









XXXIII Congresso Nazionale AIP della Sezione di Psicologia dello Sviluppo e dell'Educazione 20-22 Settembre 2021 Bari

Developmental evaluation during Covid-19 pandemic: online application of items taken from Bayley III scales with 4-month-old infants

Corinna Gasparini¹ & Barbara Caravale²

¹Sapienza Università di Roma, Italy. E-mail: cori.gaspar@gmail.com;

²Sapienza Università di Roma, Italy. E-mail: barbara.caravale@uniroma1.it

BACKGROUND

The use of remote methods for data infant collection is the new frontier of developmental science. This trend is also sustained by the ongoing Covid-19 pandemic, during which digital approaches to healthcare and developmental assessment are playing a crucial role to overcome social restrictions and to promote family accessibility to resources. In addition, online methodology allows to quickly collect large amounts of data, usually in a more unbiased way than in-lab administration. However, the array of available methods to be used remotely is still limited and some developmental assessments are difficult to implement online. The present study was aimed to design an online assessment of cognitive, language and motor development in 4-month-old infants based on several items taken from the Bayley Scales of Infant and Toddler Development-III edition (BSID-III). Our aims were 1) examining the relation between items

administered online and the total score of the correspondent BSID-III subscale (cognitive COG, receptive language RL, expressive language EL, fine motor FM, and gross motor GM) administered live; 2) comparing participants tested online and participants tested live for the BSID-III items selected for the online assessment.

METHODS

PARTICIPANTS

The study was conducted on 71 full-term infants, of whom 53 were tested online ("online group") and 18 were tested at home ("live group"). Children characteristics are shown in Table 1.

Table 1.

Socio-demographic characteristics and birth data.

	Online group	Live group
Infant age (months, mean ± SD)	$4.11 \pm .21$	$4.19 \pm .15$
Sex: male (n, %)	27 (50.9)	10 (55.6)
Infant birth weight for gestational age: AGA (n , %)	42 (79.2)	14 (77.8)
Maternal education: Master's (n, %)	33 (62.3)	11 (61.1)

MEASURES

This study is part of a larger longitudinal research project on complementary feeding and cognitive development (SPOON - Svezzamento e sviluPpO cOgNitivo) and originates from the need to remotely perform an infant developmental assessment as a consequence of Covid-19 restrictions. The "live" assessment included the full administration of Cognitive, Language and Motor scales of BSID-III (Bayley, 2006). The "online" assessment included a selection of the BSID-III items. These items were those representative of the typical developmental achievements at 4 months of age and easily administrable remotely with the help of the infant's caregiver, using materials usually available at home. All mothers also completed a socio-demographic questionnaire. Examples from Bayley III items administered online were shown in Fig. 1 and 2.

STATISTICAL ANALYSIS

Data were analysed by using independent t-tests, Chi-square for categorical variables and

Note: AGA= Adequate for Gestational Age; No significant difference between groups was found.

RESULTS

Spearman correlations.

For the "live group", the raw total scores obtained summing items selected for the online assessment were significantly correlated with the raw total scores of the BSID-III (COG: $r_s = .55$, p < .01; RL: $r_s = .61$, p < .01; EL: $r_s = .84$, p < .001; FM: $r_s = .94$, p < .001; GM: $r_s = .98$, p < .001). The results from the comparison between "live" and "online" showed no significant differences between groups (Table 2).

Fig. 1 item from Cognitive scale (above) and Receptive **Communication subscale (below)**





Table 2. Mean (SD) differences between online and live participants for items taken from the BSID-III					
	Live group	Online group	t	p	
Cognitive	7.39 (.92)	7.67 (.67)	-1.377	.17	
Receptive communication	4.44 (.51)	4.11 (.64)	1.85	.07	
Expressive communication	5.67 (.48)	5.43 (.75)	1.46	.15	
Fine Motor	5.61 (1.58)	6.07 (1.34)	-1.16	.25	
Gross Motor	7.78 (2.63)	7.80 (1.69)	03	.97	



Despite its limitations, our study provides evidence for a remote assessment procedure that could be considered as a viable opportunity to evaluate infant development when in-person consultation is not feasible. In addition, recording video in domestic environment allows the experimenter to reach people who might not be able to participate in laboratory settings (Birnbaum, 2004) and to collect both quantitative and qualitative developmental data (Adjerid & Kelley, 2008) at an early age by naturalistic observations.

REFERENCES

- Adjerid, I., and Kelley, K. (2018). Big data in psychology: A framework for research advancement. Am. Psychol. 73, 899–917. doi: 10.1037/amp0000190.

- Birnbaum, M. H. (2004). Human research and data collection via the internet. Annu. Rev. Psychol. 55, 803–832. doi: 10.1146/annurev.psych.55.090902.141601