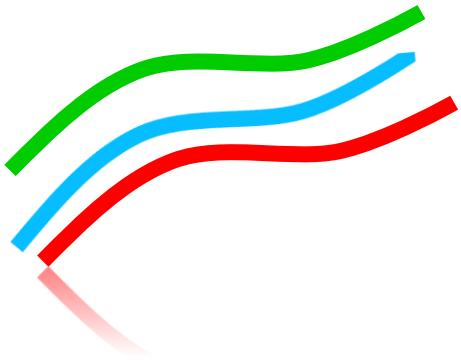


INFLUENCE OF HIV AND OTHER FACTORS ON GROWTH PATTERNS AMONG INFANTS IN MOSHI MUNICIPALITY



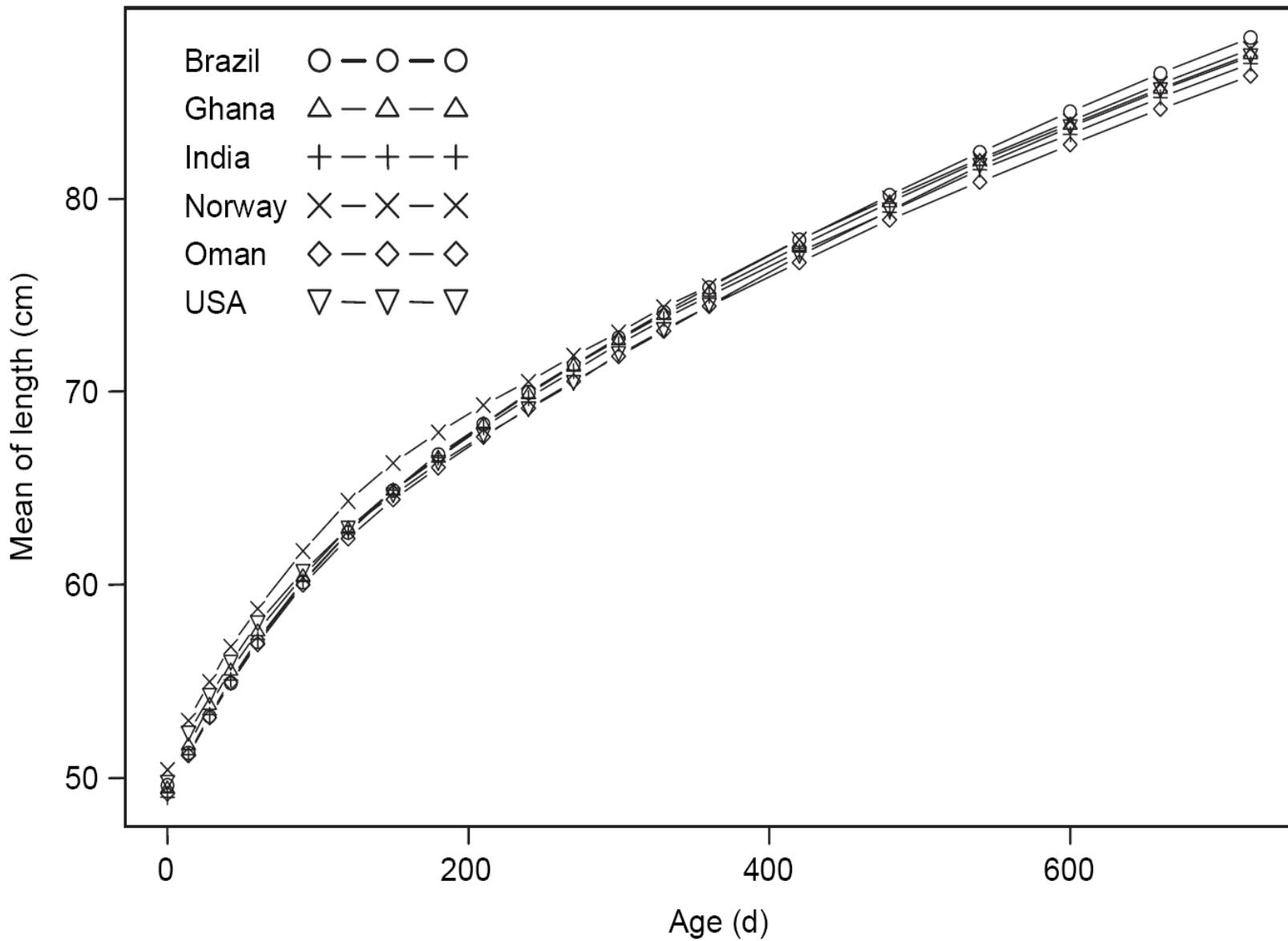


- Increase in size

(Anderson *et al*, 2003)

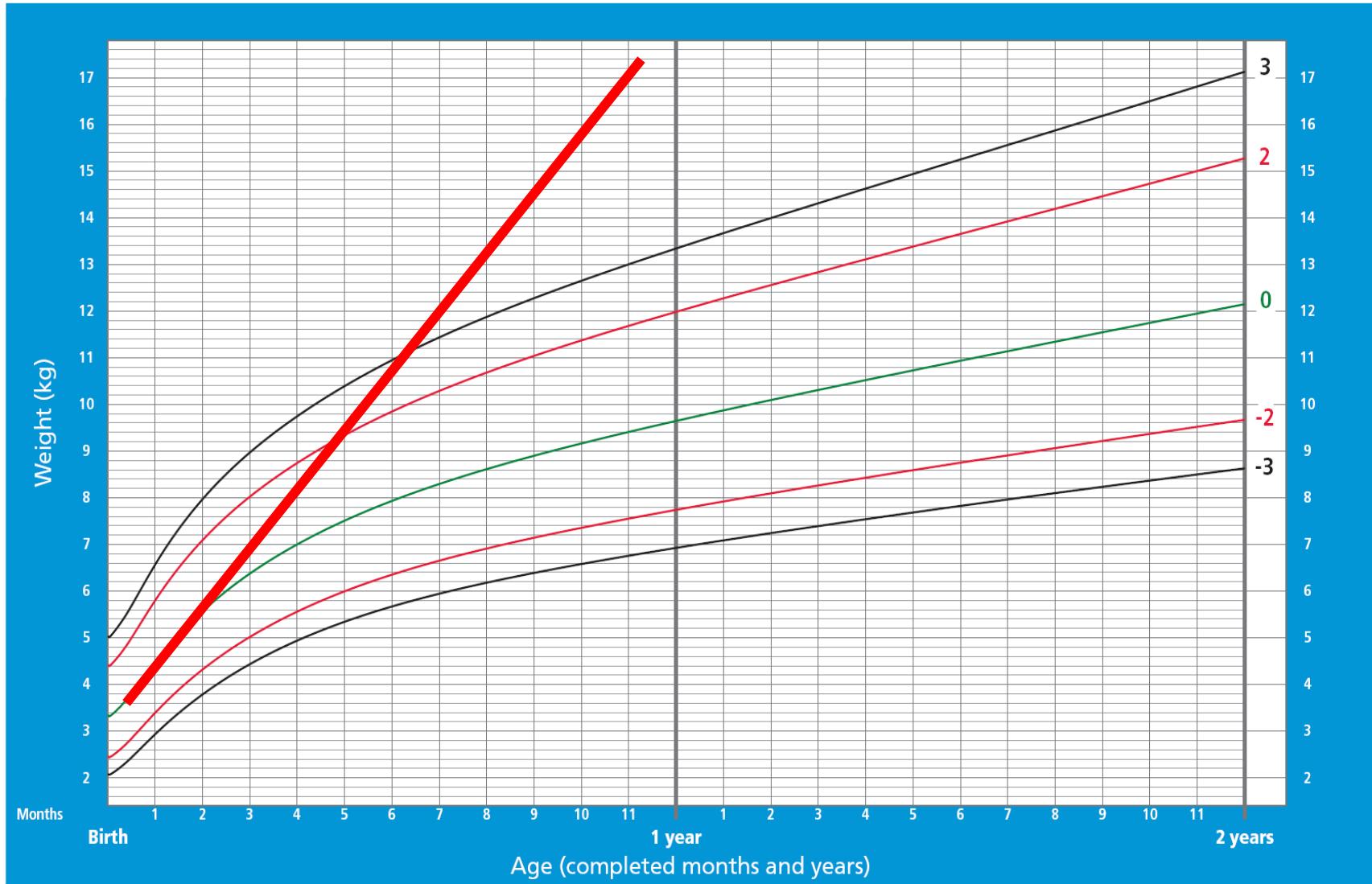
- We are different
 - Yet we grow similarly
➡ Standards

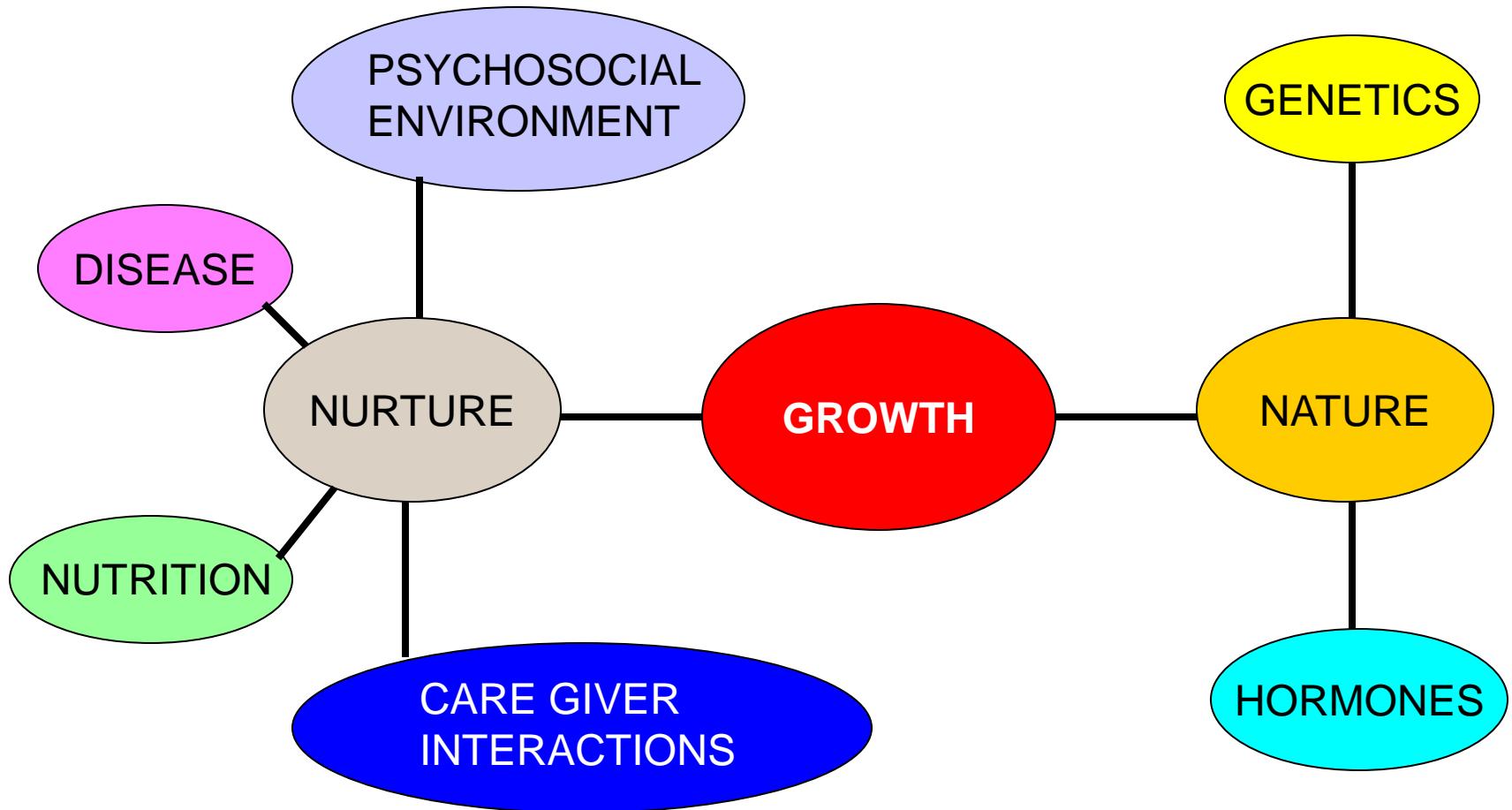
(WHO and UNICEF 2009)



Weight-for-age BOYS

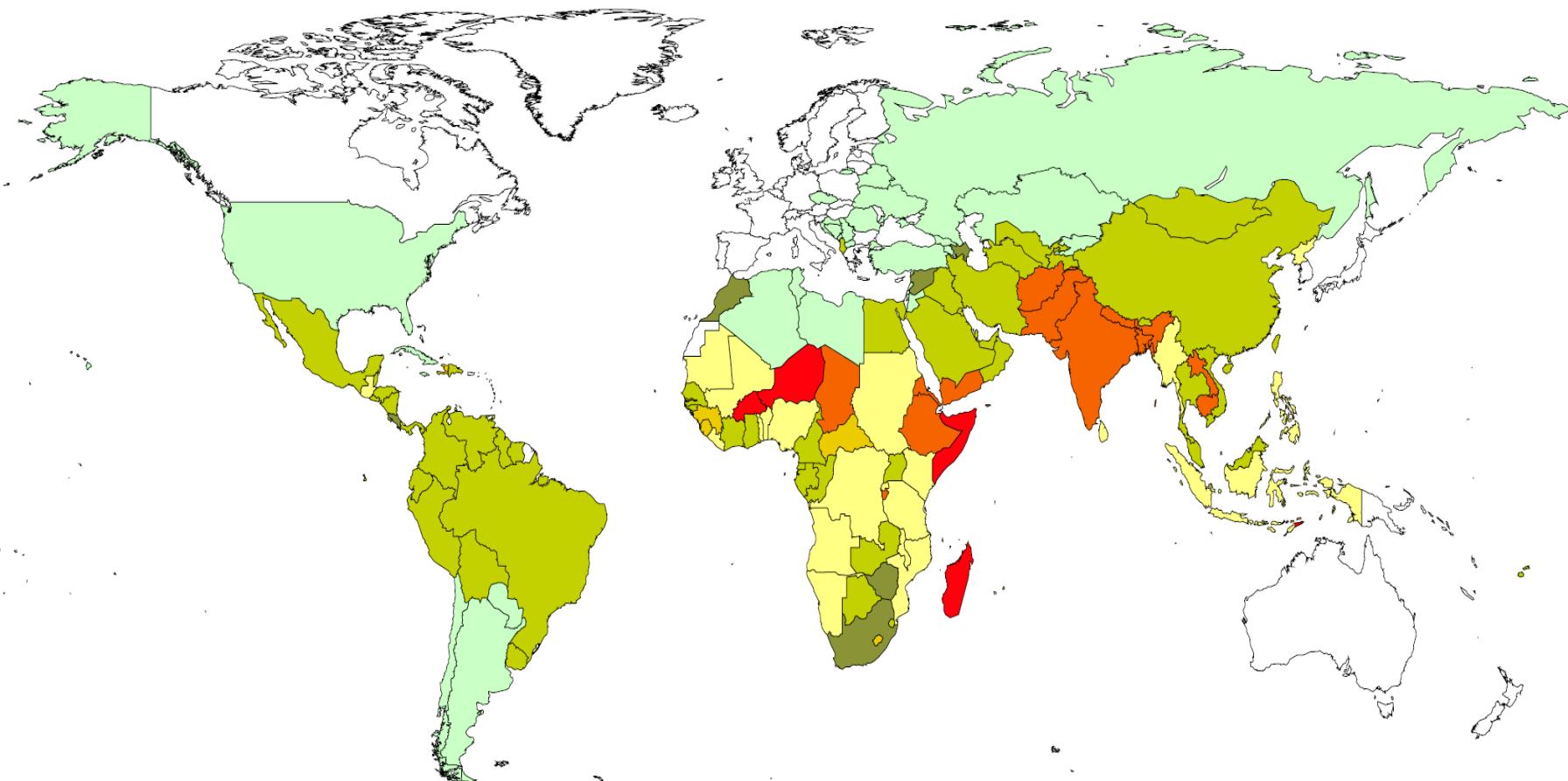
Birth to 2 years (z-scores)





Rogers *et al*, Early Human Dev.1997; **49**(S1): S157
Arpadi, Nutrition and HIV/AIDS in Africa 2005;
Law, Maternal & Child Nutr. 2005; **1**: 169;
Weaver, J Ped Gast. & Nutr. 2006; **43**(4): 428

Childhood Under nutrition



Trend and Prevalence	0 - Low		5% - Moderate		20% - High		35% - Very High		50% - No data	
	Stable or improving	Worsening	No data							
	0	Low	5%	Moderate	20%	High	35%	Very High	50%	

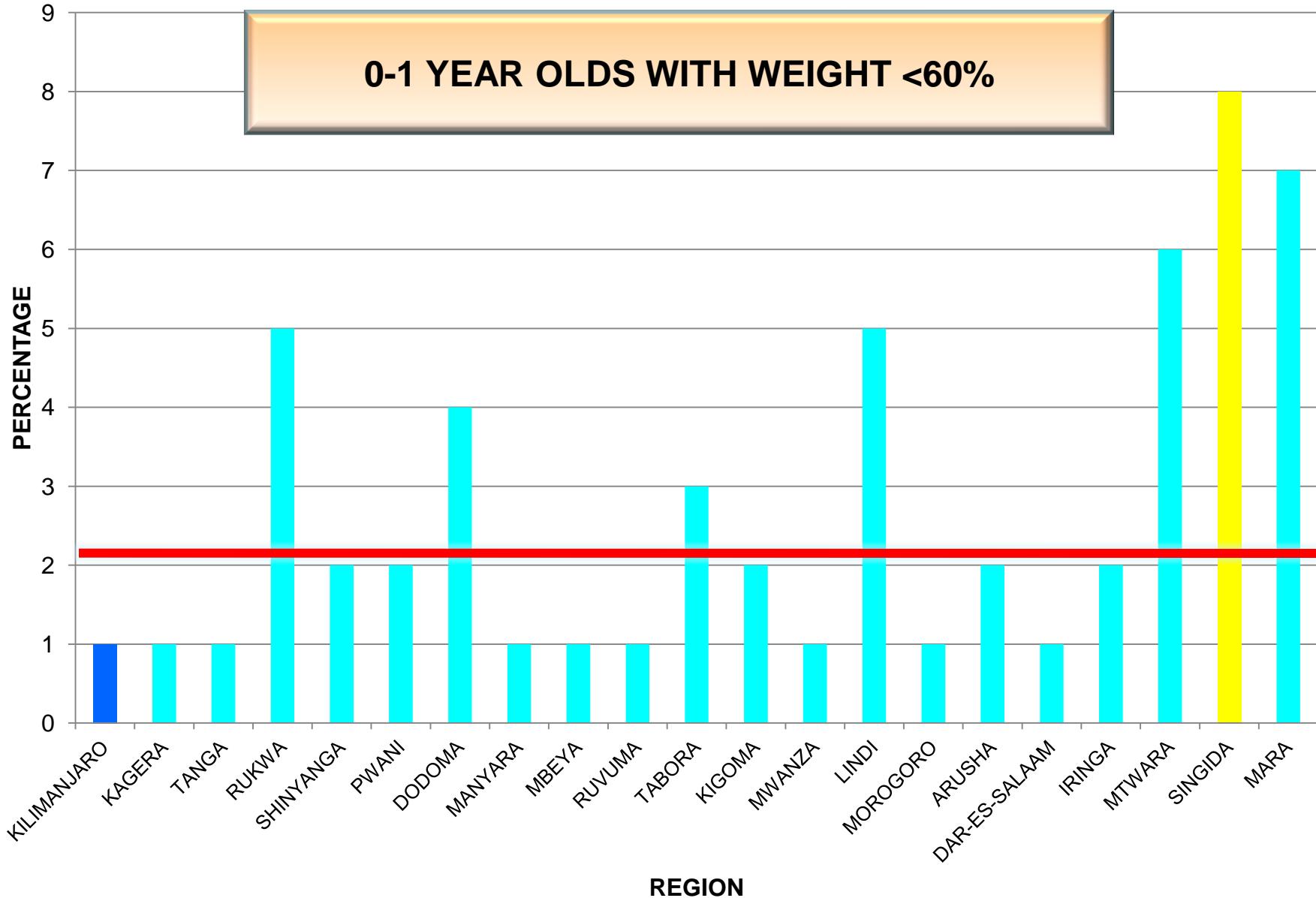
Map 13 : year: 2008

Prepared by: FAO Statistics Division
Rome, 2009



0-1 YEAR OLDS WITH WEIGHT <60%

PERCENTAGE



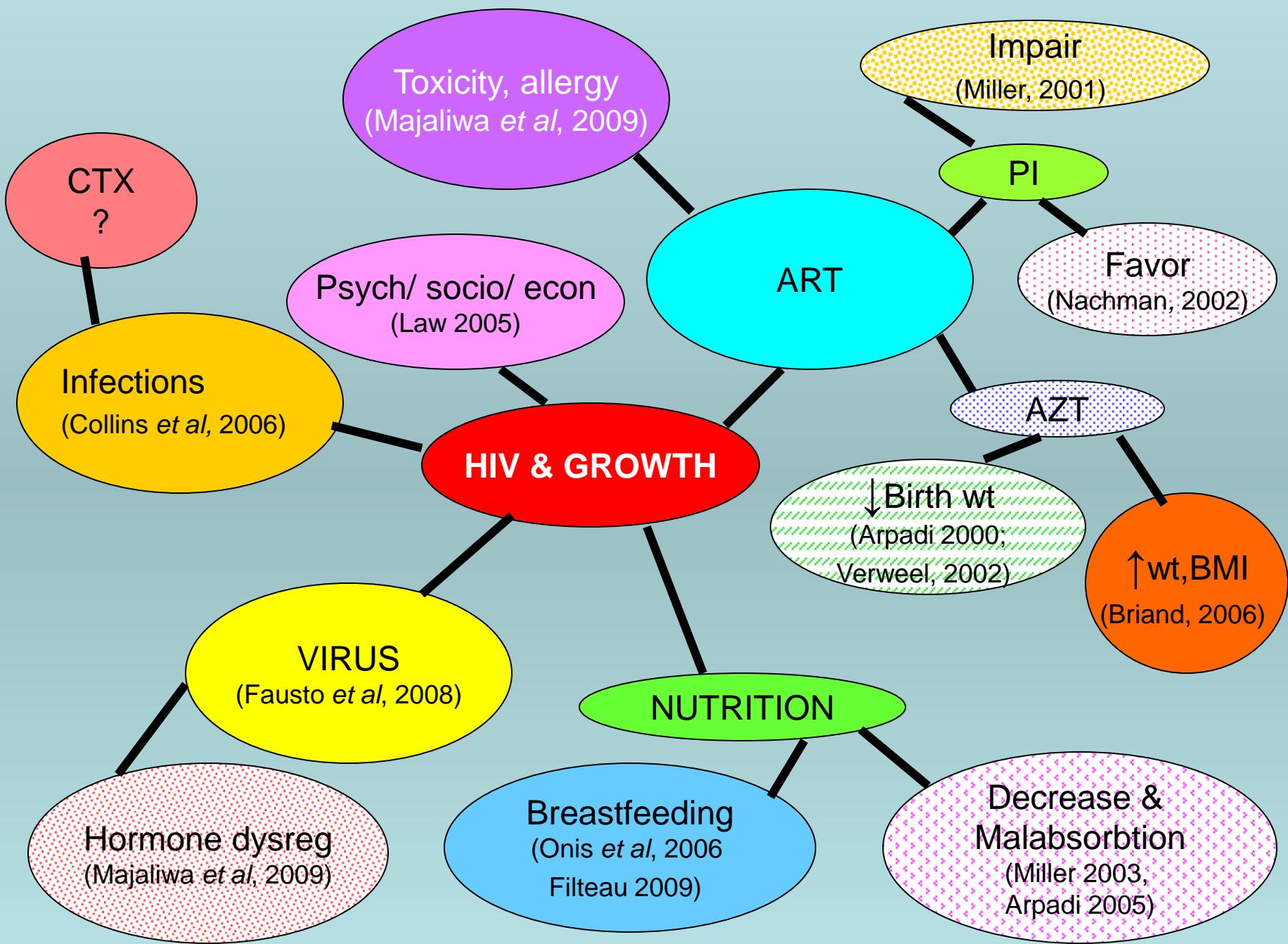
HIV ON GROWTH

Up to 60% Altered

(Anabwani and Navario, Nutrition 2005; 21: 96)

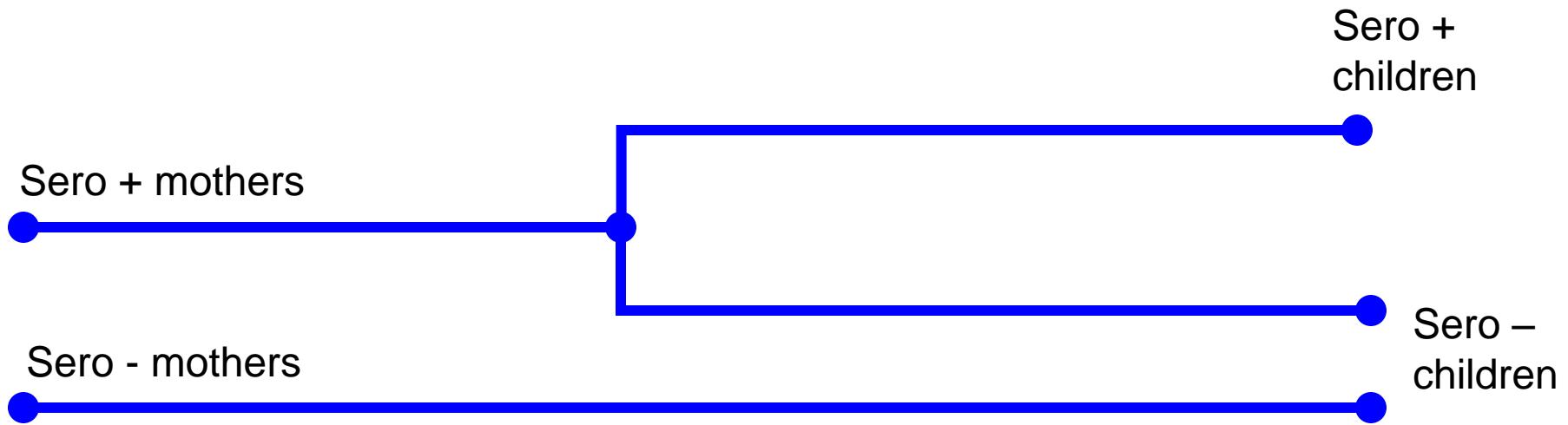
Infected
Non-infected

(Filteau Trop Med & Inter Health 2009, 14(3): 276) 21: 96)



Sherry et al 2000, Cohort in Nairobi Kenya

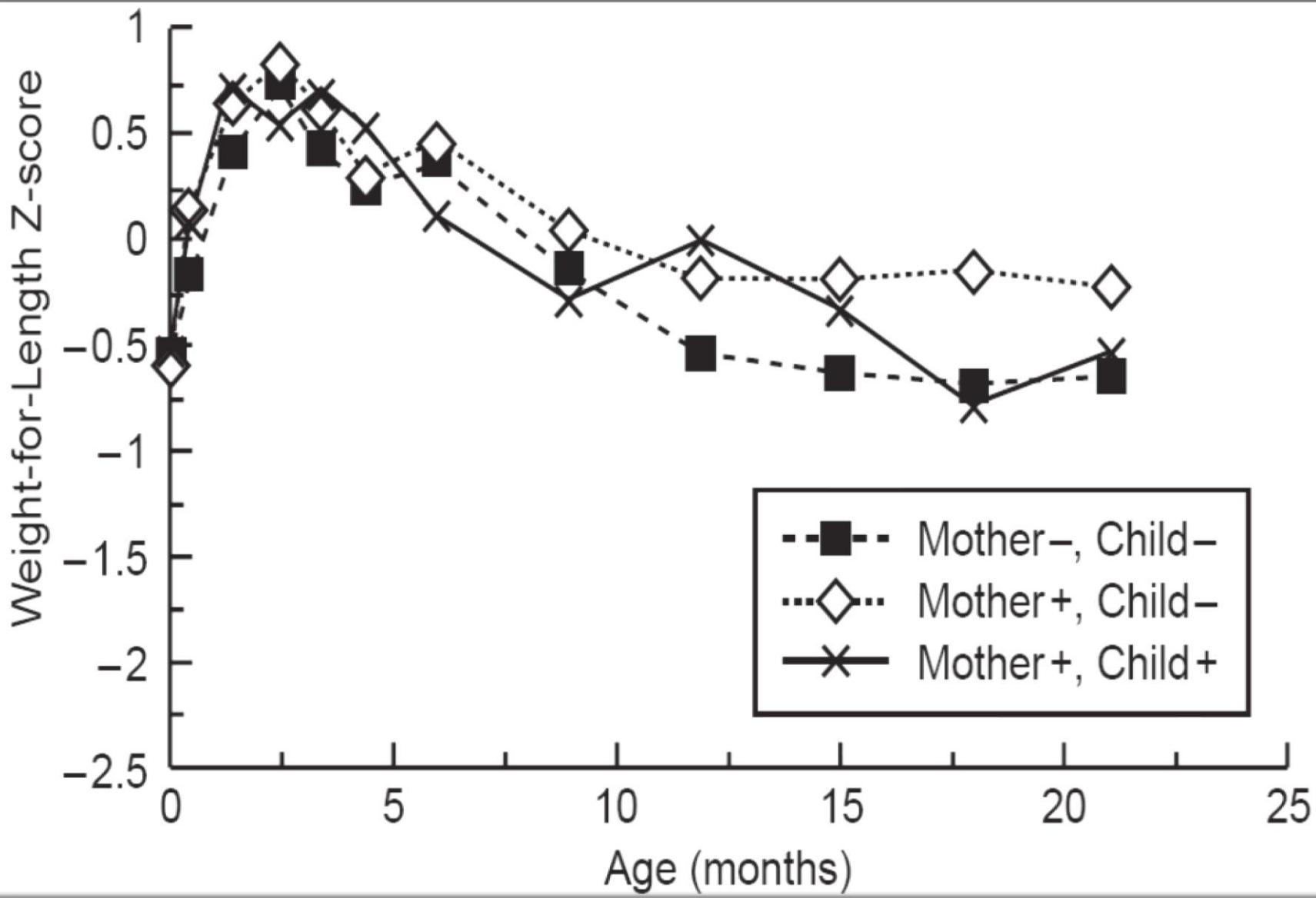
Followed up from birth till 21 months

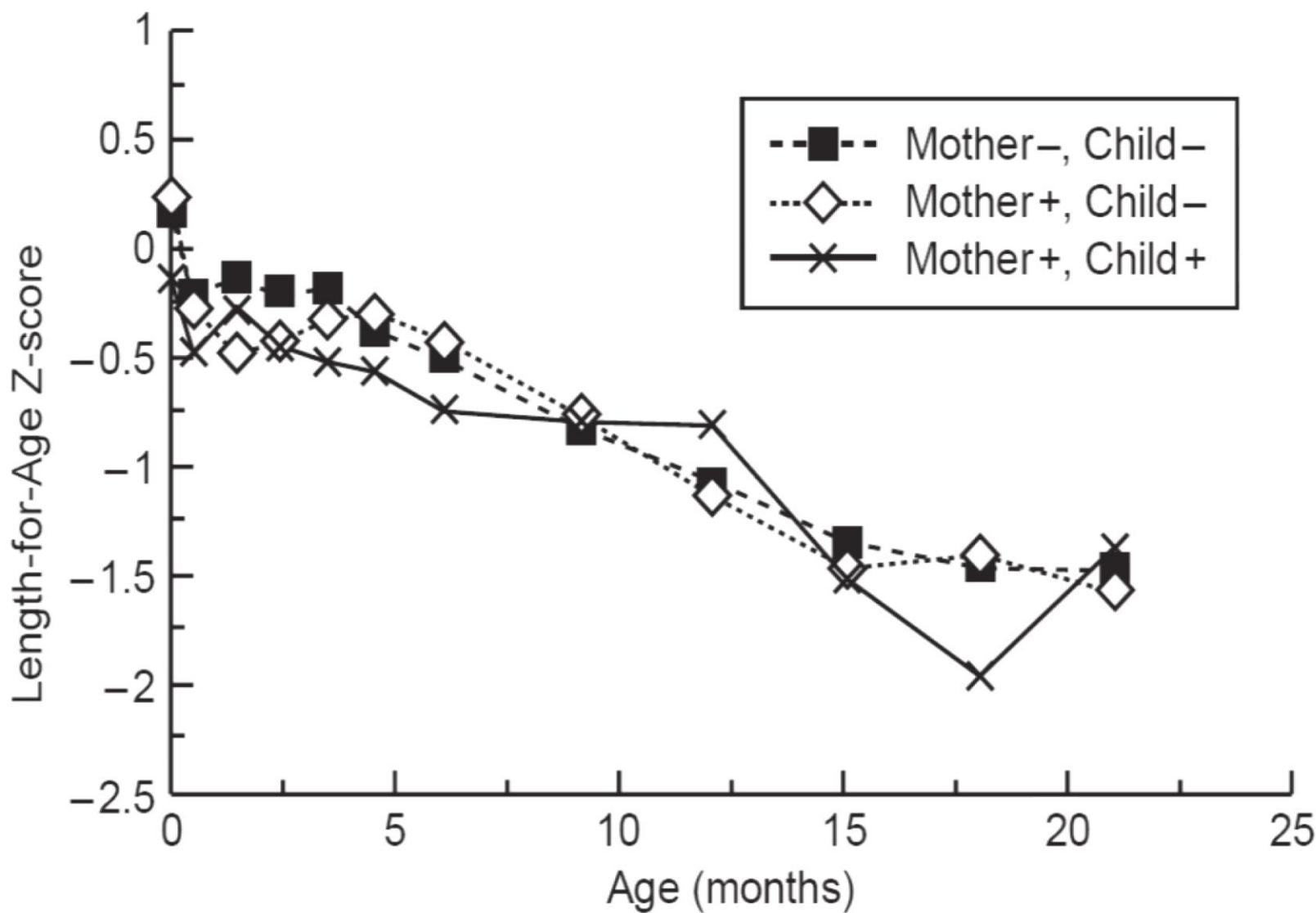


Associations:

- Marital Status

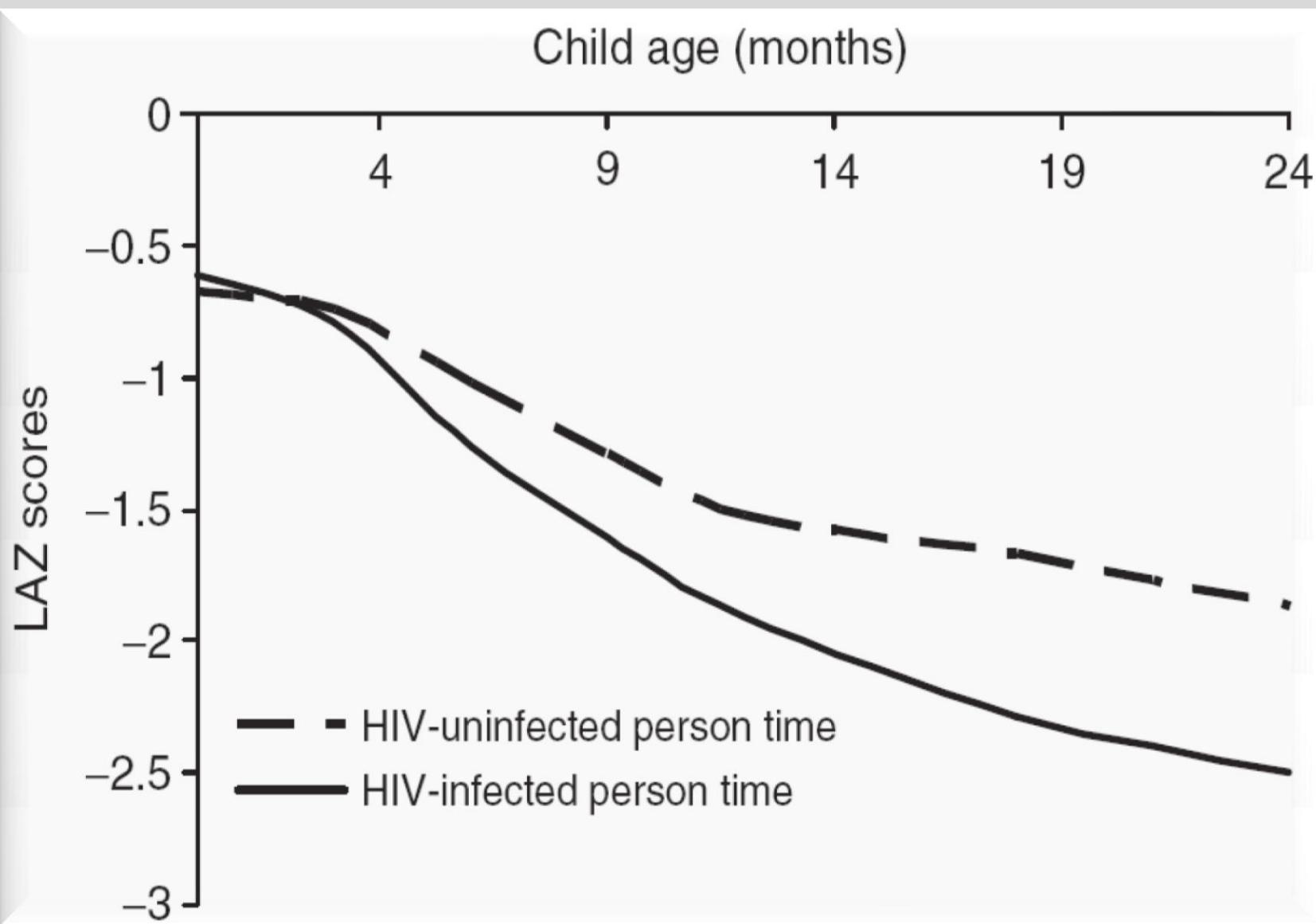
- Housing

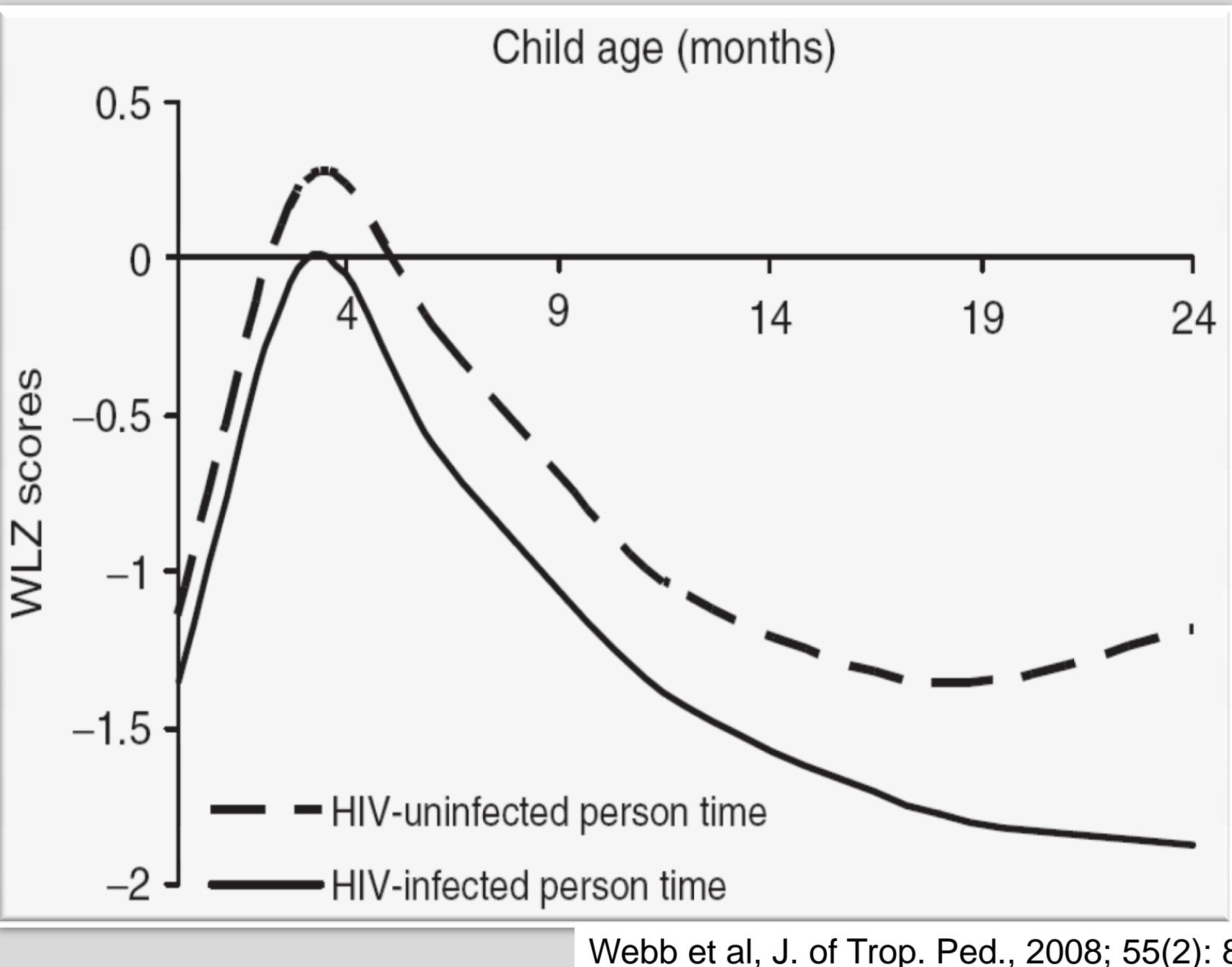




Multi centre cohort Dar-es Salaam
Pre-ART
No unexposed group

Associations:
HIV status & weight/ length
Maternal education
Parity





Reviewed
Developed and developing countries

Conclusion:
Poor Growth is a common feature
No clear pattern

Developed countries

	Infected	Non infected
Length	Lower 1-3 cm (increasing with age) Onset: 3-4 months	3/5 no difference 2/5 as early as 6 months
Weight	Lower 0.6-0.65kg at 6 months (up to 1.5kg) Onset: 3-4 months	Higher or normal
BMI	Lower in 1 st 6 month of life	Higher or normal
Head circumference	No difference	No difference
MUAC	2mm/month lower	

Developing countries

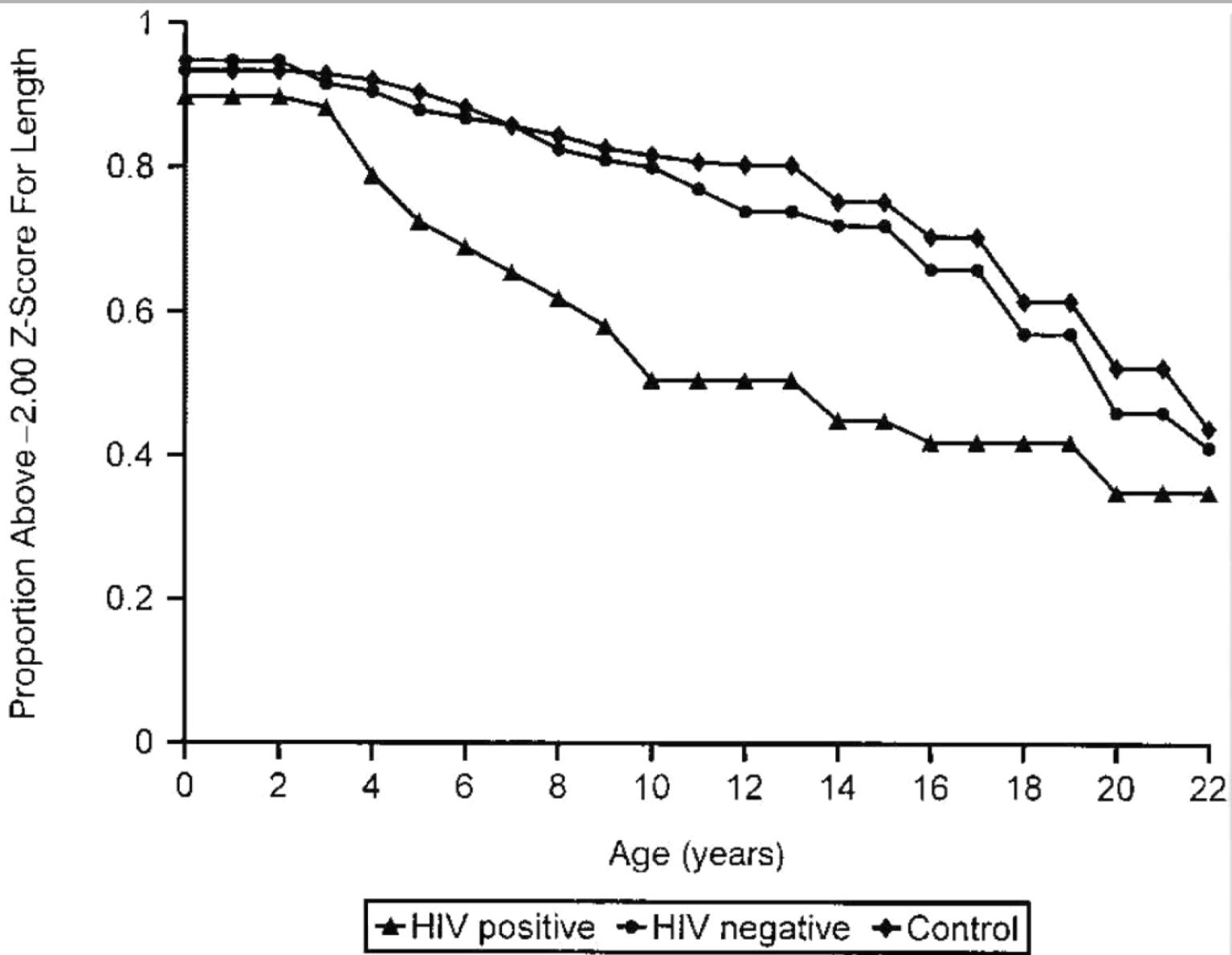
	Infected	Non infected
Length	Lower Onset: 3 months Lower velocity	Normal
Weight	Lower (0.2-1.26kg) Onset: 3 months	Normal
BMI	Lower in 1 st 6 month of life	Normal
Head circumference	Lower Onset: 3 months	

Prevalence

60% by 20 months
Congo

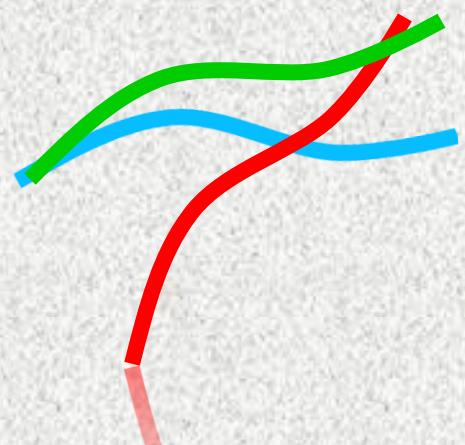
50% by 5 years
Europe, with ART

Arpadi, Nutrition and HIV/AIDS in Africa 2005



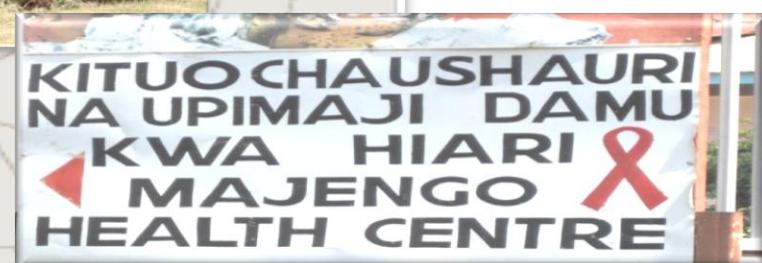
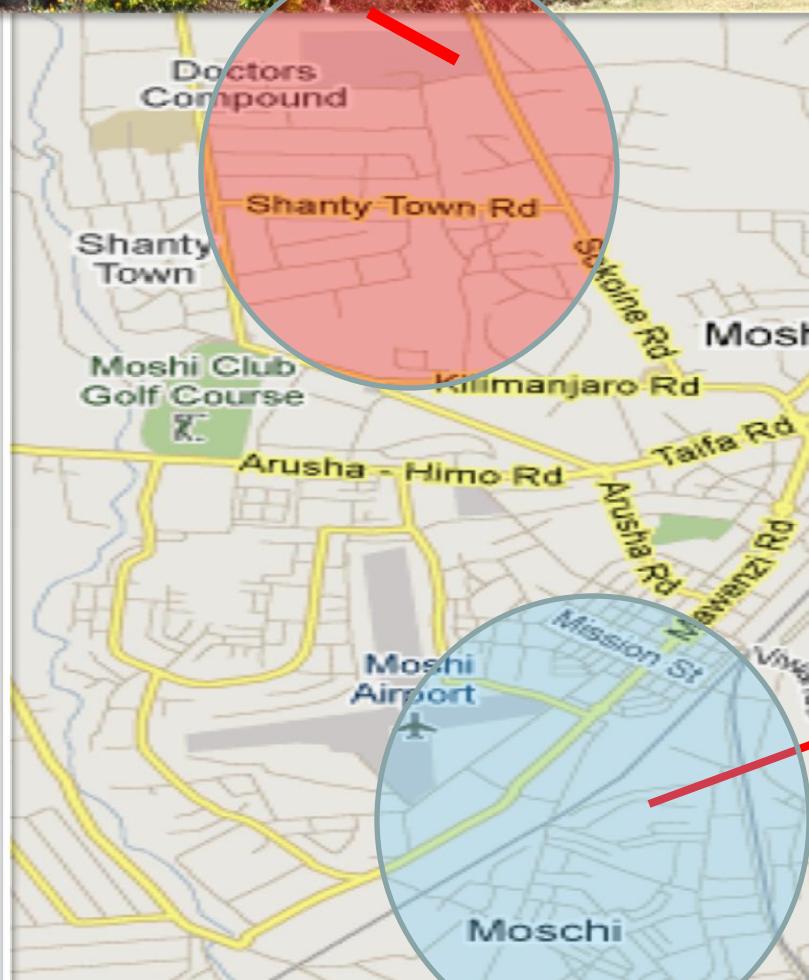
Statement of Problem

- Baseline poor growth
 - Malnutrition
- HIV can impair growth
- In PMTCT/ART era
 - How is growth affected by these interventions?



To describe the influence of HIV-exposure
and associated factors on growth patterns
of infants in Moshi Municipality

Cross sectional study



- **Population**
 - Infants and mothers in HIV and RCH clinics

Exposed infants

IDC



Non-exposed infants

RCH



Inclusion criteria

Consent

Less than 12 months

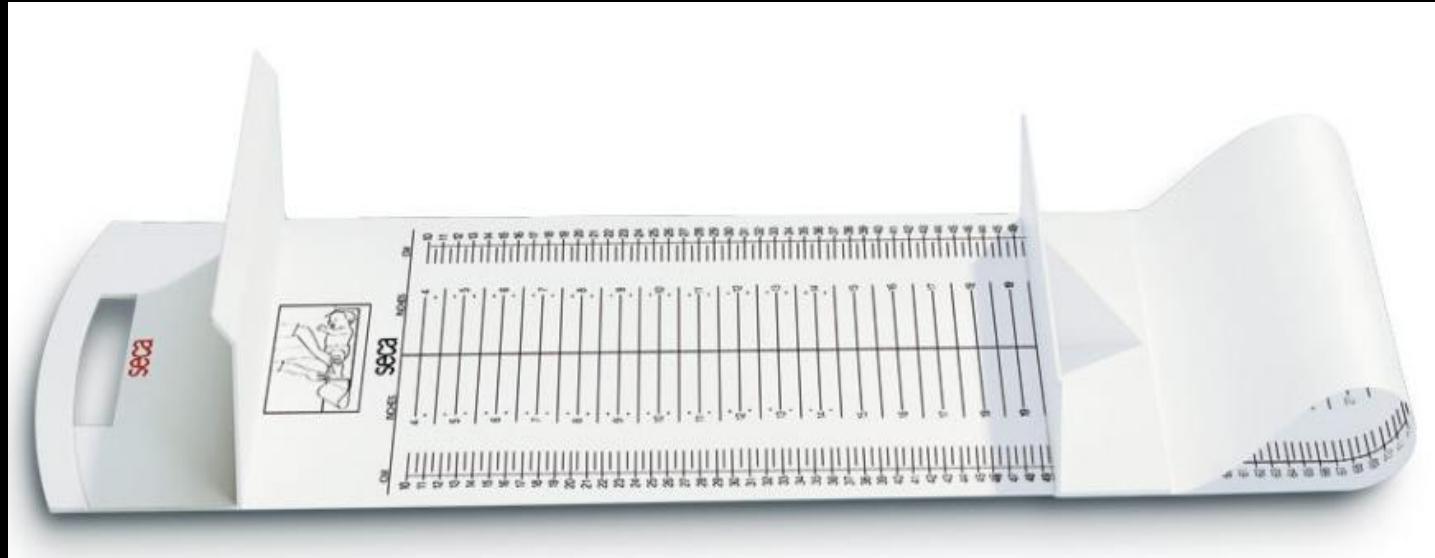
Exclusion Criteria

Refusal of parent to consent

Children with birth weight below 2500 gm

Orphans

Children with unknown exposure status





The diagram illustrates the measurement range of the Seca IDA tape measure. It features a horizontal scale from 50 to 300 mm, with major tick marks every 2 mm and minor tick marks every 1 mm. The scale is color-coded in segments: red (50-120), orange (120-130), yellow (130-140), green (140-160), light blue (160-170), medium blue (170-180), dark blue (180-190), purple (190-200), pink (200-210), light green (210-220), light blue (220-230), medium blue (230-240), dark blue (240-250), purple (250-260), pink (260-270), light green (270-280), light blue (280-290), medium blue (290-300).

50	56	62	68	74	80	86	92	98	104	110	116	122	128	134	140	146	152	158	164	170	176	182	188	194	200	206	212	218	224	230	236	242	248	254	260	266	272	278	284	290	296	302
52	58	64	70	76	82	88	94	100	106	112	118	124	130	136	142	148	154	160	166	172	178	184	190	196	202	208	214	220	226	232	238	244	250	256	262	268	274	280	286	292	298	304
54	60	66	72	78	84	90	96	102	108	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	

RESULTS

Characteristic	HIV-exposed (n=113)	Non-exposed (n=191)	Significance test	P-value
Gender	63	89	$\chi^2=2.380$	0.123
male	50	102		
female				
Mode of delivery				
svd	75	164	$\chi^2=16.047$	<0.001
c/s	38	27	OR=3.08 (1.69<OR<5.63)	
Birth weight (SD)	3.08 (0.38)	3.1 (0.41)	t=-2.313	0.021*
Age (SD) [months]	4.72 (3.19)	3.54 (2.89)	t=3.289	0.001*
Maternal age (SD) [years]	31.4 (5.41)	27.76 (1.25)	t=5.366	0.000*
Parity (SD)	2.44 (1.12)	2.11 (1.25)	t=2.325	0.021*

Characteristic	HIV-exposed (n=113)	Non-exposed (n=191)	Significance test	P-value
Marital status				
single	11	16		
cohabiting	24	17		
divorced	2	1	$\chi^2=22.050$	<0.001 [†]
widowed	8	1		
monogamous	68	147		
polygamous	5	9		
Socio-economic score mean (SD)	8.97 (2.12)	9.19 (2.23)	t=-0.827	0.409*

FIGURE 1: PMTCT REGIMEN FOR EXPOSED CHILDREN

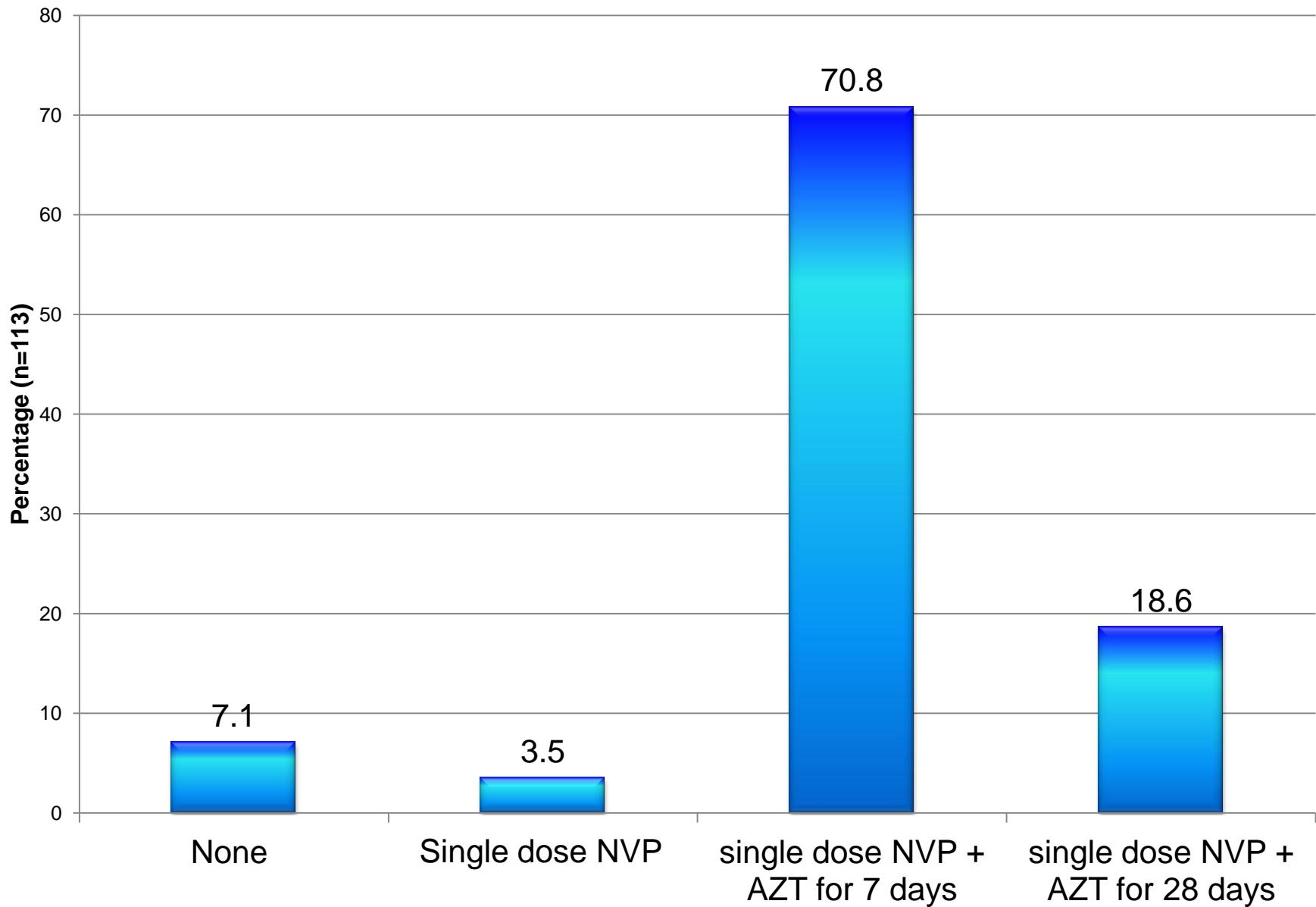
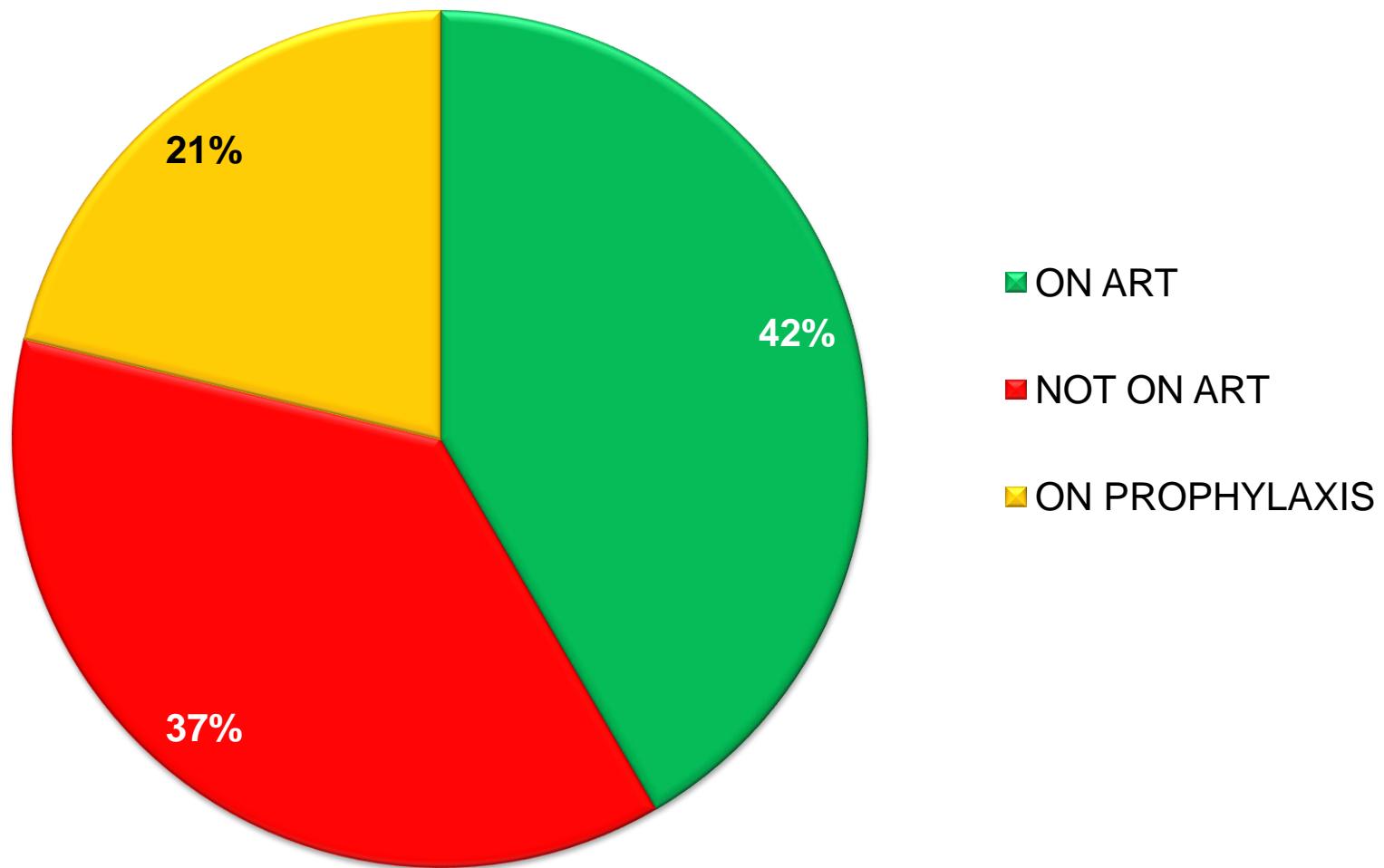
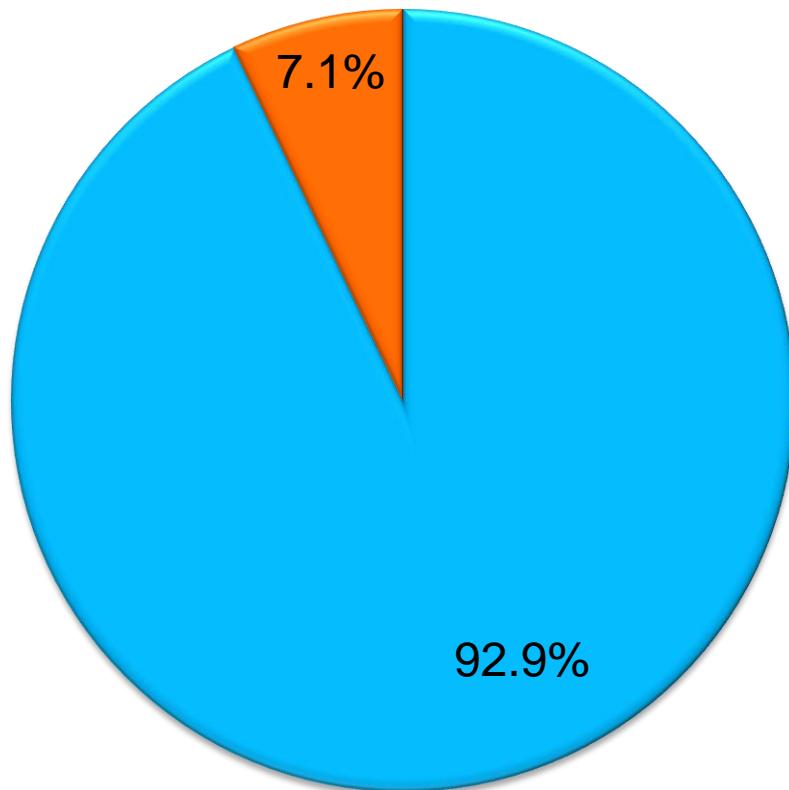


FIGURE 2: USE OF ART BY MOTHERS AT TIME OF DELIVERY (N=113)



**FIGURE 3: BREASTFEEDING AMONG THE HIV EXPOSED INFANTS
(N=113)**

■ BREAST FED ■ NOT BREAST FED



Z- SCORE FREQUENCIES

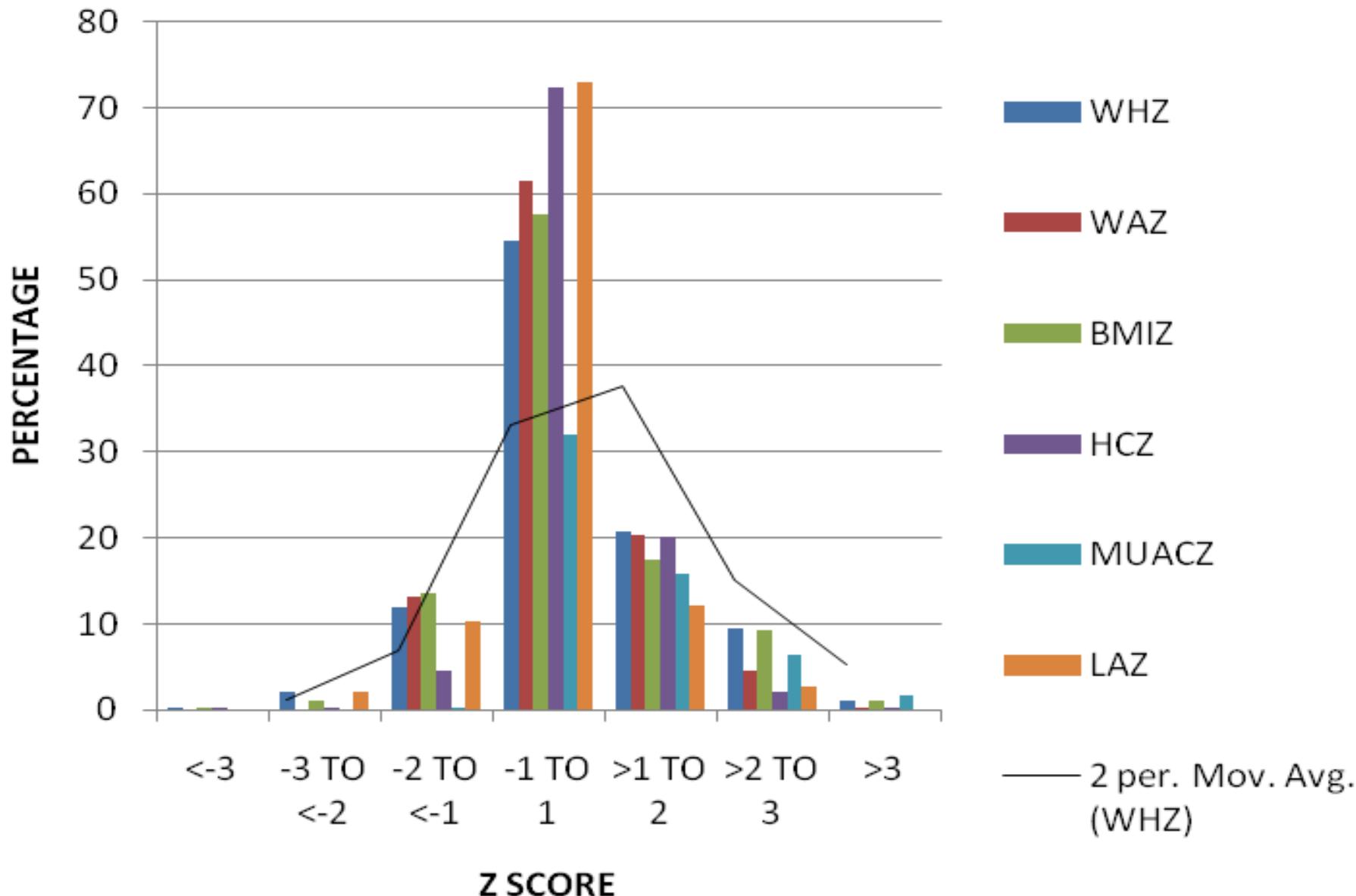


FIGURE 4: MEAN WEIGHT FOR LENGTH ACROSS DIFFERENT AGE GROUPS ($t=-2.135$, $P=0.034$)

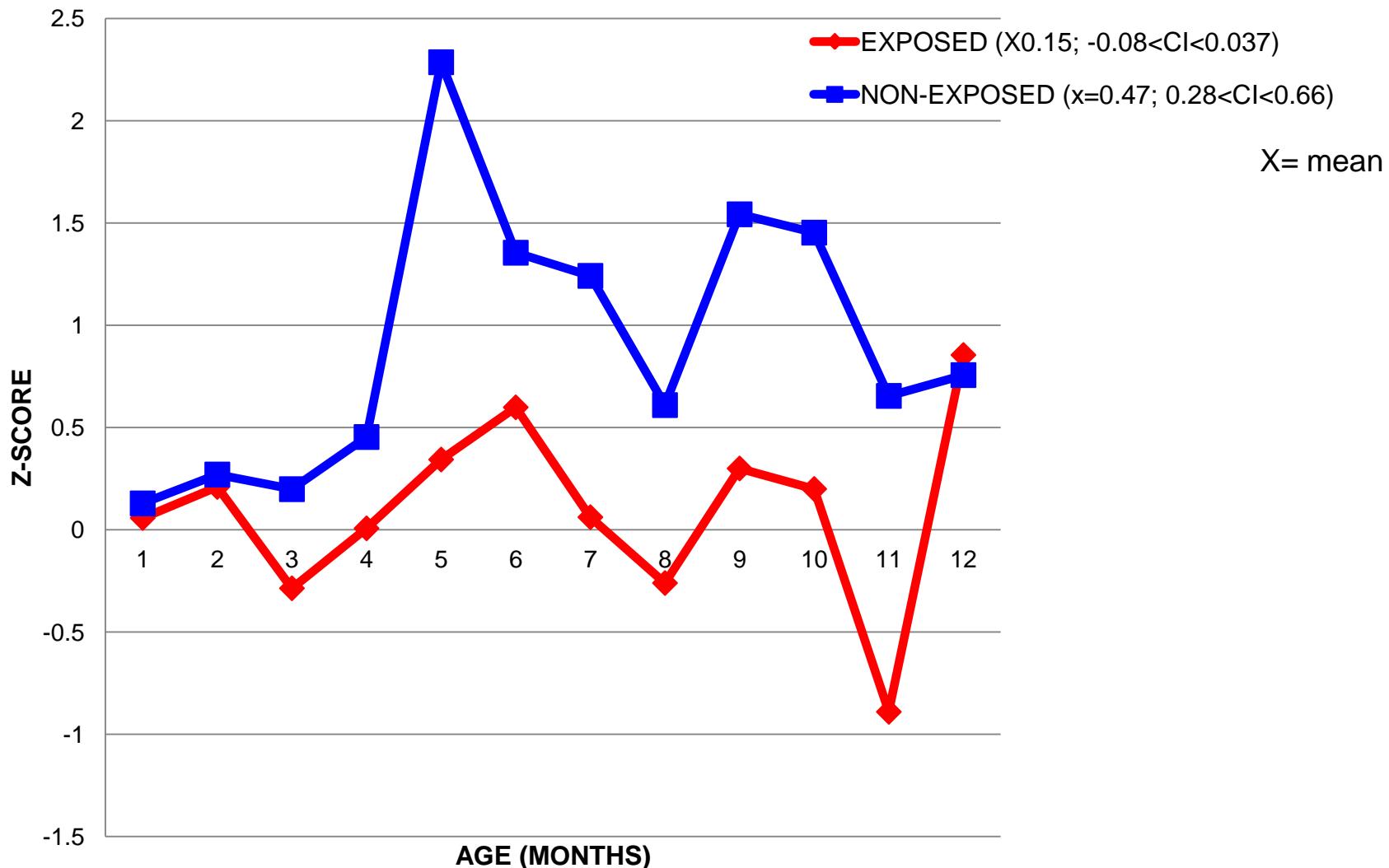


FIGURE 5: MEAN WEIGHT FOR AGE ACROSS AGE GROUPS
($t=-3.171$, $P=0.002$)

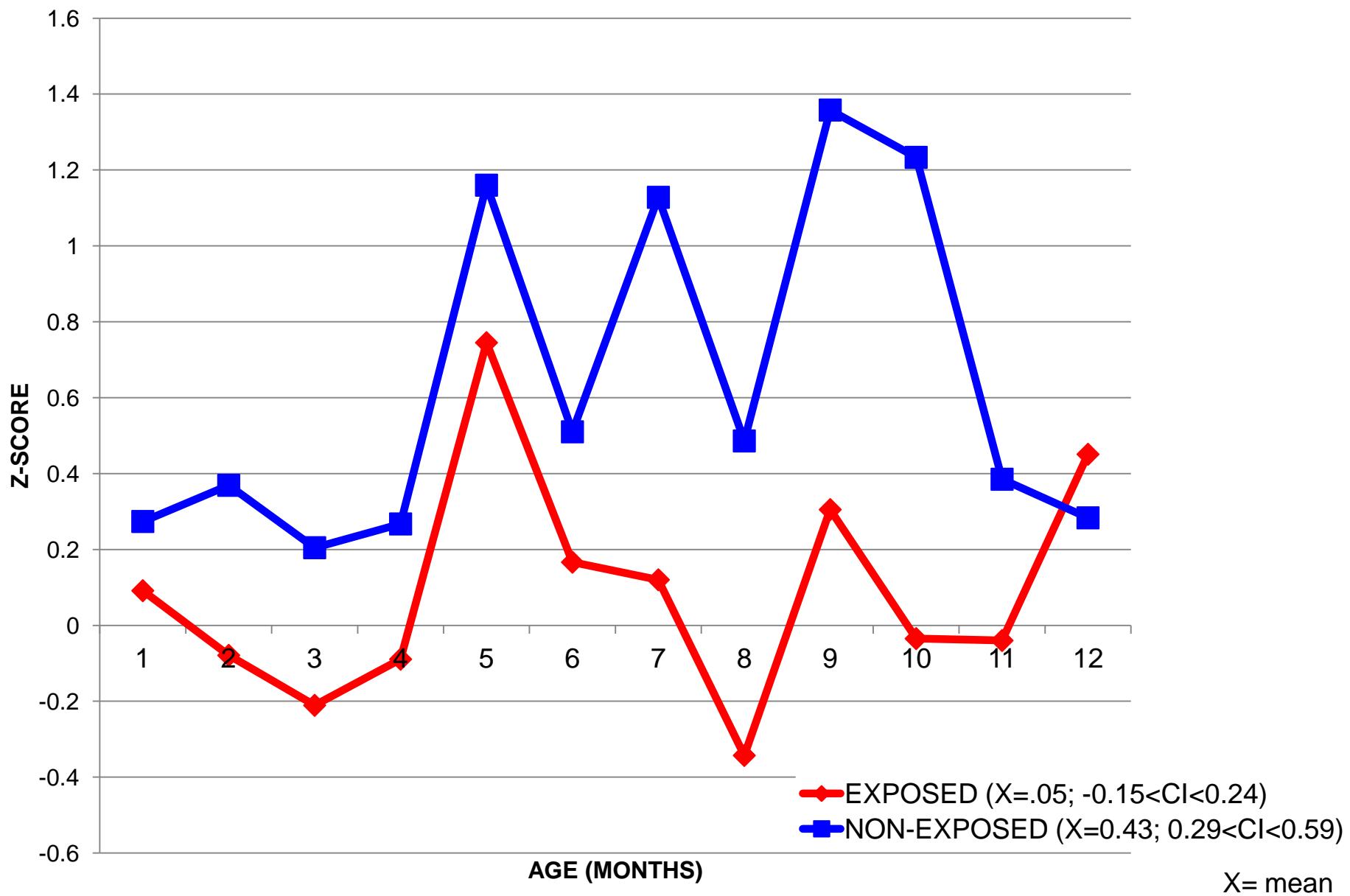
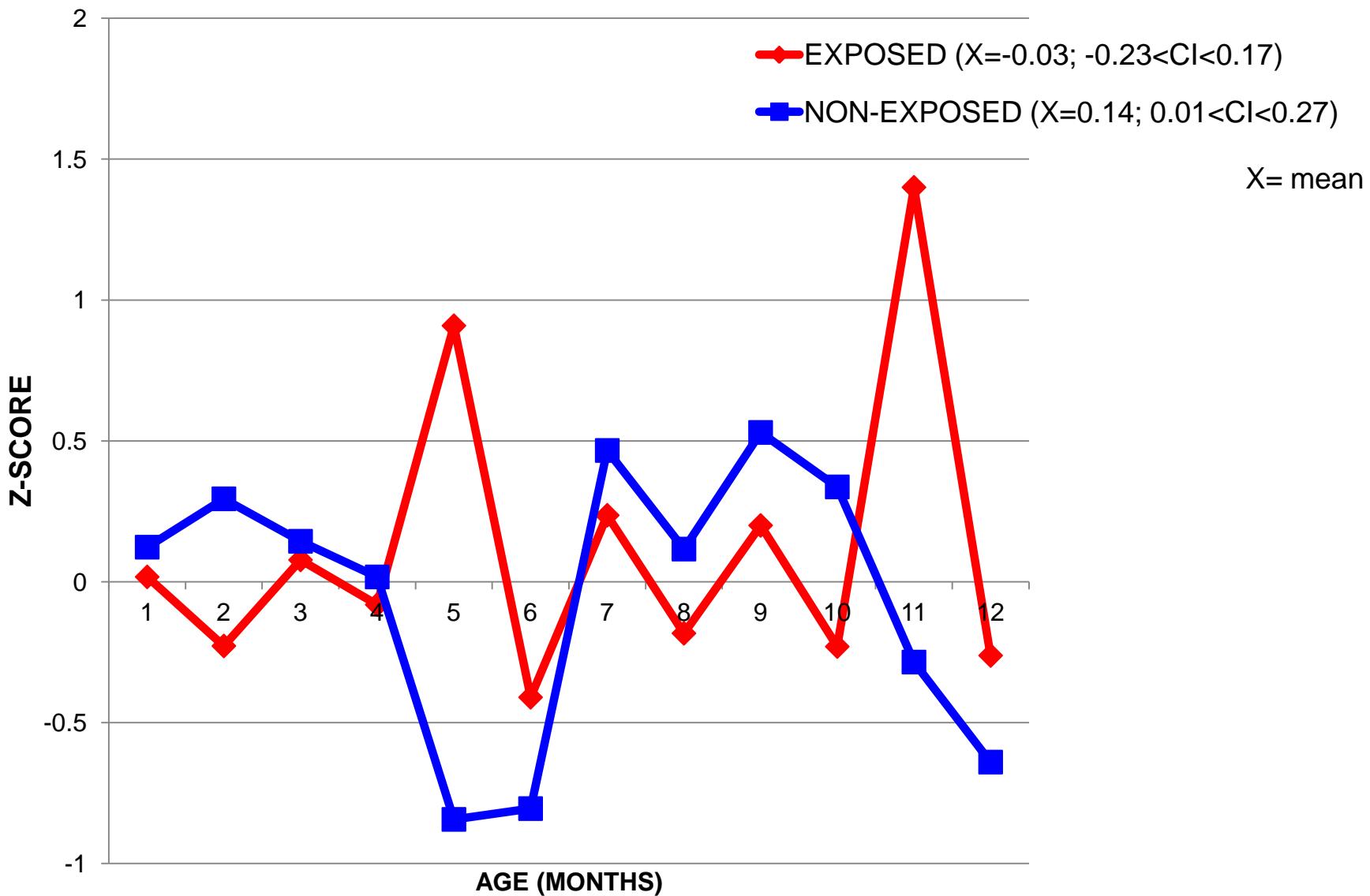


FIGURE 6: MEAN LENGTH FOR AGE ACROSS AGE GROUPS
($t=-1.498$, $P=0.135$)



**FIGURE 7: MEAN BMI FOR AGE ACROSS AGE GROUPS
($t=-2.602$, $P=0.010$)**

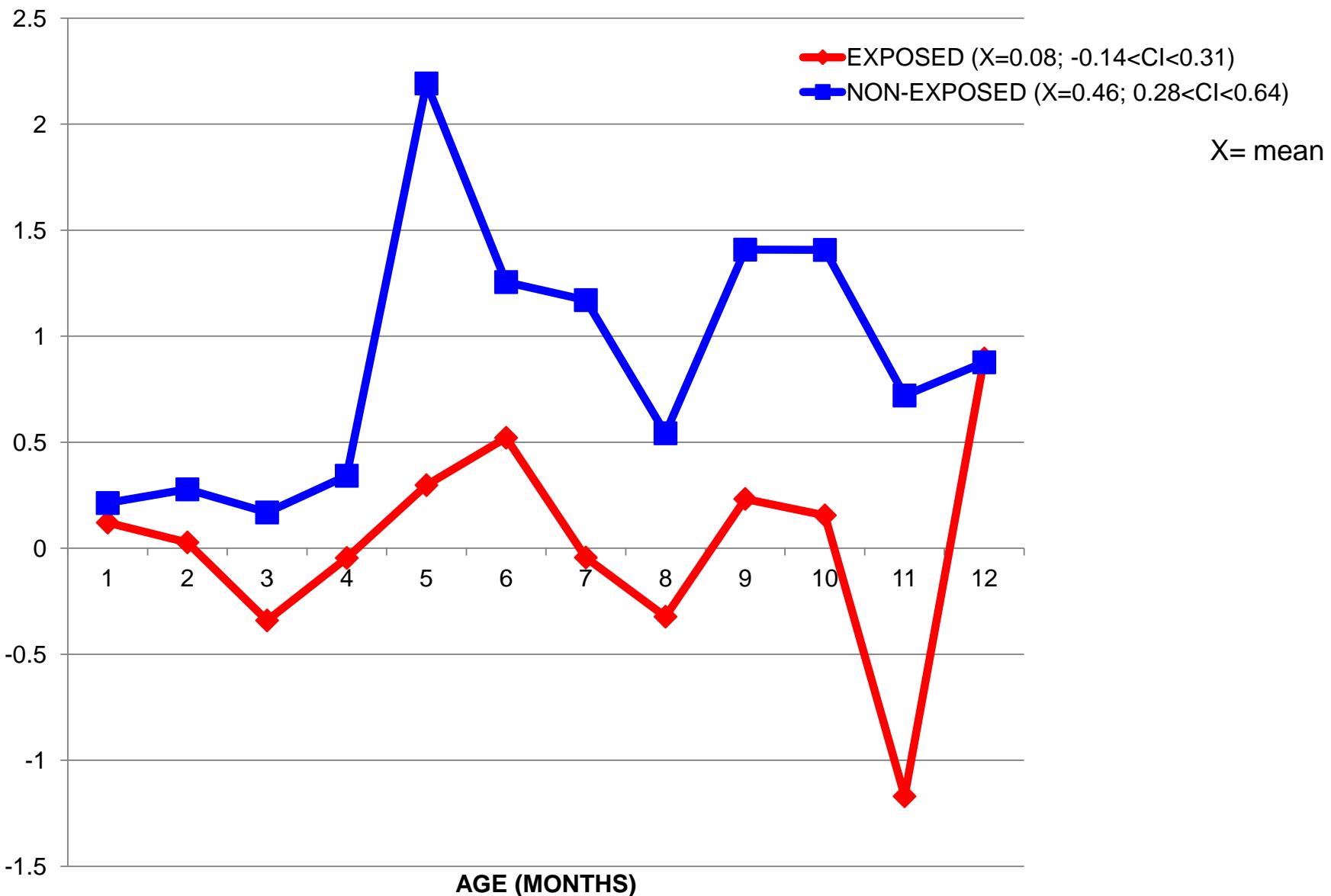
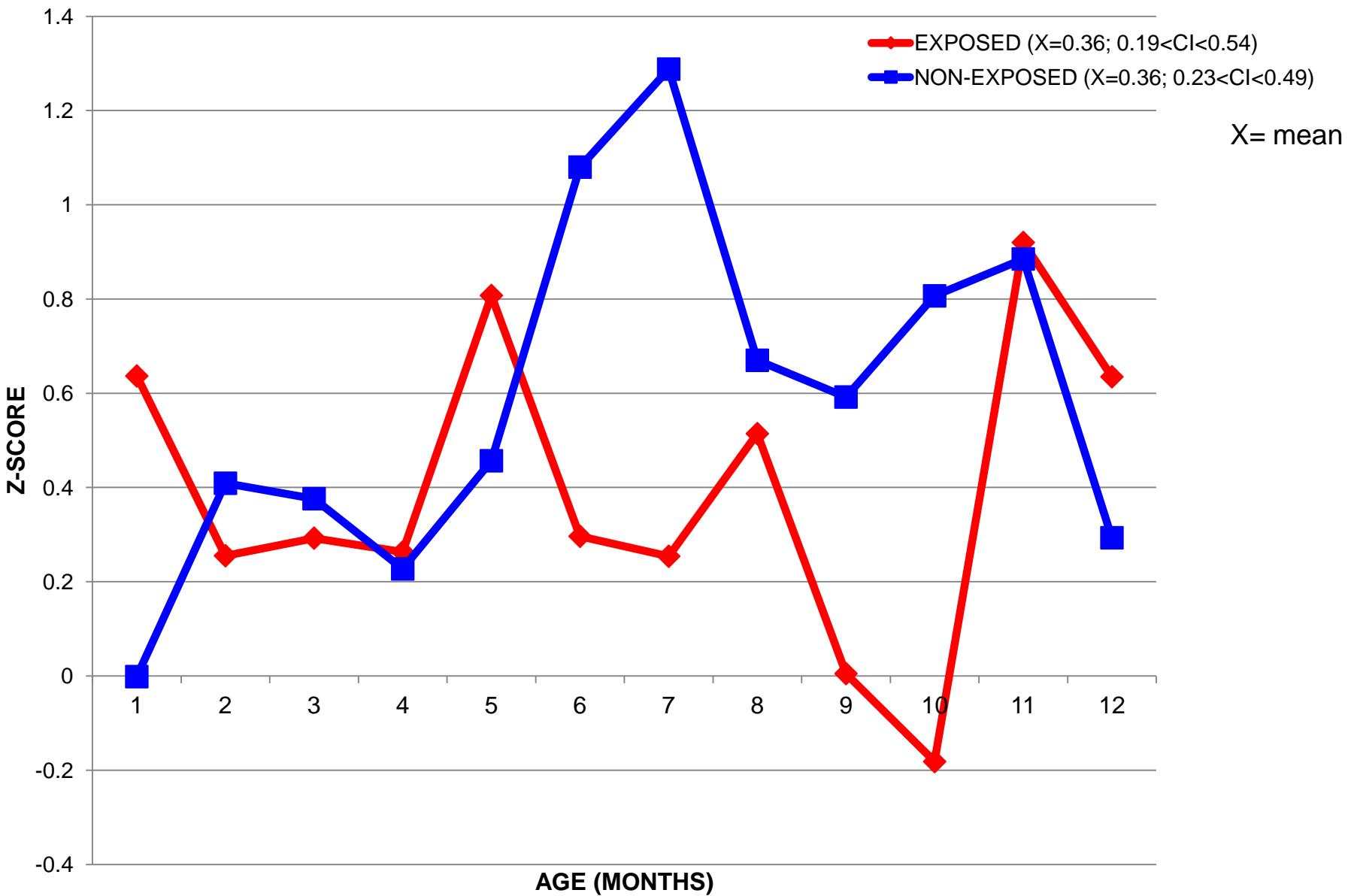


FIGURE 8: MEAN OFC FOR AGE ACROSS AGE GROUPS
($t=0.021$, $P=0.983$)



**FIGURE 9: MEAN MUAC FOR AGE ACROSS AGE GROUPS
(N=170, t=-1.696, P=0.092)**

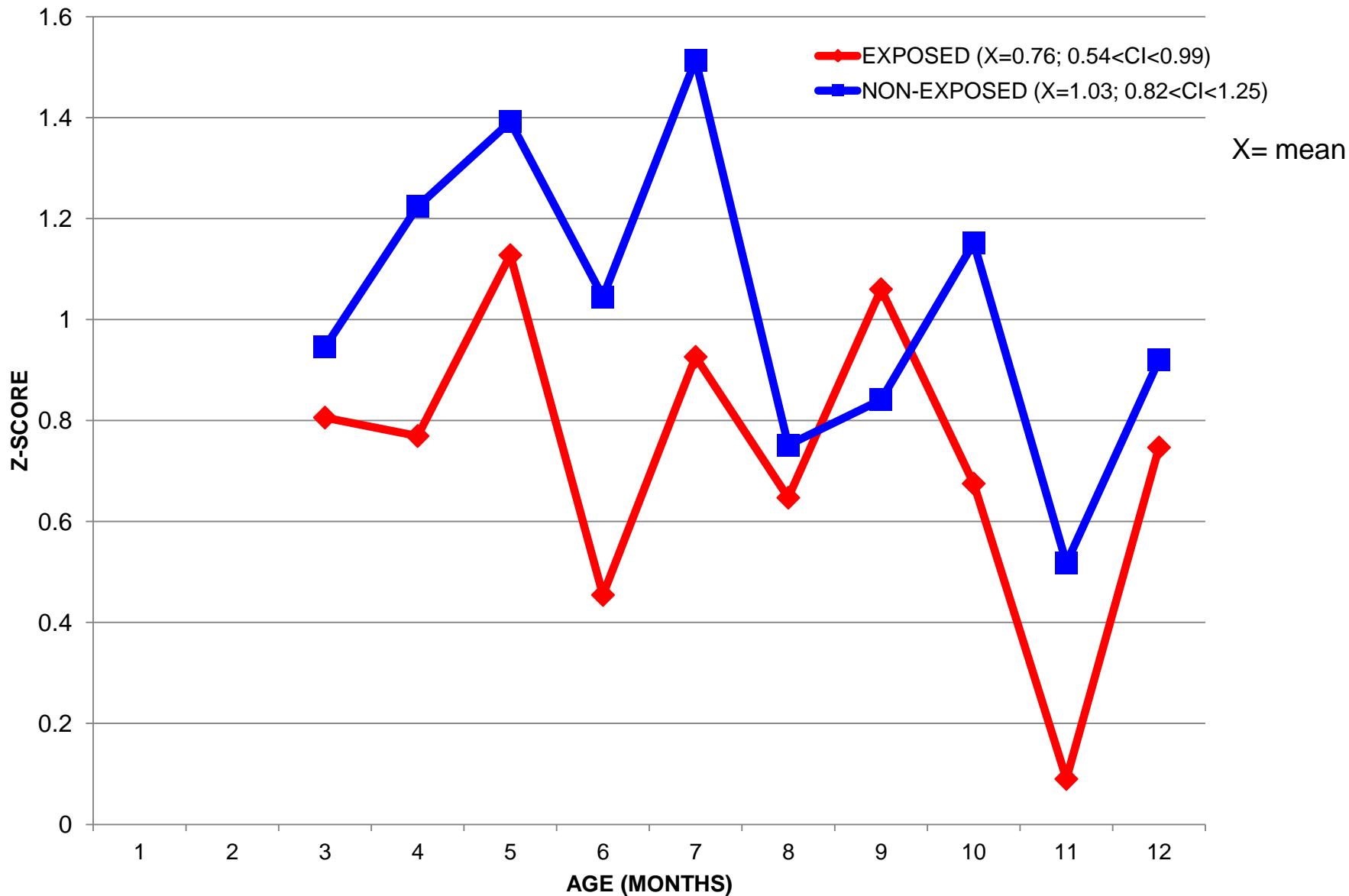
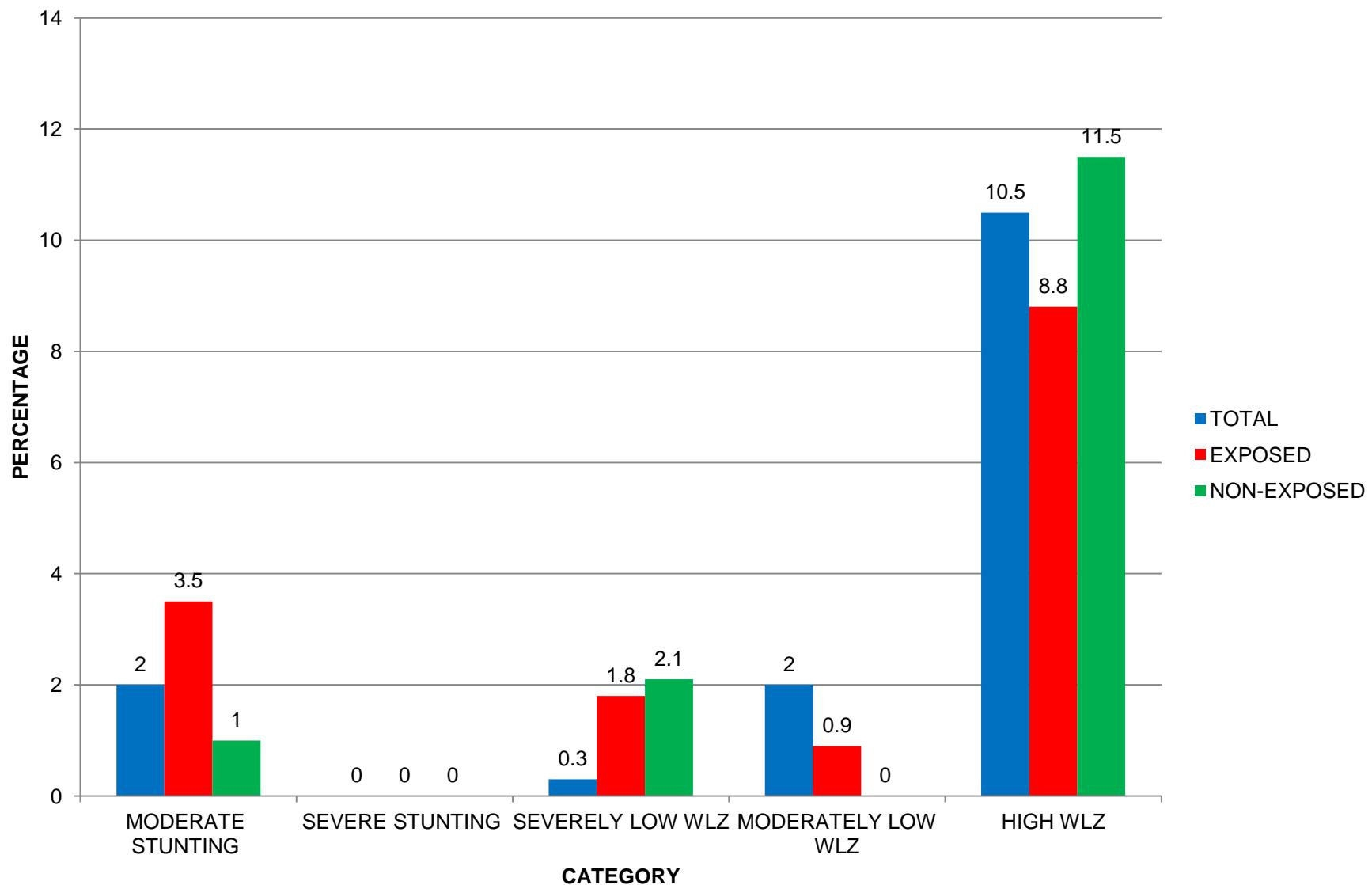


FIGURE 10: PERCENTAGES OF ABNORMAL ANTHROPOOMETRY



CONCLUSION

Within normal WHO range

Exposed children smaller

- Up to 0.38 Z-scores
- Esp. WAZ & LAZ
- Lower birth weight

RECOMMENDATIONS

Screening of anthropometry

Shift from weight for age to weight for height

LIMITATIONS

Lack of proper documentation

Few centers

Funding

AHSANTE SANA