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Lexical development in monolingual, bilingual and trilingual Lebanese preschool children: the effect of endogenous and exogenous factors

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Introduction

Important interindividual differences (ID) in lexical development of monolingual and plurilingual preschool children (Fenson et al., 1993; Côté et al., 2022). ID linked to endogenous (sex, cognitive development, temperament...) and/or exogenous factors (language exposure/status/dominance; socioeconomic status; birth order...):

Sex: Effect of sex on lexical development in favour of girls, especially on the production component of language (Eriksson et al., 2012), before the age of 3 in monolingual children (Kern & Gayraud, 2010) and even longer in bilingual children (Rojas & Iglesias, 2013).

Mother education level: Different children's lexical size and composition according to their mothers' level of education in favour of monolingual (Grobon et al., 2019) or bilingual (O'Toole et al., 2017) children with highly educated mothers.

Child-care arrangement: No consensus as to the advantage of one type of care arrangements over the others: according to some studies, nurseries schools seem to favour language development (Marcos et al., 2004; Grobon et al., 2019) whereas others failed to show an advantage of group childcare (Wendland et al., 2019).

Language status: Monolinguals and bilinguals have similar vocabulary sizes when the number of words from both languages are considered (De Houwer et al., 2014). The distribution of words among bilinguals and trilinguals depends in part on the amount of input that is encountered in each language (Côté et al., 2022).

Context of the study



- **Lebanon** is a multilingual country where children are introduced to Lebanese, French and/or English from a young age.
- **Lebanese Arabic** is the primary language for most of the Lebanese population (93.7% according to Leclerc, 2015).
- **French and English** are widely used as second languages by 45% and 40% of the Lebanese population, respectively.
- **During the early years of socialization or schooling**, parents generally choose an English-speaking or French-speaking nursery or school. Children are immersed, if this was not already the case in their family, in a bilingual environment of Lebanese/French or Lebanese/English, and in some schools, even trilingual Lebanese/English/French settings (Abou, 1962; Shaaban, 1997).
- **Language assessment is a complex process.** For children over 3 years, an example of the few standardized tools available is the Evaluation of Oral Language in Lebanese Children (ELO-L) (Zebib et al., 2017). However, for children younger than 3 years old, Lebanese speech and language therapists lack formal assessment tools and tend to rely on informal assessments and clinical observations.



Main objectives of the study

- Elucidate the receptive and expressive lexical development in two groups of Lebanese children aged between 8 and 16 months and 16 and 30 months.
- Examine the influence of gender, socioeconomic status (SES), childcare arrangement, and language status (monolingual, bilingual, and trilingual) on the size of receptive and expressive vocabulary

Materials

1. Parental bilingual questionnaire: Infants and Toddlers Version (PaBiQ -IT) (Gatt et al., 2011) proposed to parents in Lebanese Arabic, French, or English. It provides information about the child's early history, current language skills, linguistic environment, language exposure and general family information.

Animals (real or toys)/ Les animaux (vrais ou jouets) / الحيوانات (حقيقية او لعبة) (34)					
English		Français		العربي- اللبناني	
Animal	C <input type="checkbox"/> P <input type="checkbox"/>	Animal	C <input type="checkbox"/> P <input type="checkbox"/>	حيوان	□ <input type="checkbox"/> <input type="checkbox"/>
Cat/kitty	C <input type="checkbox"/> P <input type="checkbox"/>	Chat	C <input type="checkbox"/> P <input type="checkbox"/>	ببسة/ببسيطة	□ <input type="checkbox"/> <input type="checkbox"/>
Dog/puppy	C <input type="checkbox"/> P <input type="checkbox"/>	Chien	C <input type="checkbox"/> P <input type="checkbox"/>	بوس/كلب	□ <input type="checkbox"/> <input type="checkbox"/>
Sheep	C <input type="checkbox"/> P <input type="checkbox"/>	Mouton	C <input type="checkbox"/> P <input type="checkbox"/>	خروف	□ <input type="checkbox"/> <input type="checkbox"/>

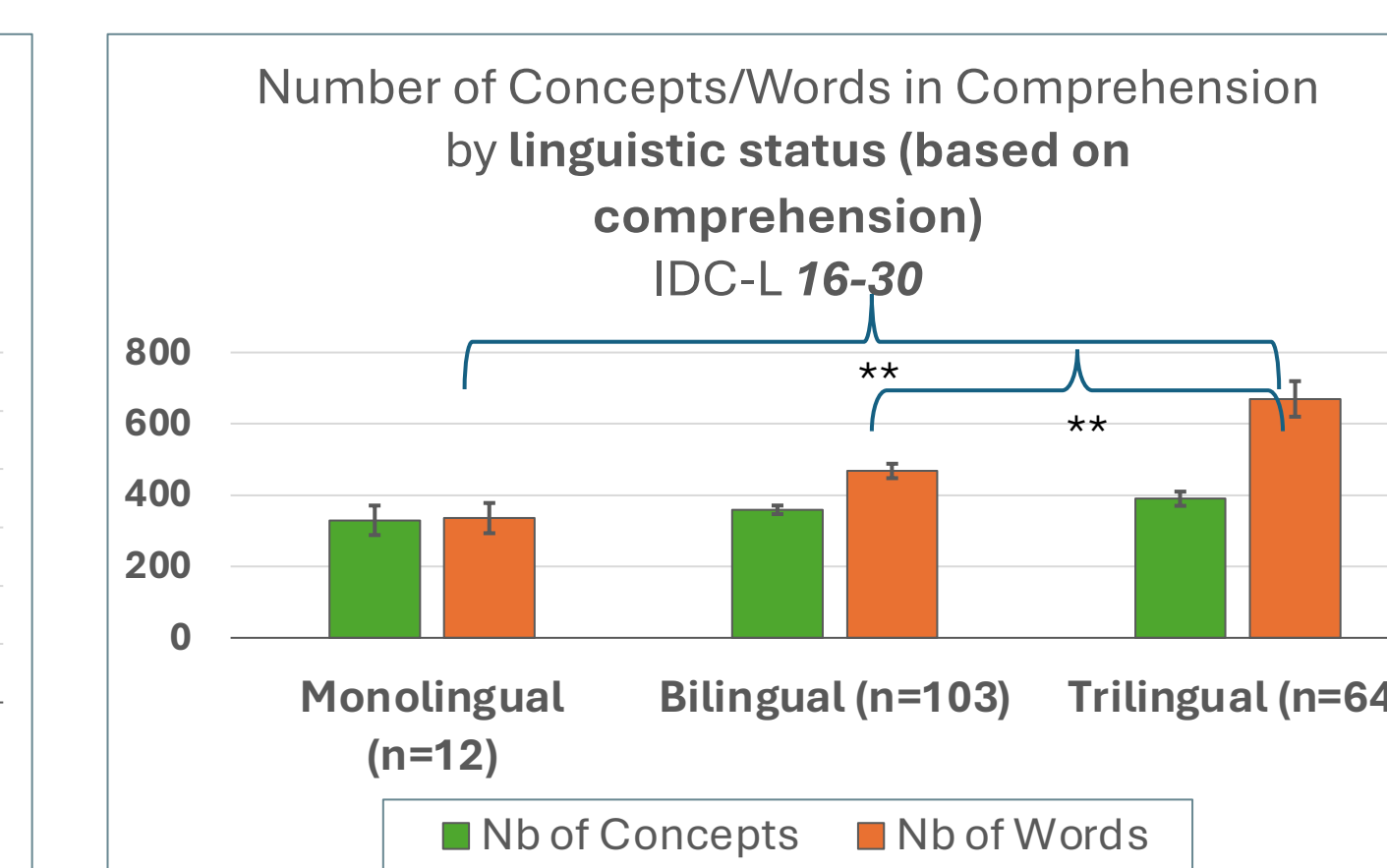
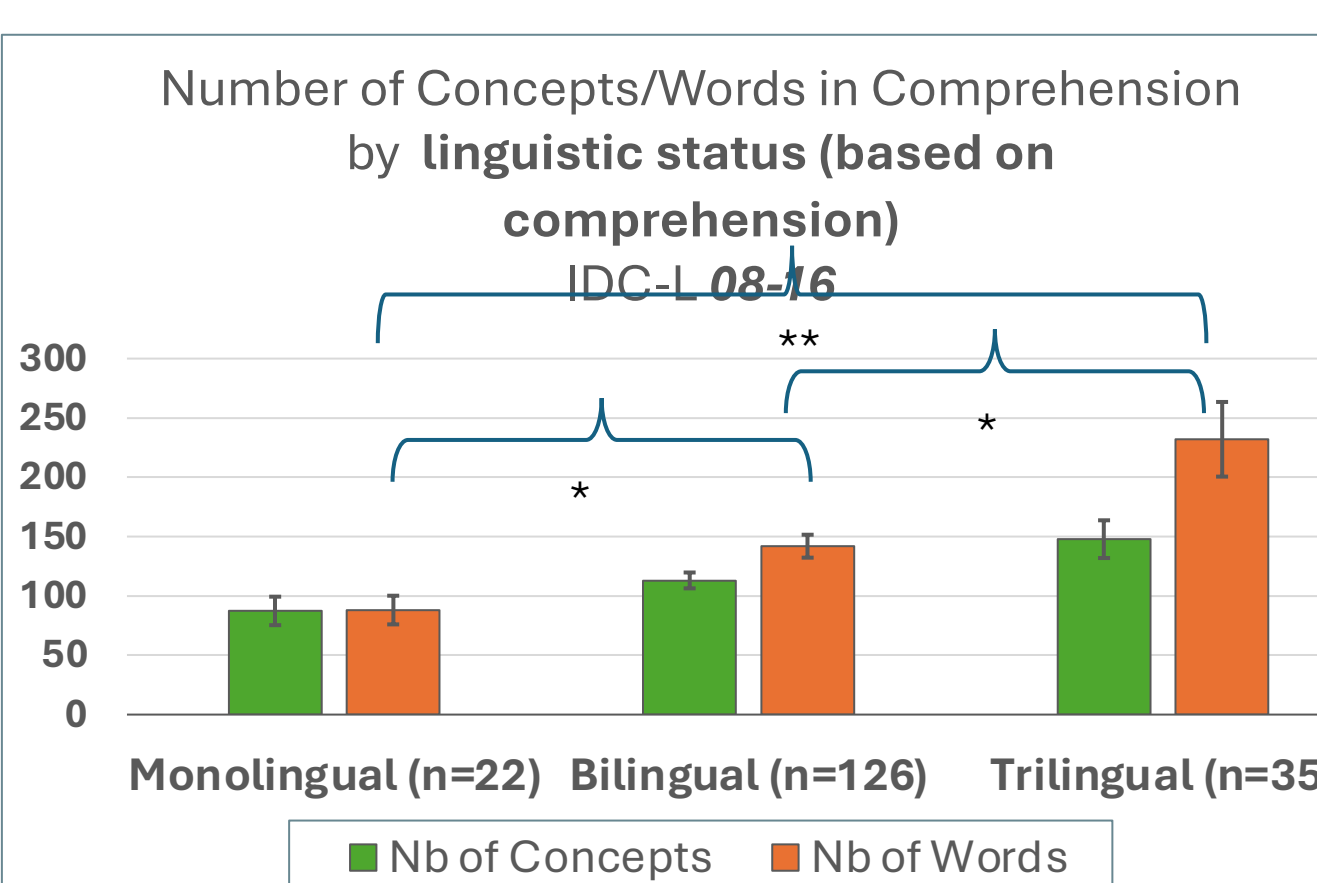
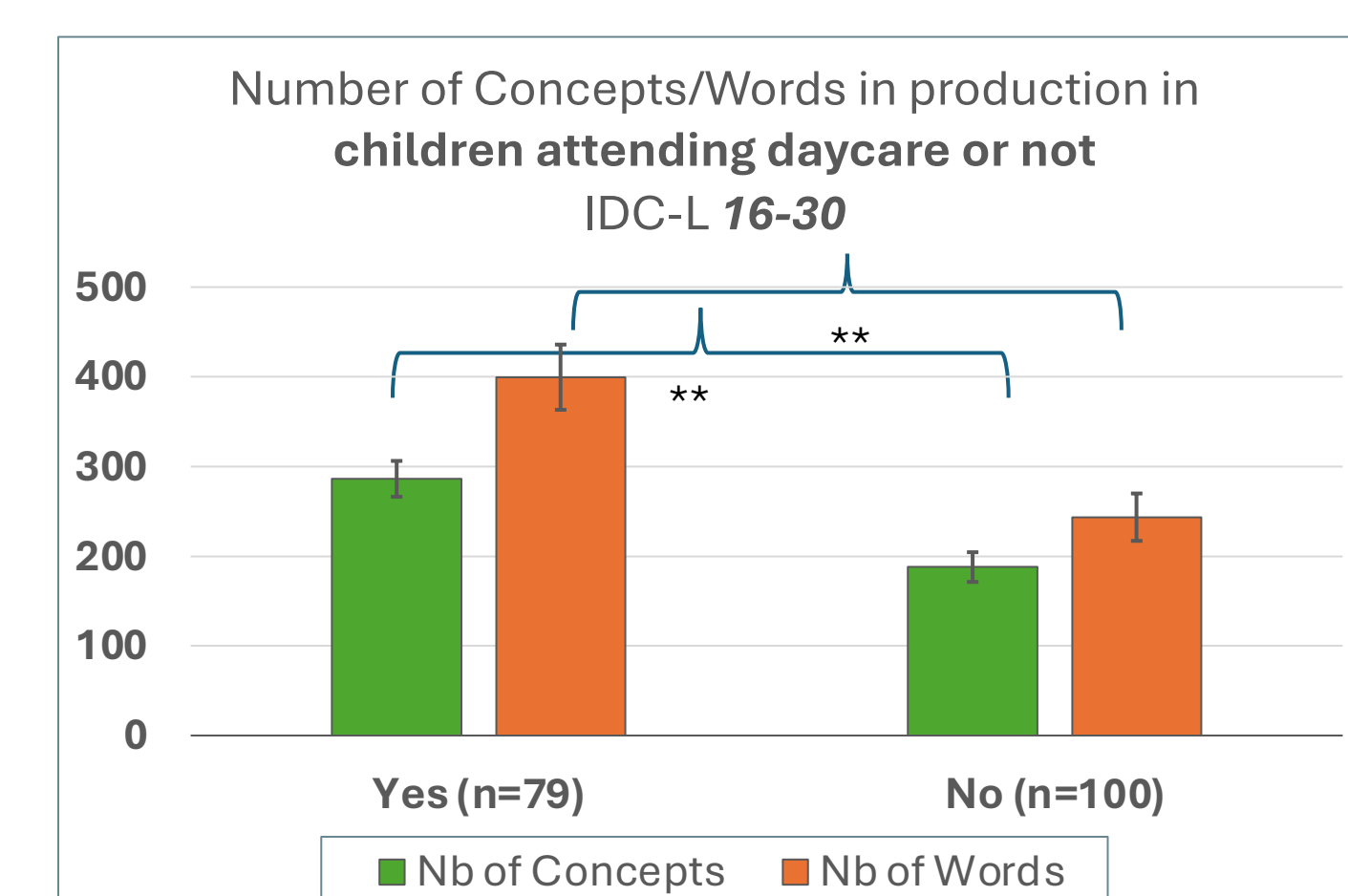
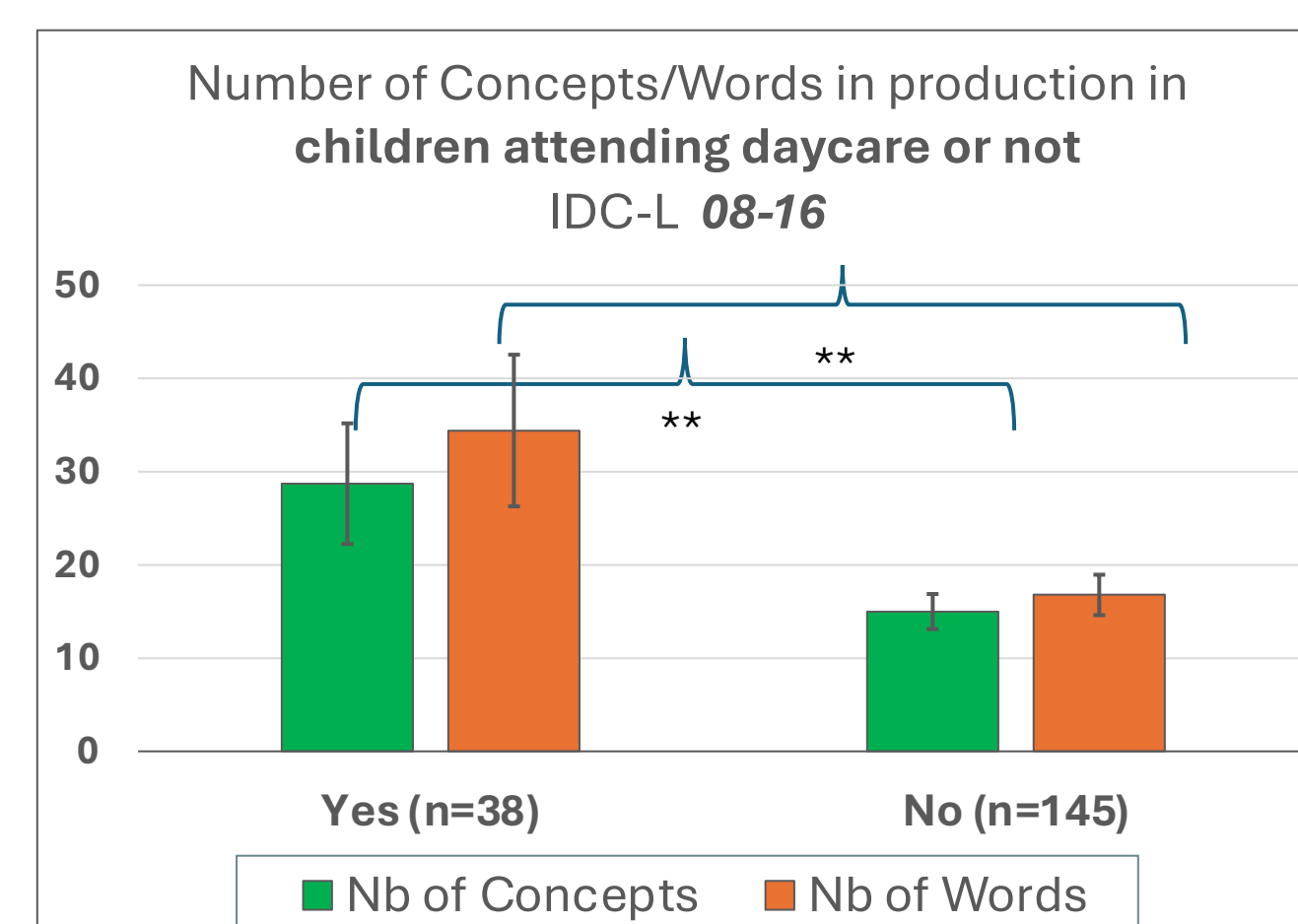
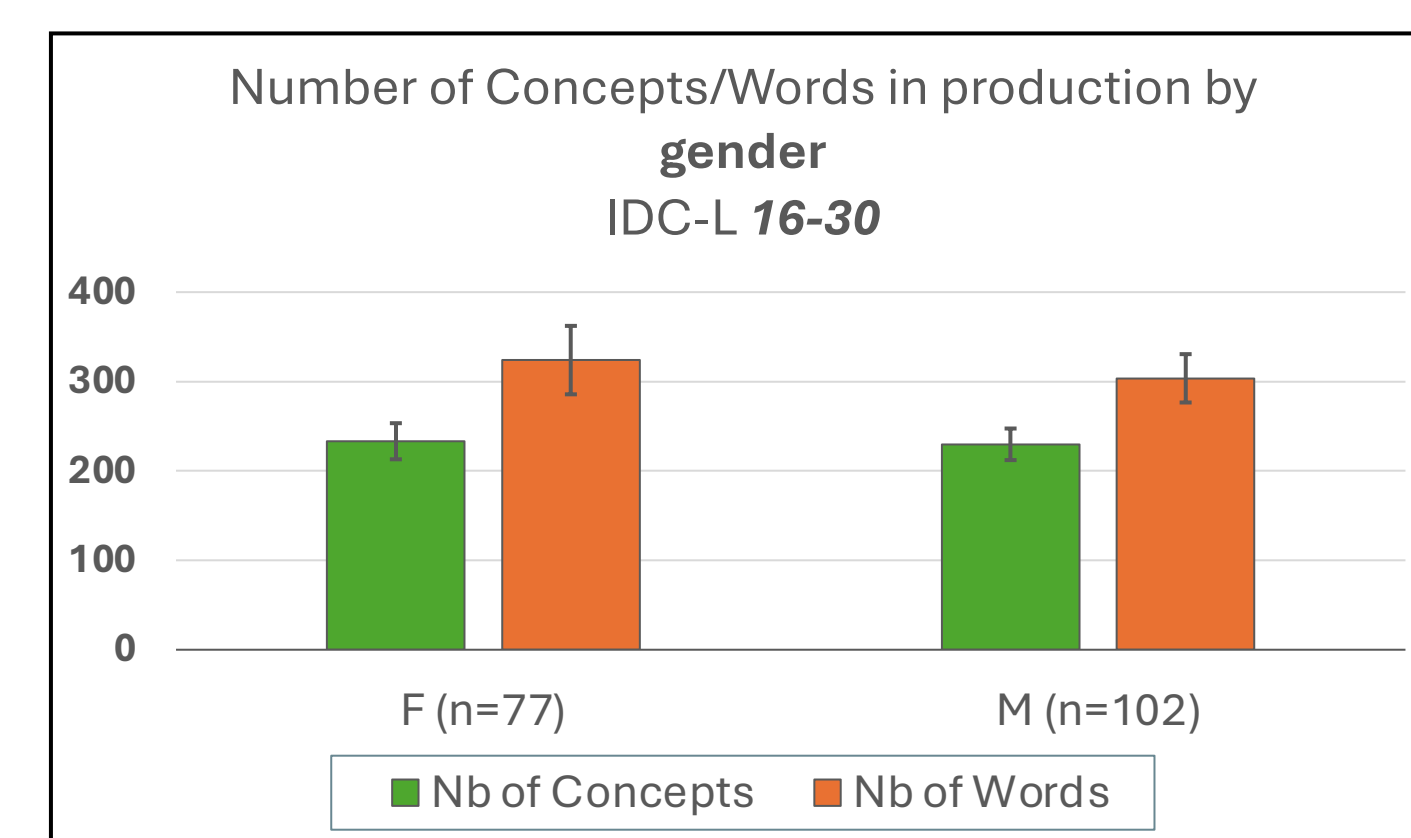
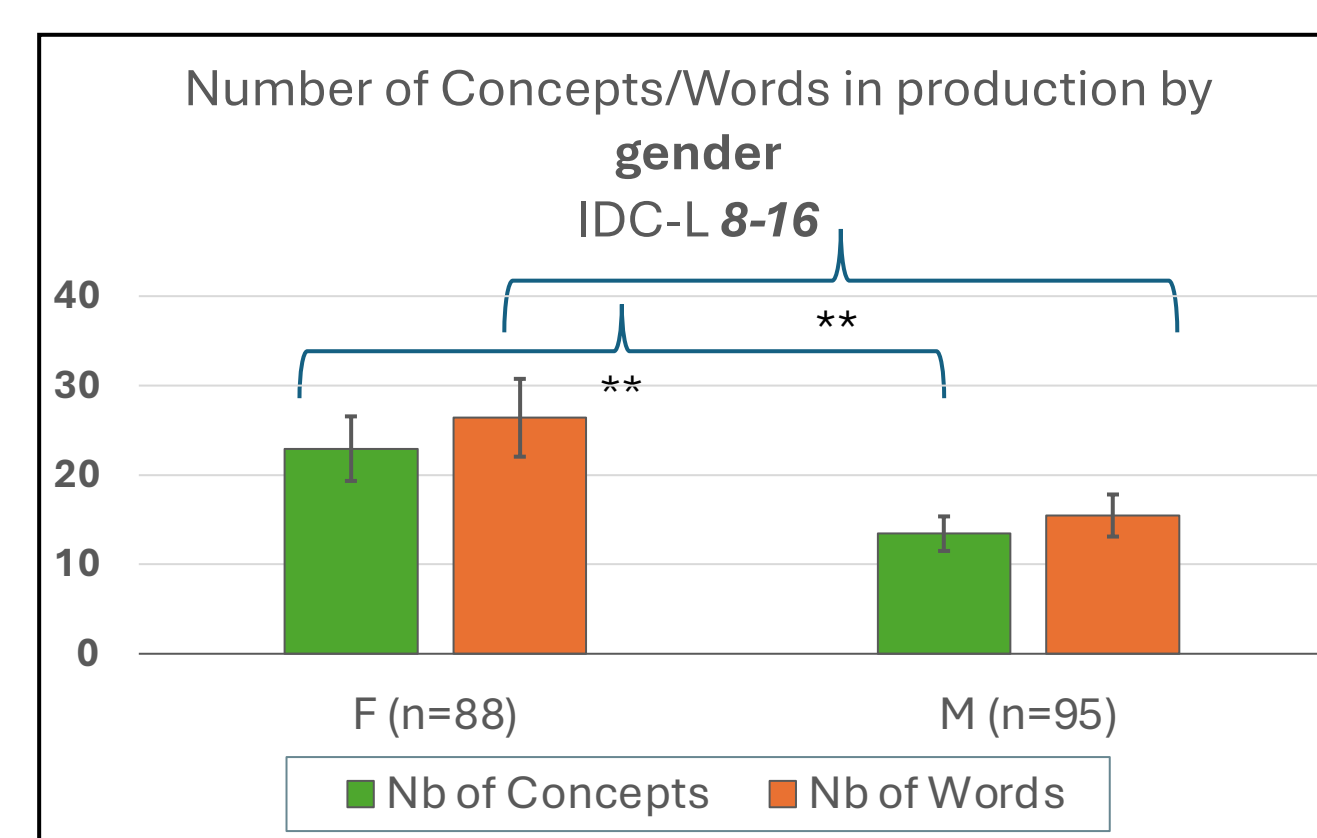
2. Inventory of communicative development – Lebanese trilingual version (IDC-L) (Gesture and words 8-16 months; words and sentences 16-30 months) proposes a comprehensive list of words in three languages (1239 words for 8-16 months and 1941 words for 16-30 months): Lebanese Arabic, French and English. The trilingual list was adapted from the vocabulary lists proposed in the French (IFDC, Kern & Gayraud, 2010) and English versions (Fenson et al., 1993). Some words related to the Lebanese context were added and other words that are less frequent in Lebanon were omitted.

Population

Group	Age in months M (SD)	Gender		Daycare		Group	Linguistic status	N	Age in months M (SD)	
		Female	Male	Yes	No					
8-16 months (N=183)	12.5 (2.5)	Female	Male	Yes	No	8-16 months	Monolingual	22	12.1 (2.4)	
		88	95	38	145		Bilingual	126	12.5 (2.5)	
16-30 months (N=179)	23.4 (4.4)	Female	Male	Yes	No		Bilingual	103	23.3 (4.5)	
		77	102	79	100			Trilingual	35	13 (2.6)
8-16 months	12.5 (2.5)						16-30 months	Monolingual	12	23.2 (5.0)
								Trilingual	69	23.6 (4.2)

Linguistic status: Monolingual: Lebanese; Bilingual: Lebanese / French or English; Trilingual: Lebanese/French/English

Results



Discussion

GENDER EFFECT: Among the 8-16 group, girls (F) perform significantly better than boys (M) on word and concept production (Kern, 2007; Eriksson et al. 2012; Simonsen et al., 2014). No significant difference was found between boys and girls on vocabulary production measures in the 16-30 group.

DAYCARE EFFECT: Children attending daycares produce more words and concepts than children at home in both 8-16 and 16-30 groups. This was found in other studies in low SES population (Berger et al., 2021) which is not the case for all the families recruited for this study.

LINGUISTIC STATUS: Children exposed to three languages perform better on receptive vocabulary measures than those exposed to two or one language in both 8-16 and 16-30 months. Vocabulary and language input are closely intertwined. Moreover, all languages must be considered when assessing bilingual or trilingual children (Côté et al., 2022).

CLINICAL IMPLICATIONS: Future research should consider greater diversity in the SES profiles of participants. These findings are significant for clinicians working within Lebanon's multilingual context, providing insights into the various factors influencing early lexical development.