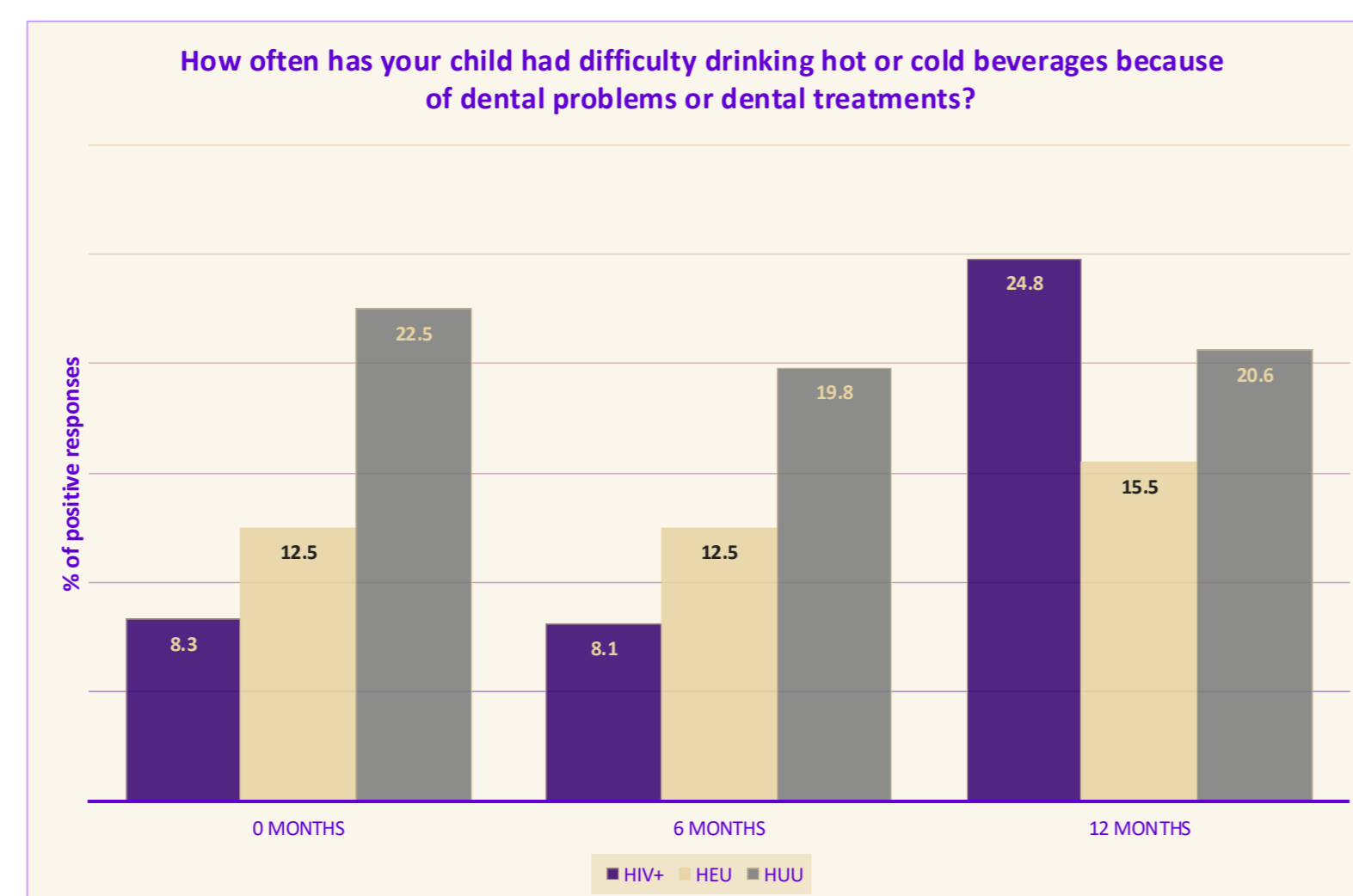
- 360 Children aged 3-4 years old and living in Kisumu, Kenya at time of enrollment with equal representation for HIV-infected (HIV), HIV-exposed (HEU), and HIV-uninfected children (HUU). ANOVA and chi-squared test utilized ($p < 0.05$).



Results

| Variables | HIV | HEU | HUU | Total | P Value |
|------------------|--------------|--------------|--------------|--------------|---------|
| | 120 | 120 | 120 | 360 | |
| | n (%) | n (%) | n (%) | n (%) | |
| Age | | | | | |
| Months | 3.4 (SD=0.5) | 3.4 (SD=0.5) | 3.3 (SD=0.5) | 3.4 (SD=0.5) | 0.350 |
| Sex | | | | | |
| Female | 58 (48.33) | 63 (52.50) | 62 (51.67) | 183 (50.83) | 0.792 |
| School | | | | | |
| Public | 29 (24.17) | 32 (26.67) | 17 (14.17) | 78 (21.67) | |
| Private | 46 (38.22) | 52 (43.33) | 72 (60.00) | 170 (47.22) | 0.007 |
| No school | 45 (37.50) | 36 (30.00) | 31 (25.83) | 112 (31.11) | |
| Residence | | | | | |
| Urban | 39 (32.50) | 41 (34.17) | 47 (39.83) | 127 (35.47) | |
| Peri-urban | 21 (17.50) | 21 (17.50) | 15 (12.71) | 57 (15.92) | 0.697 |
| Rural | 60 (50.00) | 58 (48.33) | 56 (47.46) | 174 (48.60) | |

Table 1: Cohort demographics are represented and divided amongst the HIV, HEU, and HUU cohorts. The mean age of the 360 child cohort was 3.4 years old at time of enrollment. 51% of the children were female. 47% attended private school, 22% attended public school, and 31% did not attend school. The plurality of the cohort lived in a rural area at 49%, while 35% lived in an urban area and 16% lived in a peri-urban area.



Graph 1: Graph one represents the responses the the ECOHIS question of How often has your child had difficulty drinking hot or cold beverages because of dental problems or dental treatments, At time 0 and 6 months, more of the HUU cohort had positive responses to this question. By time 12 months, there is no statistically significant difference between the cohort responses.

| ECOHIS questions | HIV | | HEU | | HUU | | Total | | P value |
|---|-----------|-------------|------------|-------------|-----------|-------------|-----------|-------------|--------------|
| | N(%) | Mean +/- SD | N(%) | Mean +/- SD | N(%) | Mean +/- SD | N(%) | Mean +/- SD | |
| Child Symptoms Domain (How often has your child had ...?) | | | | | | | | | |
| Combined Domain (Pain in teeth, mouth, jaw) | | | | | | | | | |
| 0 months | 14 (11.7) | 0.12 ±0.32 | 17 (14.2) | 0.14 ±0.35 | 18 (15) | 0.15 ±0.36 | 49 (13.6) | 0.14 ±0.34 | 0.74 |
| 6 months | 12 (10.8) | 0.11 ±0.31 | 16 (13.3) | 0.13 ±0.34 | 18 (16.2) | 0.16 ±0.37 | 46 (13.3) | 0.13 ±0.34 | 0.50 |
| 12 months | 27 (24.6) | 0.25 ±0.43 | 21 (18.1) | 0.18 ±0.39 | 23 (20.9) | 0.21 ±0.41 | 71 (21.1) | 0.21 ±0.41 | 0.48 |
| Child Function domain (How often has your child had ... because of dental problems or dental treatments?) | | | | | | | | | |
| Individual Domain: Difficulty Drinking hot or cold beverages | | | | | | | | | |
| 0 months | 10 (8.3) | 0.08 ±0.28 | 15 (12.5) | 0.13 ±0.33 | 27 (22.5) | 0.23 ±0.42 | 52 (14.4) | 0.08 ±0.28 | 0.006 |
| 6 months | 9 (8.1) | 0.08 ±0.27 | 15 (12.5) | 0.13 ±0.33 | 22 (19.8) | 0.20 ±0.40 | 46 (12.8) | 0.13 ±0.34 | 0.04 |
| 12 months | 27 (24.8) | 0.25 ±0.43 | 18 (15.5) | 0.16 ±0.36 | 22 (20.6) | 0.21 ±0.41 | 67 (18.6) | 0.20 ±0.40 | 0.22 |
| Combined Domain (Difficulty drinking hot or cold beverages, difficulty eating some foods, Difficulty pronouncing any words, Missed pre-school, day care or school) | | | | | | | | | |
| 0 months | 18 (15) | 0.28 ±0.78 | 29 (24.2) | 0.36 ±0.72 | 42 (35.0) | 0.55 ±0.84 | 88 (24.7) | 0.40 ±0.79 | 0.02 |
| 6 months | 16 (14.2) | 0.28 ±0.79 | 25 (20.8) | 0.33 ±0.73 | 35 (31.2) | 0.53 ±0.87 | 76 (22.1) | 0.38 ±0.80 | 0.04 |
| 12 months | 34 (30.9) | 0.48 ±0.78 | 26 (22.4) | 0.40 ±0.83 | 30 (27.3) | 0.50 ±0.92 | 90 (26.8) | 0.45 ±0.84 | 0.64 |
| Child psychology Domain (How often has your child ... because of dental problems or dental treatments?) | | | | | | | | | |
| Combined Domain (Had trouble sleeping, Been irritable or frustrated) | | | | | | | | | |
| 0 months | 6 (5) | 0.09 ±0.43 | 8 (6.6) | 0.13 ±0.49 | 12 (10) | 0.17 ±0.56 | 26 (7.2) | 0.13 ±0.50 | 0.50 |
| 6 months | 5 (4.5) | 0.10 ±0.49 | 8 (6.7) | 0.13 ±0.49 | 12 (10.7) | 0.15 ±0.49 | 25 (7.3) | 0.13 ±0.49 | 0.71 |
| 12 months | 6 (5.4) | 0.08 ±0.39 | 9 (7.8) | 0.09 ±0.35 | 9 (8.2) | 0.09 ±0.32 | 24 (7.14) | 0.09 ±0.35 | 0.96 |
| Self image/social interaction domain (How often has your child ... because of dental problems or dental treatments?) | | | | | | | | | |
| Combined Domain (Avoided smiling, Avoided talking) | | | | | | | | | |
| 0 months | 21 (17.5) | 0.18 ±0.41 | 22 (18.3) | 0.22 ±0.49 | 29 (24.2) | 0.28 ±0.54 | 72 (20) | 0.23 ±0.48 | 0.26 |
| 6 months | 19 (17) | 0.18 ±0.41 | 21 (17.5) | 0.21 ±0.48 | 30 (26.8) | 0.31 ±0.54 | 70 (20.4) | 0.23 ±0.48 | 0.12 |
| 12 months | 17 (15.4) | 0.16 ±0.36 | 17 (14.66) | 0.16 ±0.42 | 14 (12.7) | 0.13 ±0.34 | 48 (12.3) | 0.15 ±0.37 | 0.79 |

Table 2: ECOHIS results based on parental responses for 3-4 year olds in Kisumu, Kenya. Data table shows results for combined domains for child symptoms, child function, child psychology, and self image/social interaction. Individual domain results for difficulty drinking hot or cold beverages under the child function domain is also represented.

A statistically significant difference was found at times 0 and 6 months for the difficulty drinking hot or cold beverages and the child function combined domain with the HUU cohort having more positive responses than the HIV and HEU cohorts. This effect was diminished at 12 months for both domains.

Conclusions

- At times 0 and 6 months, children in the HUU cohort had significantly higher incidence of difficulty drinking hot or cold beverages due to dental problems and treatments. The same pattern extends to the combined child function domain containing this individual question.
- No other significant differences were found between the cohorts concerning the oral health related quality of life.

Future Directions

- Future research is needed to explore the effect of receiving dental treatment on oral health related quality of life for children with and without HIV.
- Different age cohorts can be studied to assess if as children mature, their quality of life is more affected by their oral health status.
- These findings will help allocate resources to best improve the quality of life of children and families in Kisumu and around the world.

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