

Supplementary Table S1. Current evidence of neurodevelopmental assessment tool for screening

	Reliability (ICC, Cohen's kappa) +, -, 0	Internal consistency (Cronbach's alpha) +, -, 0	Content validity +, ?, -, 0	Criterion validity +, -, 0 (correlation coefficient, MCID, sensitivity/specificity)	Construct validity +, ?, -, 0
DDST-II	+	0	+	++	0
[1]	Interrater 0.99 Intrater 0.90	0	+	0	0
[2]	0	0	0	Sensitivity 0.83, specificity 0.43	0
[3]	0	0	0	Sensitivity 0.83, specificity 0.51	0
K-DST	+	+	+	+	?
[1]	Intrater ICC 0.77-0.88 (n=300)	Control (n=235), DD (n=413) GM $\alpha=0.72-0.89$ FM $\alpha=0.70-0.85$ Cognition $\alpha=0.67-0.86$ Language $\alpha=0.72-0.94$ Social skills $\alpha=0.73-0.83$	+	GM p=0.695 (BSID), p=0.613 (Wechsler) FM p=0.668 (BSID), p=0.743 (Wechsler) Cognition p=0.739 (BSID), p=0.648 (Wechsler) Language p=0.766 (BSID), p=0.761 (Wechsler), p=0.697 (expressive language assessment) Social skills p=0.810 (BSID), p=0.780 (Wechsler), p=0.610 (SQ), p=-0.439 (CARS) Self help p=0.508 (BSID), p=0.548 (Wechsler) Sensitivity 0.833, specificity 0.979	0
K-ASQ	0	0	0	++	0
[1]	0	0	0	A. According to medical diagnosis ① 30 mo: sensitivity 0.96, specificity 0.88 ② 36 mo: sensitivity 0.89, specificity 0.88 ③ 60 mo: sensitivity 0.65, specificity 0.95 B. Concurrent validity ① 30 mo: BSID-II, MDI r=0.560, PDI r=0.475, SMS, SQ r=0.640 ② 36 mo: BSID-II, MDI r=0.490, PDI r=0.567, SMS, SQ r=0.600 ③ 60 mo: K-WPPSI, FIQ r=0.584, SMS, SQ r=0.692 A. BSID-II, MDI, or PDI <85 ① MDI <85 Sensitivity 0.583, specificity 0.803 ② PDI <85 Sensitivity 0.500, specificity 0.725 B. Concurrent validity ① with MDI: p<0.001 ② with PDI: p=0.159	0
[2]	0	0	0		0

(Continued to the next page)

Supplementary Table S1. Continued

	Reliability (ICC, Cohen's kappa) +, -, 0	Internal consistency (Cronbach's alpha) +, -, 0	Content validity +, ?, -, 0	Criterion validity +, -, 0 (correlation coefficient, MCID, sensitivity/specificity)	Construct validity +, ?, -, 0	
BSID-III (dis- + criminative for diagnosis)	+		+++	++	++	
[1] n=47	GM subtest $r=0.79$ Motor component: intrarater $r=0.80$	GM $\alpha=0.87-0.93$ Motor component: $\alpha=0.90-0.96$ (24-42 mo)	+	Motor impairment at 4 yr: BSID-III at 2 yr <-1 SD: sensitivity 0.32-0.037, specificity 0.97 <-2 SD: sensitivity 0.18-0.21, specificity 1.00 CP at 4 yr: BSID-III at 2 yr <-1 SD: sensitivity 0.83 specificity 0.94 <-2 SD: sensitivity 0.67 specificity 1.00 Cognition: Sensitivity 0.89 (0.65-0.98), specificity 0.98 (0.94-1.00) Language: Sensitivity 1.00 (0.79-1.00), specificity 0.96 (0.91-0.98)	0	+
[2]	0	0	0		0	
[3]	0	0	+	0	-	
[4]	Intrarater 2-4 mo (n=50) FM $r=0.67$, GM $r=0.77$ 9-13 mo (n=50) FM $r=0.86$, GM $r=0.86$	1-12 mo norm (n=1,700) FM $r=0.77-0.89$, GM $r=0.86-0.94$ 1-12 mo atypical (n=688) FM $r=0.90-0.92$, GM $r=0.93-0.96$	+	Typically developing infants (n=102) 1-42 mo: BSID-II $p=0.60$ Typically developing infants (n=81) 2-42 mo: PDMS-2 total motor $p=0.55$	0	
[5]	0	0	0	-PDMS-2 (n=10) <6 mo: FMQ $p=0.67$, TMQ $p=0.69$ (n=14) 6-12 mo: GMQ $p=0.83$, TMQ $p=0.81$ (n=12) 12-18 mo: GMQ $p=0.90$, FMQ $p=0.97$, TMQ $p=0.95$ (n=12) >18 mo: GMQ $p=0.73$, FMQ $p=0.89$, TMQ $p=0.85$	0	
[6] n=1,764	GM intrarater; $r=0.98$ (16 day-42 mo 15 day) GM interrater; $r=0.98$	GM $\alpha=0.84-0.97$	+		0	

ICC, intraclass correlation coefficient; MCID, minimal clinically important difference; DDST-II, Denver Development Screening Tool-II; K-DST, Korean-Developmental Screening Test; DD, developmental delay; GM(Q), gross motor (quotient); FM(Q), fine motor (quotient); BSID, Bayley Scales of Infant Development; SD, standard deviation; SQ, social quotient; CARS, childhood autism rating scale; K-ASQ, Korean-Ages & Stages Questionnaires; MDI, mental developmental index; PDI, psychomotor developmental index; SMS, social maturity scale; K-WPPSI, Korean-Wechsler Preschool and Primary Scale Intelligence; FIQ, full scale intelligence quotient; CP, cerebral palsy; PDMS-2, Peabody Developmental Motor Scales-2; TMQ, total motor quotient.

SUPPLEMENTARY REFERENCES

[DDST-II]

- [1] Frankenburg WK, Dodds J, Archer P, Shapiro H, Bresnick B. The Denver II: a major revision and restandardization of the Denver Developmental Screening Test. *Pediatrics* 1992;89:91-7.
- [2] Glascoe FP, Byrne KE, Ashford LG, Johnson KL, Chang B, Strickland B. Accuracy of the Denver-II in developmental screening. *Pediatrics* 1992;89(6 Pt 2):1221-5.
- [3] Shin HS, Kwon BS, Lim SO. Validity of Korean version of Denver II in screening children with developmental risk. *J Korean Acad Child Health Nurs* 2005;11:316-21.

[K-DST]

- [1] Chung HJ, Yang D, Kim GH, Kim SK, Kim SW, Kim YK, et al. Development of the Korean developmental screening test for infants and children (K-DST). *Clin Exp Pediatr* 2020;63:438-46.

[K-ASQ]

- [1] Chung HJ, Eun BL, Kim HS, Kim JK, Shin SM, Lee JH, et al. The validity of Korean Ages and Stages Questionnaires (K-ASQ) in Korean infants and children. *J Korean Child Neurol Soc* 2014;22:1-11.
- [2] Kwun Y, Park HW, Kim MJ, Lee BS, Kim EA. Validity of the ages and stages questionnaires in Korean compared to Bayley Scales of infant development-II for screening preterm infants at corrected age of 18-24 months for neurodevelopmental delay. *J Korean Med Sci* 2015;30:450-5.

[BSID-III]

- [1] Bayley N. Bayley scales of infant and toddler development—third edition: technical manual. SanAntonio, TX: Harcourt Assessment; 2006.
- [2] Spittle AJ, Spencer-Smith MM, Eeles AL, Lee KJ, Lorefice LE, Anderson PJ, et al. Does the Bayley-III Motor Scale at 2 years predict motor outcome at 4 years in very preterm children? *Dev Med Child Neurol* 2013;55:448-52.
- [3] Visser L, Ruiters SA, Van der Meulen BF, Ruijsenaars WA, Timmerman ME. Low verbal assessment with the Bayley-III. *Res Dev Disabil* 2015;36C:230-43.
- [4] Spittle AJ, Doyle LW, Boyd RN. A systematic review of the clinimetric properties of neuromotor assessments for preterm infants during the first year of life. *Dev Med Child Neurol* 2008;50:254-66.
- [5] Connolly BH, McClune NO, Gatlin R. Concurrent validity of the Bayley-III and the Peabody Developmental Motor Scale-2. *Pediatr Phys Ther* 2012;24:345-52.
- [6] Ahn SH, Yoo EY, Lee SH. A validation study of the gross motor scale of Korean version of Bayley Scales of Infant and Toddler Development, Third Edition. *J Korean Soc Occup Ther* 2018;26:81-97.