

**KUWAIT**
**Last Updated: 2007-11-29**

Level	Date	Region and sample descriptor	Sex	Age (years)	Sample size	Haemoglobin (g/L)						Mean	SD	Method	Reference	Notes	
						Proportion (%) of population with haemoglobin below:										General	Line
						70	100	110	115	120	130						
N	2000 P	Adolescent girls: Total	F	14.00- 23.99	1049	0.3				29.6	127	17	B	1715	*		
		Adolescent girls by governorate: Capital	F	14.00- 23.99	148				22.2	128	16						
		Adolescent girls by governorate: Hawalli	F	14.00- 23.99	308				29.9	127	18						
		Adolescent girls by governorate: Farwani	F	14.00- 23.99	251				32.2	127	17						
		Adolescent girls by governorate: Ahmadi	F	14.00- 23.99	224				34.4	125	16						
		Adolescent girls by governorate: Jahra	F	14.00- 23.99	118				23.7	130	13						
N	2000 P	NPW	F	19.00- 45.99	1788				39.0	122	15	B	2300	*			
		Men	M	19.00- 45.99	963				8.8	149	15						
		Pre-SAC: Total	B	2.00- 6.99	1197												
		SAC: Total	B	6.00- 9.99	4850		21.1										
		Pre-SAC by age	B	2.00- 2.99	83		38.6			113	13						
		Pre-SAC by age	B	3.00- 3.99	180		28.3			115	12						
		Pre-SAC by age	B	4.00- 4.99	317		20.8			120	13						
		Pre-SAC by age	B	5.00- 5.99	326			25.1		121	11						
		Pre-SAC by age	B	6.00- 6.99	291			25.4		121	12						
		Pre-SAC by governorate: Capital	B	2.00- 5.99	207					119	12						
		Pre-SAC by governorate: Hawalli	B	2.00- 5.99	297					120	12						
		Pre-SAC by governorate: Farwania	B	2.00- 5.99	144					117	13						
		Pre-SAC by governorate: Ahmadi	B	2.00- 5.99	163					118	13						
		Pre-SAC by governorate: Jahra	B	2.00- 5.99	123					118	11						
		SAC by age	B	6.00- 6.99	1214			23.6		123	12						
		SAC by age	B	7.00- 7.99	1088			21.5		124	12						
		SAC by age	B	8.00- 8.99	1362			19.4		125	13						
		SAC by age	B	9.00- 9.99	1186			19.9		125	13						
L	2000	Governorates of Ahmadi, Farwania: Adolescent girls	F	14.00- 20.99	255				56.9	120	17	B	3623	*	19		
S	2000	5 governorates: NPW	F	NS	254				22.4	129	14	B	4376	*			
		5 governorates: Children: Total	B	0.17- 1.99	254		29.5			116	11						
		5 governorates: Children by sex	F	0.17- 1.99	127					115	11						
		5 governorates: Children by sex	M	0.17- 1.99	127					116	11						
N	1998 -2002	Women by age	F	20.00- 50.99	1967				30.1	126	15	B	4375	*			
		Women by age	F	51.00- 89.99	407				19.4	131	15						
		Men by age	M	20.00- 50.99	1480				4.6	154	15						

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						Proportion (%) of population with haemoglobin below:										General	Line
						70	100	110	115	120	130						
N	1998 -2002	Men by age	M	51.00- 89.99	224						8.0	150	14	B	4375		26
		Pre-SAC by sex	F	0.50- 4.99	1847							115	12				27
		Pre-SAC by sex	M	0.50- 4.99	1846							116	12				28
		Pre-SAC by sex and age	F	0.50- 1.07	822							111	12				29
		Pre-SAC by sex and age	M	0.50- 1.07	768							111	12				30
		Pre-SAC by sex and age	F	1.08- 2.07	309							118	11				31
		Pre-SAC by sex and age	M	1.08- 2.07	339							119	11				32
		Pre-SAC by sex and age	F	2.08- 3.07	299							118	12				33
		Pre-SAC by sex and age	M	2.08- 3.07	349							119	12				34
		Pre-SAC by sex and age	F	3.08- 4.07	229							121	11				35
		Pre-SAC by sex and age	M	3.08- 4.07	211							119	11				36
		Pre-SAC by sex and age	F	4.08- 4.99	188							119	12				37
		Pre-SAC by sex and age	M	4.08- 4.99	179							118	14				38
		SAC by age	B	6.00- 11.99	2687			19.2									39
		SAC by age	B	12.00- 14.99	1458					17.6							40
		SAC by age	B	6.00- 6.99	142						120	12					41
		SAC by age	B	7.00- 7.99	705						122	13					42
		SAC by age	B	8.00- 8.99	648						123	13					43
		SAC by age	B	9.00- 9.99	633						125	12					44
		SAC by age	B	10.00- 10.99	512						127	12					45
		SAC by age	B	11.00- 11.99	47						127	12					46
		SAC by sex and age	F	12.00- 14.99	649						132	13					47
		SAC by sex and age	M	12.00- 14.99	809						130	13					48
		SAC by sex and age	F	12.00- 12.99	318					14.2	132	12					49
		SAC by sex and age	M	12.00- 12.99	384					18.8	129	11					50
		SAC by sex and age	F	13.00- 13.99	211					16.1	132	14					51
		SAC by sex and age	M	13.00- 13.99	337					17.8	132	13					52
		SAC by sex and age	F	14.00- 14.99	120					19.2	131	15					53
		SAC by sex and age	M	14.00- 14.99	88					25.0	134	18					54
		Adolescents by sex	F	15.00- 18.99	1026						129	14					55
		Adolescents by sex	M	15.00- 18.99	1008						145	14					56
		Adolescents by sex and age	F	15.00- 15.99	263					22.4	129	14					57
		Adolescents by sex and age	M	15.00- 15.99	326						142	13					58
		Adolescents by sex and age	F	16.00- 16.99	329					21.0	130	13					59
		Adolescents by sex and age	M	16.00- 16.99	321					10.0	146	14					60
		Adolescents by sex and age	F	17.00- 17.99	322					24.5	128	14					61

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Level	Date	Region and sample descriptor	Sex	Age (years)	Sample size	Haemoglobin (g/L)						Mean	SD	Method	Reference	Notes	
						Proportion (%) of population with haemoglobin below:										General	Line
						70	100	110	115	120	130						
N	1998 -2002	Adolescents by sex and age	M	17.00- 17.99	250						8.8	147	13	B	4375		62
		Adolescents by sex and age	F	18.00- 18.99	112					21.4	130	15				63	
		Adolescents by sex and age	M	18.00- 18.99	111					9.0	149	16				64	
L	1997	Al-Dahya: NPW	F	NS	126						21.4	129	14	B	1683	*	
		Al-Dahya: Men	M	NS	112						1.8	158	13				
		Al-Fayha: Pre-SAC by age	B	NS- 1.99	31			29.0				116	12				
		Al-Fayha: Pre-SAC by age	B	2.00- 5.99	93			23.7				119	12				
		Gomana: SAC	F	NS	111					18.0		132	13				
N	1995	NPW: Total	F	14.00- 45.99	980						23.3			C	3100	*	65
		NPW by age	F	14.00- 19.99	197						15.2						
		NPW by age	F	20.00- 29.99	428						27.8						
		NPW by age	F	30.00- 39.99	273						21.2						
		NPW by age	F	40.00- 45.99	82						25.6						
		NPW by governorate: Capital	F	14.00- 45.99	212						26.9						
		NPW by governorate: Hawalli	F	14.00- 45.99	212						24.5						
		NPW by governorate: Ahmadi	F	14.00- 45.99	196						25.5						
		NPW by governorate: Jahra	F	14.00- 45.99	123						21.1						
		NPW by governorate: Farwania	F	14.00- 45.99	237						18.1						
N	1995	Pre-SAC: Total	B	0.50- 4.99	765			29.3					A	4801	*	66	
		Pre-SAC by sex	F	0.50- 4.99	391			25.8									
		Pre-SAC by sex	M	0.50- 4.99	374			32.9									
N	1985 -1986	PW: Total	F	14.00- 45.99	1534			39.7			113	13	A	1850		67	
		PW by gestational age: 1st trimester	F	14.00- 45.99	189			20.6			120	12					
		PW by gestational age: 2nd trimester	F	14.00- 45.99	508			37.8			113	12					
		PW by gestational age: 3rd trimester	F	14.00- 45.99	837			45.2			111	13					
		PW by pregnancy number: 1	F	14.00- 45.99	295			34.5			114	13					
		PW by pregnancy number: >1	F	14.00- 45.99	1239			40.8			112	13					
N	1983 -1984	SAC by sex	F	6.00- 17.99	615					25.7	127		A	2006	*	68	
		SAC by sex and age	M	6.00- 14.99	421					16.4	133						
		SAC by sex and age	M	15.00- 17.99	172					3.5	149						

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						Proportion (%) of population with haemoglobin below:							Mean	SD	Method	General	Line
						70	100	110	115	120	130						
R	1975 -1976	6 Areas: PW	F	14.00- 41.99	900			31.0						NS	4929	*	69

## NOTES

### KUWAIT

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**Reference No:** 1715

**General Notes:** *Facility based study (schools); same study as published in reference No. 2300, reference No. 4685.*

**Reference No:** 2300

**General Notes:** *Facility based study (nursery, kindergarten, primary and secondary schools, Medical Council register); data on adolescent school age girls (14-23 yrs), see reference No. 1715; study on preschool age and adolescent school age girls also published in reference No 4685; sampling: design not explained, nursery, kindergarten, primary and secondary aged students were sampled in their schools and adults (19-45 yrs) from the Medical Council register; exclusion of sick subjects, pregnant women and subjects who had recently given or received blood.*

**Line note 1** Employees; mean (SD) age 26.4 (5.4) yrs.

**Line note 2** Employees; mean (SD) age 26.0 (5.4) yrs.

**Line note 3** Prevalence value calculated; prevalence of anaemia 25.5% (Hb <110 g/L 2-4 yrs, Hb <115 g/L 5-6 yrs); nursery schools and kindergartens.

**Line note 4** Prevalence value calculated; mean (SD) age 7.5 (1.1) yrs; 52.9% males, 47.1% females; primary schools.

**Line note 5** Nursery schools.

**Line note 6** Nursery schools.

**Line note 7** Kindergartens.

**Line note 8** Kindergartens.

**Line note 9** Kindergartens.

**Line note 10** Prevalence of anaemia 19.3% (Hb <110 g/L 2-4 yrs, Hb <115 g/L 5 yrs).

**Line note 11** Prevalence of anaemia 22.8% (Hb <110 g/L 2-4 yrs, Hb <115 g/L 5 yrs).

**Line note 12** Prevalence of anaemia 27.8% (Hb <110 g/L 2-4 yrs, Hb <115 g/L 5 yrs).

**Line note 13** Prevalence of anaemia 23.3% (Hb <110 g/L 2-4 yrs, Hb <115 g/L 5 yrs).

**Line note 14** Prevalence of anaemia 22.8% (Hb <110 g/L 2-4 yrs, Hb <115 g/L 5 yrs).

**Line note 15** Primary schools.

**Line note 16** Primary schools.

**Line note 17** Primary schools.

**Line note 18** Primary schools.

**Reference No:** 3623

**General Notes:** *Facility based study (2 girls' high schools); location of survey provided by investigator; sampling: all girls in the selected schools were asked to participate, very few did not.*

**Line note 19** Mean (SD) age 16.3 (1.5) yrs.

**Reference No:** 4376

**General Notes:** *Sampling: design not explained, data were collected on women and their children aged 2-23 months in five governorates; exclusion of subjects who were pregnant or suffering from chronic disease that could affect Hb levels and growth.*

**Line note 20** Disaggregated data by age, feeding practices.

**Line note 21** Only mean Hb values.

**Line note 22** Only mean Hb values.

**Reference No:** 4375

**General Notes:** *Compiled data as part of the ongoing Kuwait Nutrition Surveillance Program of the Ministry of Health; dates of study provided by investigator; facility based study (clinics, kindergarten, primary and secondary schools, Medical Council register for job seekers, Public Authority for Social Security register for retirees); sampling: presumably all subjects who attended the facilities were included; exclusion of PW.*

**Line note 23** Job seekers.  
**Line note 24** Job seekers and retirees.  
**Line note 25** Job seekers.  
**Line note 26** Job seekers and retirees.  
**Line note 27** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 28** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 29** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 30** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 31** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 32** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 33** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 34** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 35** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 36** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 37** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 38** Kindergarten, clinics for vaccination purposes; only mean Hb values.  
**Line note 39** Primary schools.  
**Line note 40** Secondary schools.  
**Line note 41** Primary schools; only mean Hb values.  
**Line note 42** Primary schools; only mean Hb values.  
**Line note 43** Primary schools; only mean Hb values.  
**Line note 44** Primary schools; only mean Hb values.  
**Line note 45** Primary schools; only mean Hb values.  
**Line note 46** Primary schools; only mean Hb values.  
**Line note 47** Secondary schools; only mean Hb values.  
**Line note 48** Secondary schools; only mean Hb values.  
**Line note 49** Secondary schools.  
**Line note 50** Secondary schools.  
**Line note 51** Secondary schools.  
**Line note 52** Secondary schools.  
**Line note 53** Secondary schools.  
**Line note 54** Secondary schools.  
**Line note 55** Secondary schools; only mean Hb values.  
**Line note 56** Secondary schools; only mean Hb values.  
**Line note 57** Secondary schools.  
**Line note 58** Secondary schools.  
**Line note 59** Secondary schools.  
**Line note 60** Secondary schools.  
**Line note 61** Secondary schools.

**Line note 62** Secondary schools.  
**Line note 63** Secondary schools.  
**Line note 64** Secondary schools.

**Reference No:** 1683

**General Notes:** *Facility based study (paediatric immunization clinic, secondary school, Health council clinic); convenience sample not representative for Kuwaiti population.*

**Reference No:** 3100

**General Notes:** *Sampling: stratified random sample of 980 adult females taken from different Kuwait Governorates; age range and dates of survey adapted from reference No. 3101; exclusion of PW.*

**Line note 65** Disaggregated data by education, body mass index, parity, tea drinking, food consumption, iron supplements.

**Reference No:** 4801

**General Notes:** *Date of survey adapted from reference No. 4930; sampling: multistage stratified sample of 1280 (645 males, 635 females) Kuwaiti preschool children was taken to represent children in all governorates; Hb determination only for subsample (n=765); values for other Hb cut-off levels.*

**Line note 66** Disaggregated data by birth order, family income, maternal education.

**Reference No:** 1850

**Line note 67** Disaggregated data by Kuwaiti, other Arab women.

**Reference No:** 2006

**General Notes:** *Facility based study (Government schools).*

**Line note 68** Hb cut-off level not according to WHO recommendations (please see 'Key to the data tables'); disaggregated data by age.

**Reference No:** 4929

**General Notes:** *Facility based survey (Maternal Child Health centers) in six areas of different socioeconomic background (Fahaheel, Farwani, Jahra, Salmiya, Faieha, Daeyea); sampling: random sampling method.*

**Line note 69** 138 PW aged 14-20 yrs; 577 PW aged 21-30 yrs; 185 PW aged 31-41 yrs.

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