
0~71 72~179

100084

the World Health Assembly

2030

WHO

1

wasting

stunting

un

derweight 2

3

overweight

obesity

1/3

[1]

[2]

[1] <http://www.who.int/topics/malnutrition/en/>

[2] <http://www.who.int/mediacentre/commentaries/malnutrition/en/>

REPORT OF THE ROYAL COMMISSION

child stunting

child wasting

2000

60

rate

1990

39.6%

2015

2.55

2015

2013 5

8.1%

640

$$Z = \frac{(X/M)^L - 1}{LS}, \quad L > 0$$

$$Z = \frac{\ln(X/M)}{S}, \quad L=0$$

Z X M S L M S

L Box-Cox

[1]

WHO CDC

WAZ

weight for age

HAZ

length/height for age

WHZ

weight for height/length

BAZ

BMI

body mass index for age BMI = kg /

m²

2.

WHO

2000

7

1.

child stunting

low height for age 2

child wasting

low weight for height 3

child overweight :

higher weight for height 4.

adult overweight

BMI < 25 carrying excess body fat with a body mass index < 25 5.

adult obesity :

BMI > 30 carrying excess body fat with a body mass index > 30 6.

micronutrient deficiency : A B

iron, folic acid, vitamin

A B, Bzinc, iodine below healthy thresholds 7.

non-communicable diseases

diabetes, heart disease, and some cancers

4 5

1

1 2

2

6 3

1

3

3

3

3

-2

a.

stunting

WHO

2006 Growth Chart

2

HAZ < -2

[1]

b. underweight WHO 2006 2 3
 - 3 WAZ<- 2 WHO 2006 3 WAZ<- 3
 c. wasting BMI WHO 2006 2 3
 - 3 BAZ/WHZ/WLZ<- 2 BMI WHO 2006 3
 BAZ/WHZ/WLZ<- 3

BMI
 BMI BAZ 24 24
 WLZ 2 5 WHZ
 2
 B A

3
 BMI II
 a. / overweight BMI WHO 2006 2
 3 2<BAZ/WHZ/WLZ 3 obesity BMI WHO 2006
 3 BAZ/WHZ/WLZ>3
 b. II

0~15

1.
 0-5 60 60 2
 CUCDS 2012
 1 2 WLZ WHZ
 WHO 60

3 WHO
5 2

2

	Variables	()					() ²	()
0~15		28.69	15.05	2.50	100.77	6798	6585	6597
		123.53	29.20	45.10	190.00	6798	6238	6307
	BMI()	17.91	3.75	9.92	51.04	6798	6087	6172
	WAZ	-0.04	1.46	-4.98	4.98	6798	6585	6597
	HAZ	-0.42	1.62	-5.00	4.99	6798	6238	6307
	BAZ	0.34	1.72	-4.97	4.99	6798	6087	6172
0~59		14.28	5.34	2.50	47.00	2679	2549	2089
		88.80	15.13	45.10	125.00	2679	2291	1888
	BMI()	17.37	3.05	9.92	26.77	2679	2143	1760
	WAZ	0.43	1.66	-4.98	4.98	2679	2549	2089
	HAZ	-0.40	1.93	-5.00	4.99	2679	2291	1888
	BAZ	0.91	1.87	-4.97	4.99	2679	2143	1760
	WLZ ¹	1.01	1.90	-4.96	4.99	1048	925	630
	WHZ ¹	0.82	1.76	-4.82	4.97	1455	1255	1154
60~179		35.36	13.32	12.60	100.77	4119	4036	4508
		138.37	19.58	88.00	190.00	4119	3947	4418
	BMI()	18.13	3.98	10.41	51.04	4119	3944	4412
	WAZ	-0.25	1.29	-4.95	4.11	4119	4036	4508
	HAZ	-0.43	1.47	-4.98	4.92	4119	3947	4418
	BAZ	0.11	1.61	-4.97	4.99	4119	3944	4412

1 WLZ 45cm 110cm 24 WHZ 60cm 120cm 24 60

2 WHO Growth Chart 2006 BMI

5 -5
5 -5

>0
<0

WHO
WHO

0-59

HAZ

Q.40

2
WAZ

BMI

BAZ

Q.43 Q.91

WHO

WHO

BAZ WHO

Q.9

60

HAZ WAZ

Q.43

Q.25

2.

1 WAZ HAZ BAZ

WAZ

4

1

1

4

4

3

3
8

BAZ

WHO
3

10
WHO

WHO
3

BAZ

9-10

3.

6 72

6 72

4

3 4

6 6

[1]

2013

CFPS 2012

1 6

6

2013

6

2.5%

3.1%

2012

[1]

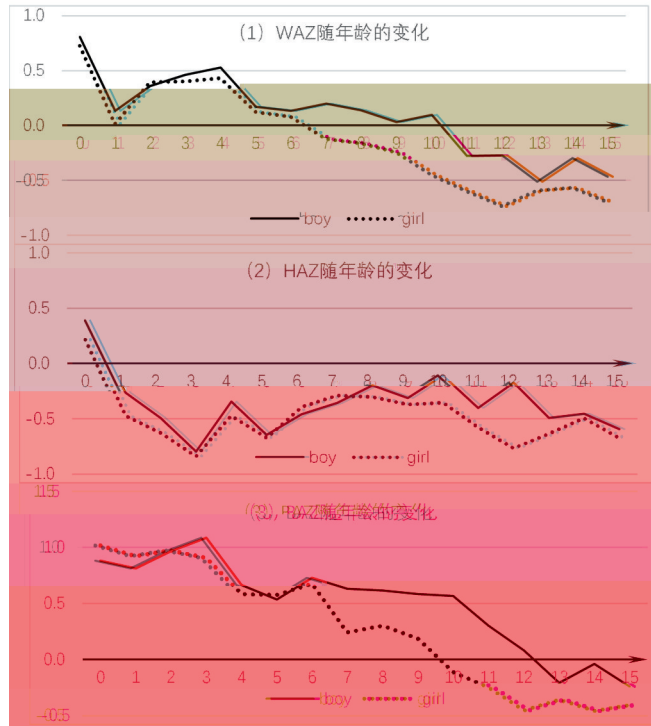
72

JME

60

2015

72 6



1 WAZ HAZ BAZ

	3	6	72
	(CUCD 2012)	2013	(CFPS 2012)
	20.1%	8.1%	24.5%
	17.5%	4.2%	19.2%
	21.7%	11.3%	31.6%
	22.5%	19.0%	/
	6.1%	2.5%	7.1%
	5.0%	1.7%	3.1%
	6.7%	3.2%	11.8%
	7.8%	5.1%	/
	5.9%	2.0%	7.7%
	4.7%	1.5%	7.6%
	6.7%	2.4%	4.6%
	8.9%	2.7%	/
	27.9%	8.4%	23.1%
	30.2%	8.4%	15.4%
	26.4%	8.4%	36.3%
	26.2%	/	/
	16.0%	3.1%	11.6%
	17.6%	3.3%	7.7%
	15.0%	2.9%	18.2%
	17.0%	/	/

12

CFPS 2012 6
24.5%

3 4

2

2

1990 5
40% 2000
32.7% 2005 29.4%

2015 23.2%
20 80

JME

1987

38.3% 1995

30%

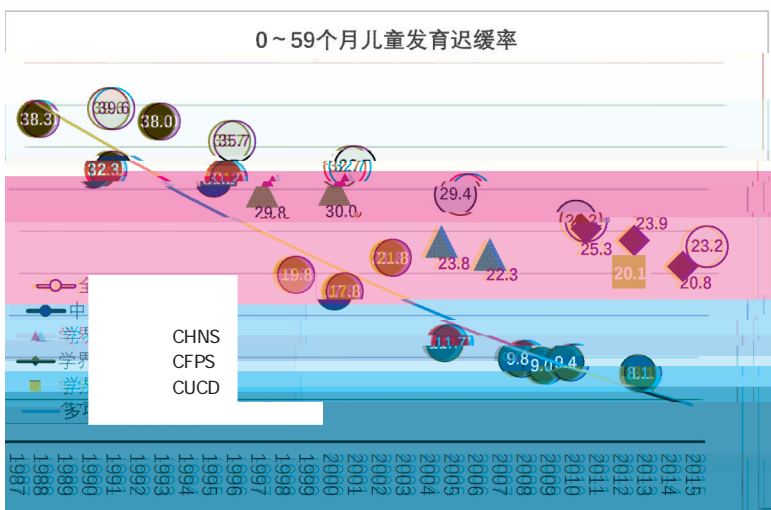
1990

2000

20%

13

21



0~59

2005 11.7% 2013 8.1%

CHNS

2000 5
22.3%

30.0%

2006

2010 2012 2014

5

20%

2 6

6

6

				4		
	CFPS 2012	6-15			CUCD 2012	
	3.2%		6-15		13.1%	10.9%
CUCD 2012		6.2			CFPS 2012	5.2
				3.2		
		6				