

A Comparison of the performance of Iranian Azeri-Speaking Children on Iran and the Reference Bayley III norms

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Abstract

Objective: The aim of the present study was to compare the performance of Iranian Azeri-speaking children based on Iran and the Reference of the Bayley Scale of Infants and Toddlers development third edition (Bayley III) norms.

Materials & Methods: The total sample included 248 infants and toddlers aged 16 days and 42 months 15 days. The Iranian version of the Bayley III scale was administered. The scaled scores and the composite scores in Cognitive, Language and Motor domains were compared based on Iran and the Reference Bayley III norms. Then, the proportion of children scoring < -1SD and < -2SD were compared based on the two norms.

Result: The scaled scores of the study group were higher based on the reference norms in Receptive Communication, Fine and Gross Motor subtests. The scaled scores were variable in Expressive Communication and Cognitive subtests. The differences were significant for Receptive Communication and Fine Motor subtests ($p < 0.05$). Using the reference norms instead of Iran norms resulted in under-referral regarding Receptive Communication and Fine Motor subtests. More children scored below 1 and 2 SD using Iran norms in comparison to using the reference norms.

Conclusion: Iran norms differ significantly from the reference norms for two subscales. Population specific norms are recommended to identify children with developmental delay and early intervention.

Table 1. The results on Bayley III scale for all age groups

Bayley Scales	IRAN (n=248)	USA (n=248)	Mann-Whitney U-test value	p-value
Cognition	8 (6-10)	8 (7-10)	30370	0.808 ^a
Receptive Communication	8 (6-10)	9 (8-11)	26730	0.011 ^{a,*}
Expressive Communication	8.12 ± 3.92	8.10 ± 3.22	-	0.950 ^b
Fine Motor	7 (5-9.75)	8 (7-10)	26000	0.003 ^{a,*}
Gross Motor	8 (5-10)	9 (6-10)	28030	0.086 ^a
Composite Cognition	90 (80-100)	90 (85-100)	30330	0.789 ^a
Composite Language	90 (79-103)	91 (83.75-103)	28824	0.226 ^a
Composite Motor	86.5 (76-97)	91 (82-100)	26092	0.003 ^{a,*}
Percentile Cognition	25 (9-50)	25 (16-50)	30330	0.789 ^a
Percentile Language	25 (8-58)	27 (14.25-58)	28830	0.227 ^a
Percentile Motor	18.5 (5-42)	27 (12-50)	26080	0.003 ^{a,*}

^aData are shown as median with interquartile range and were compared by Mann-Whitney U-test.

^bData are shown as mean ± standard deviation and were compared by independent samples t-test.

*Statistically significant ($p < 0.05$).

Table 2. Proportion of children with low scores based on the reference and Iran norms.

	US norms <- 1SD%	Iran norm <- 1SD%	US norms <- 2SD%	Iran norms <- 2SD%
All age group				
Cognition	22.1	31.8	7.6	11.6
Receptive communication	12.5	24.5	5.2	8
Expressive communication	29	32.6	7.6	11.2
Fine Motor	20.5	34.2	7.2	14.5
Gross Motor	23.7	31	12.7	18.5
Age group				
A: 16 days-6 months 15 days				
Cognition	14	14	7	7
Receptive communication	----	----	----	----
Expressive communication	----	----	----	----
Fine Motor	14	14	----	----
Gross Motor	----	----	----	----
B: 6 months 16 days- 12 months 15 days				
Cognition	10	21	2.1	6.5
Receptive communication	4.3	15	4.3	4.3
Expressive communication	8.6	10	2.1	4.3
Fine Motor	15.2	32	8.6	13
Gross Motor	30	30	21	21
C: 12 months 16 days- 18 months 15 days				
Cognition	26	34	9.5	9.5
Receptive communication	13	21.9	2.7	2.7
Expressive communication	27	36.9	6.8	4.1
Fine Motor	19	39.7	5.4	13.6
Gross Motor	25	31.5	20.5	20.5
D: 18 months 16 days- 24 months 15 days				
Cognition	32.6	41.3	13	21.7
Receptive communication	19.5	28.2	10.8	15.2
Expressive communication	41.3	45.6	13	13
Fine Motor	15.2	32.6	13	15.2
Gross Motor	23.9	41.3	6.5	28.2
E: 24 months 16 days-30 months 15 days				
Cognition	33.3	29.6	11	18.5
Receptive communication	18.5	33.3	11	14.8
Expressive communication	44.4	44.4	18.5	29.6
Fine Motor	22.2	37	11	18.5
Gross Motor	25.9	33.3	18.5	18.5
F: 30 months 16 days-36 months 15 days				
Cognition	12.5	37.5	4.1	8.3
Receptive communication	8.3	25	4.1	8.3
Expressive communication	33.3	37.5	4.1	20.8
Fine Motor	25	25	4.1	16.6
Gross Motor	4.1	29.1	4.1	8.3
G: 36 months 16 days – 42 months 15 days				
Cognition	11.1	33.3	----	5.5
Receptive communication	---	55.5	----	16.6
Expressive communication	11.1	38.8	5.5	22.2
Fine Motor	22.2	44.4	---	22.2
Gross Motor	5.5	27.7	----	5.5

All authors have declared no conflict of interest.