

The Impact of Developmental Delays and Gender on Play Behaviors in Children with ASD: Insights from the ESCBQ-2 Total and Pretend Play Scales

M.E. Buruma¹ , M.L. Bezemer^{1,3}, & E.M.A. Blijd-Hoogewys^{1,2,3}



Background

- **Play** is a crucial part in early childhood development, supporting social and communicative skills
- The **Early Social Communicative Behavior Questionnaire** (ESCBQ; 108 items; Blijd-Hoogewys & Buruma, 2009) assesses these behaviors.
- The updated version, **ESCBQ-2 (58 items;** Buruma et al., 2017), with 13 items specifically targeting play (3 on pretend play) demonstrated strong psychometric properties, including high internal consistency and test-retest reliability.

Objective

To examine differences in play behaviors between autistic children with and without developmental delay (DD), considering sex differences.

Methods

Retrospective diagnostic data

- N = 293 autistic children (n = 202 boys, $M = 3.84$ years, $SD = 1.18$; n = 91 girls, $M = 3.95$ years, $SD = 1.56$) (n = 149 with developmental delay (DD); n = 111 boys, n = 38 girls)

Instrument

- Parents completed the ESCBQ-2
- ESCBQ-2 Subscales: Total play (13 items, range: 0–13), Non-symbolic Play (10 items, range: 0–10), and Symbolic play (3 items, range: 0–3). Higher scores indicate more developed play skills. These scales have good internal consistency, except for Symbolic Play (questionable reliability).

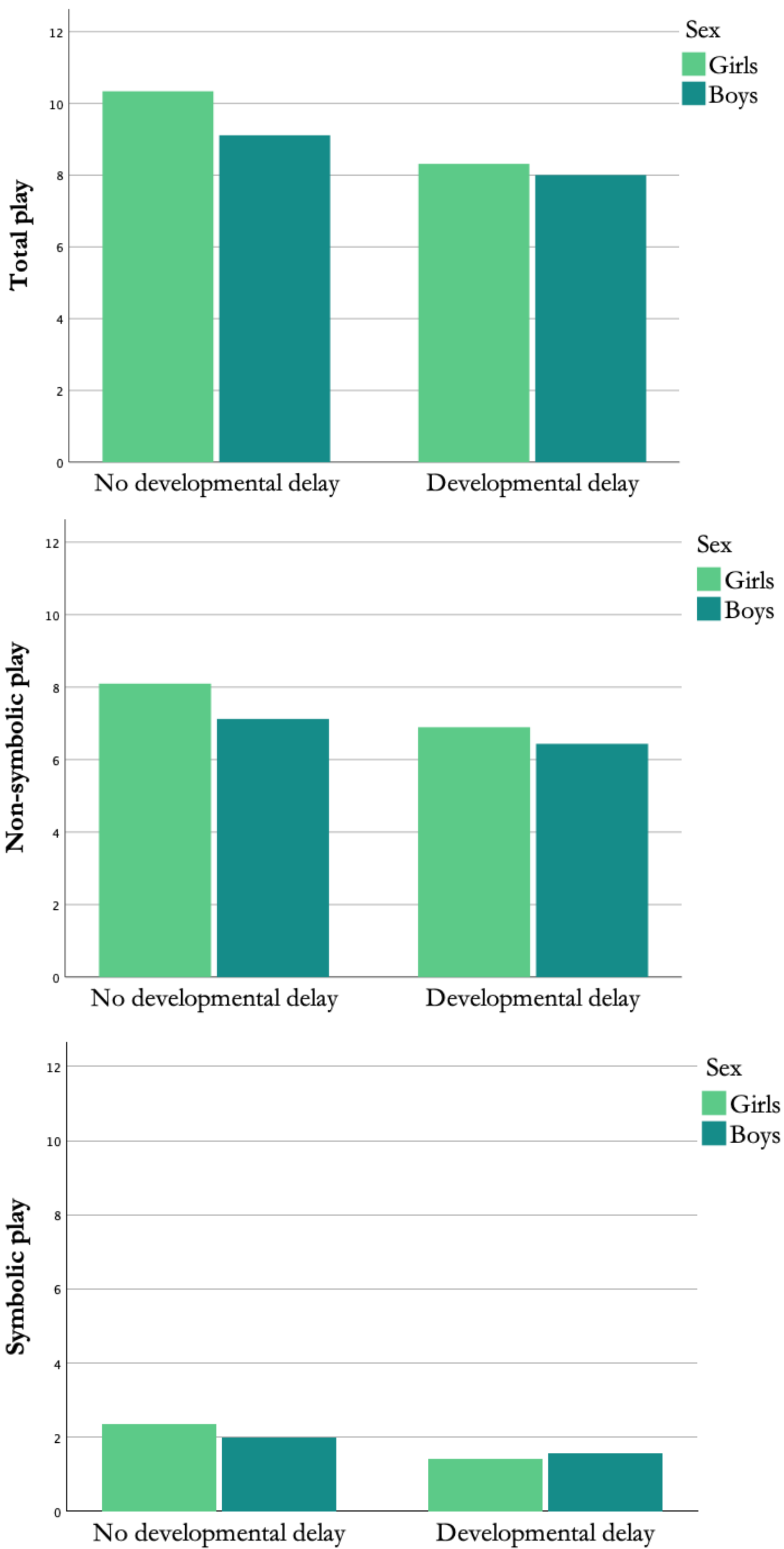
Analyses

- Two-way ANCOVA for 3 dependent variables (ESCBQ-2 Total Play, Non-symbolic play, and Symbolic play), 2 independent variables (Developmental delay: yes/no) and 1 covariate (sex: boy/girl) (α set to .017, Bonferroni correction).
- Correlations between ESCBQ-2 Non-symbolic play and Symbolic play, separately analyzed for children with and without DD.

Table 1: Scores for ESCBQ-2 Play scales, M (SD)

Scale	No developmental delay		
	Total group (<i>n</i> = 144)	Girls (<i>n</i> = 53)	Boys (<i>n</i> = 91)
Total play	9.50 (3.73)	10.34 (3.25)	9.11 (3.75)
Non-symbolic play	7.41 (2.95)	8.09 (2.42)	7.12 (2.97)
Symbolic play	2.08 (1.12)	2.36 (0.83)	1.99 (1.15)
	Developmental delay		
	Total group (<i>n</i> = 149)	Girls (<i>n</i> = 38)	Boys (<i>n</i> = 111)
Total play	8.08 (3.27)	8.32 (3.05)	8.00 (3.35)
Non-symbolic play	6.55 (2.67)	6.89 (2.41)	6.44 (2.76)
Symbolic play	1.51 (1.15)	1.42 (1.08)	1.57 (1.17)

Figure 1: Mean scores for ESBQ-2 Play scales for the different subgroups



Results (see also Table 1 & Figure 1)

- Total play: significant main effect of DD ($F(1, 288) = 9.29, p = .003$), indicating lower scores for autistic children with DD. No significant main effect of sex ($p = .084$) or interaction effect ($p = .257$).
- Non-symbolic play: due to correction for multiple testing, no significant main effects for DD ($F(1, 288) = 5.53, p = .019$) or sex ($F(1, 288) = 4.11, p = .044$). Also, no interaction effect ($p = .436$).
- Symbolic play: significant main effect for DD ($F(1, 288) = 17.11, p < .001$), indicating lower play scores for autistic children with DD. No main effect of sex ($p = .463$). The interaction effect ($F(1, 288) = 4.27, p = .040$) did not reach significance after correction.
- Stronger correlation between Non-symbolic and Symbolic play in group without DD ($r = .589$, large) than in group with DD ($r = .360$, moderate) . Both correlations were significantly different from zero.

Conclusions

- Developmental delay (DD) is associated with lower play scores in autistic children, particularly in symbolic play. Such differences are often observed in clinical practice.
- No significant sex differences were found in play skills, aligning with previous research (Young et al., 2018).
- The stronger association between Non-symbolic and Symbolic Play in autistic children without DD suggests differences in play development between both groups.
- These findings highlight the need for further research into how DD shape play behaviors in autistic children. Also, note that the ESCBQ-2 relies on parental observations, which may be subjective. Direct observational studies are needed to validate our findings.

References

- Buruma, M.E., & Blijd-Hoogewys, E.M.A. (2014). VSCG-2. *Vragenlijst voor vroeg sociaal communicatief gedrag 2*. Ongepubliceerd document. Groningen: INTER-PSY.
- Buruma, M.E., Blijd-Hoogewys, E.M.A., Huyghen, A.N., Bezemer, M.L., & van Geert, P.L.C. (2016). De VSCG. De ontwikkeling van een vragenlijst voor het meten van vroeg sociaal communicatief functioneren bij zeer jonge kinderen met autisme. *Wetenschappelijk Tijdschrift Autism*, 4, 159-170.
- Young, H., Oreve, M.J., & Speranza, M.J.A.D.P. (2018). Clinical characteristics and problems diagnosing autism spectrum disorder in girls. *Archives de Pédiatrie*, 25(6), 399-403.