

Speech Disfluencies in Bilingual Lebanese Speakers: Preliminary Findings

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1. Introduction

- More than half of the world population is bilingual. However, research on the diagnosis of fluency disorders primarily concerns monolinguals.
- The diagnosis of stuttering is based on the type and frequency of disfluencies (Conture, 2001), which are usually divided into ‘stuttering-like disfluencies’ (SLD) and ‘other disfluencies’ (OD). Speech disfluencies typically occur in all children (Eggers & Elen, 2018), but those with 3 or more SLD per 100 syllables or 100 words of speech are typically diagnosed as children who stutter (CWS) (Yairi & Ambrose, 2013). This internationally used 3%-criterion is primarily based on data from monolingual English-speaking children.
- Bilinguals are more likely to experience an increased level of linguistic uncertainty (Byrd et al., 2015).
- Pilot data in English-Spanish (Byrd et al., 2015) and Yiddish-Dutch (Eggers et al., in press) show that bilingual children produce significantly more SLD than what is considered indicative of stuttering in monolinguals. It is therefore very likely that bilingual children are at risk of being wrongly identified as CWS.
- The recurring theme remains the critical need for empirical-based data on the linguistic disfluencies of non-stuttering bilinguals in each of their two languages (Tetnowski et al., 2012).

2. Aim of the study

To study speech disfluencies of bilingual Lebanese CWNS (Leb-Fr) in a significantly larger group than what is typically used in other studies.

3. Materials & Methods

- **Parents of bilingual children questionnaire** (PaBiQ; Tuller, 2015): provides information on language disorder risk, language exposure, language ability, language use and language dominance.
- **Narrative (Frog stories) and spontaneous speech samples** for both languages (min. 100 words).
- **Disfluency analyses** cf. Byrd et al. (2015) and Yairi & Ambrose (1999): SLD, OD, revisions.

4. Participants

- CWNS were recruited through an open call sent to private schools of different areas of Lebanon.
- Inclusion criteria: (a) speaking 2 languages, (b) no parental or teacher concern regarding stuttering, (c) age equivalent speech-language skills based on PABIQ questionnaire, teacher’s observation and the speech samples’ analysis, (d) no parental or teacher concern regarding learning abilities, (e) no family history of stuttering and (f) no history of speech-fluency or psychotherapy intervention.
- 30 Lebanese bilingual CWNS were gathered between January and April 2019. They were divided into 2 age groups. The Spearman test showed no correlation between age and %SLD.

	Participants	Range	Average age	Min.	Max.	S.D.
G1	15 (8M, 7F)	60.00 – 71.00	67.33	61.00	71.00	7.57
G2	15 (7M, 8F)	72.00 – 84.00	79.33	73.00	84.00	4.16
Total	30 (15 M, 15 F)	60.00 – 84.00	73.28	61.00	84.00	7.07

- **Pabiq – Language input and output:** Leb-Fr CWNS ($M_{(Leb)}=70.97\%$, $SD=10.1$; $M_{(Fr)}=34.88\%$, $SD=10.12$).
- **Pabiq – No Risk index score in Language:** Unremarkable language skills if score ≥ 19 on the *No Risk Index*. Leb-Fr CWNS: $M=22.3$, $Min=19$, $Max=23$, $SD=1.24$. All participants had no reported hearing, neurological, developmental, academic, intellectual or emotional problems.
- **Parents’ SE level:** Mothers’ number of years of education ($M=15.97$, $SD=1.96$), fathers’ number of years of education ($M=14.69$, $SD=2.78$).

5. Results

Fig. 1: Mean SLD% per 100 syll.

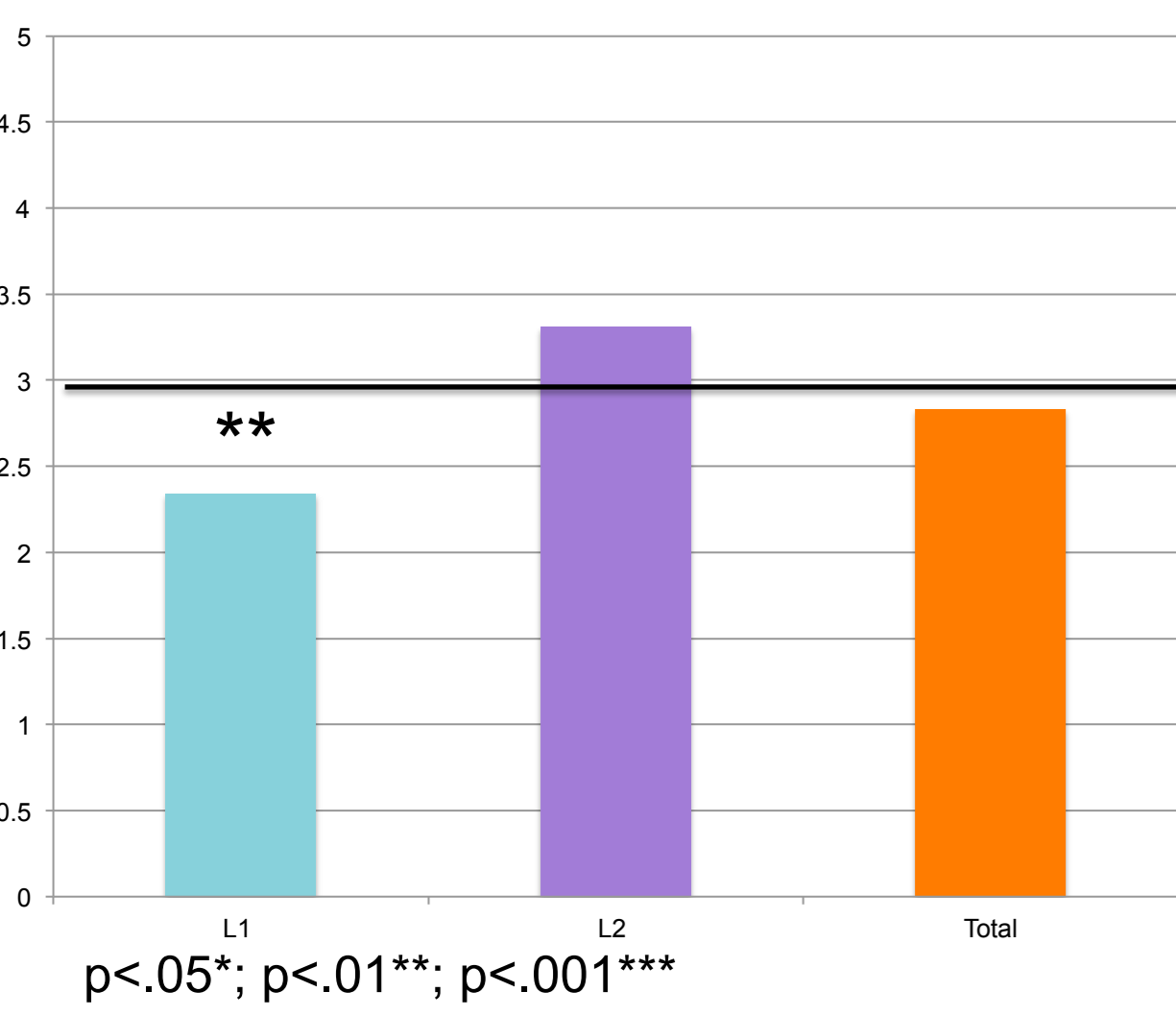


Fig 2. Mean SLD% per 100 words

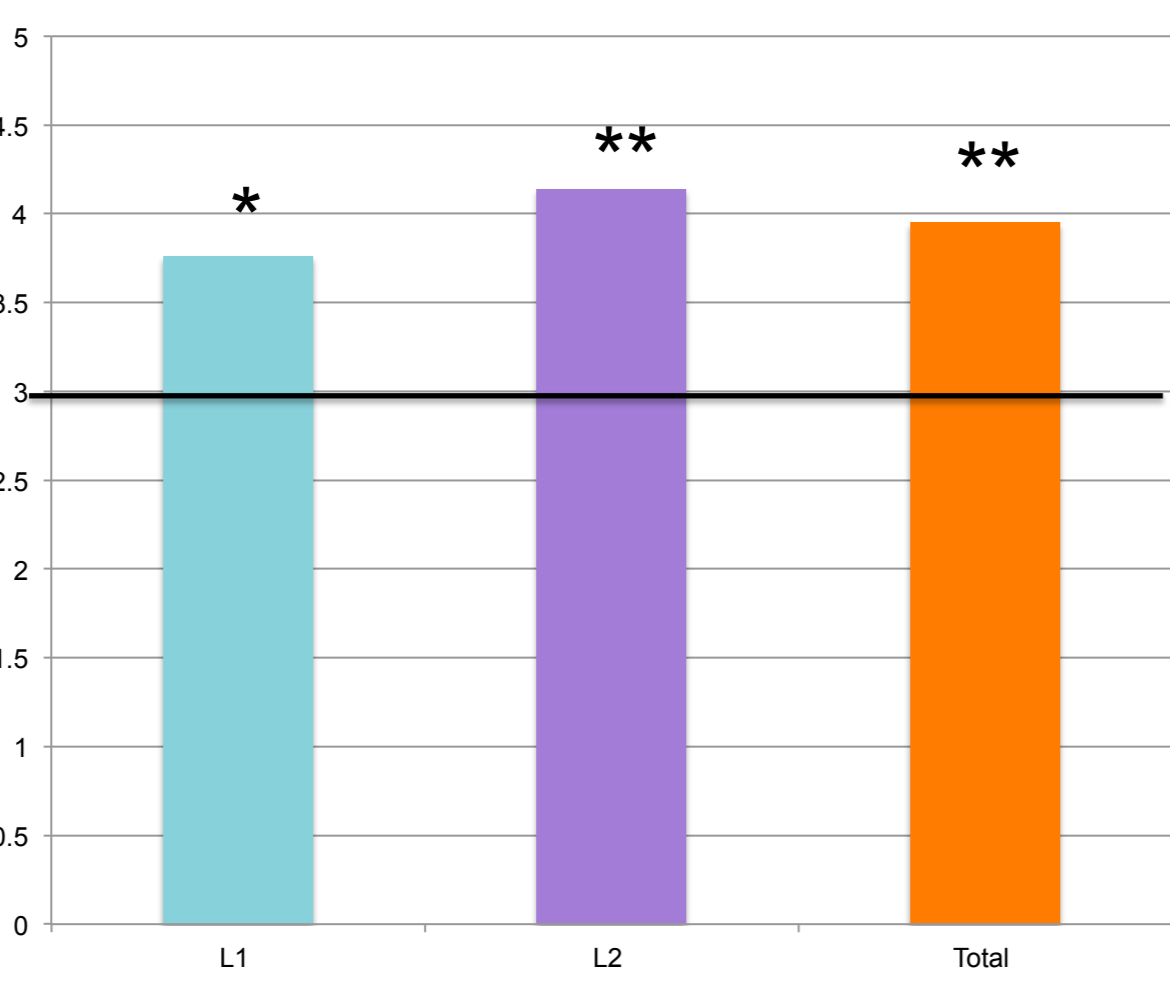


Fig. 3: Mean SLD% & OD% in L1 & L2

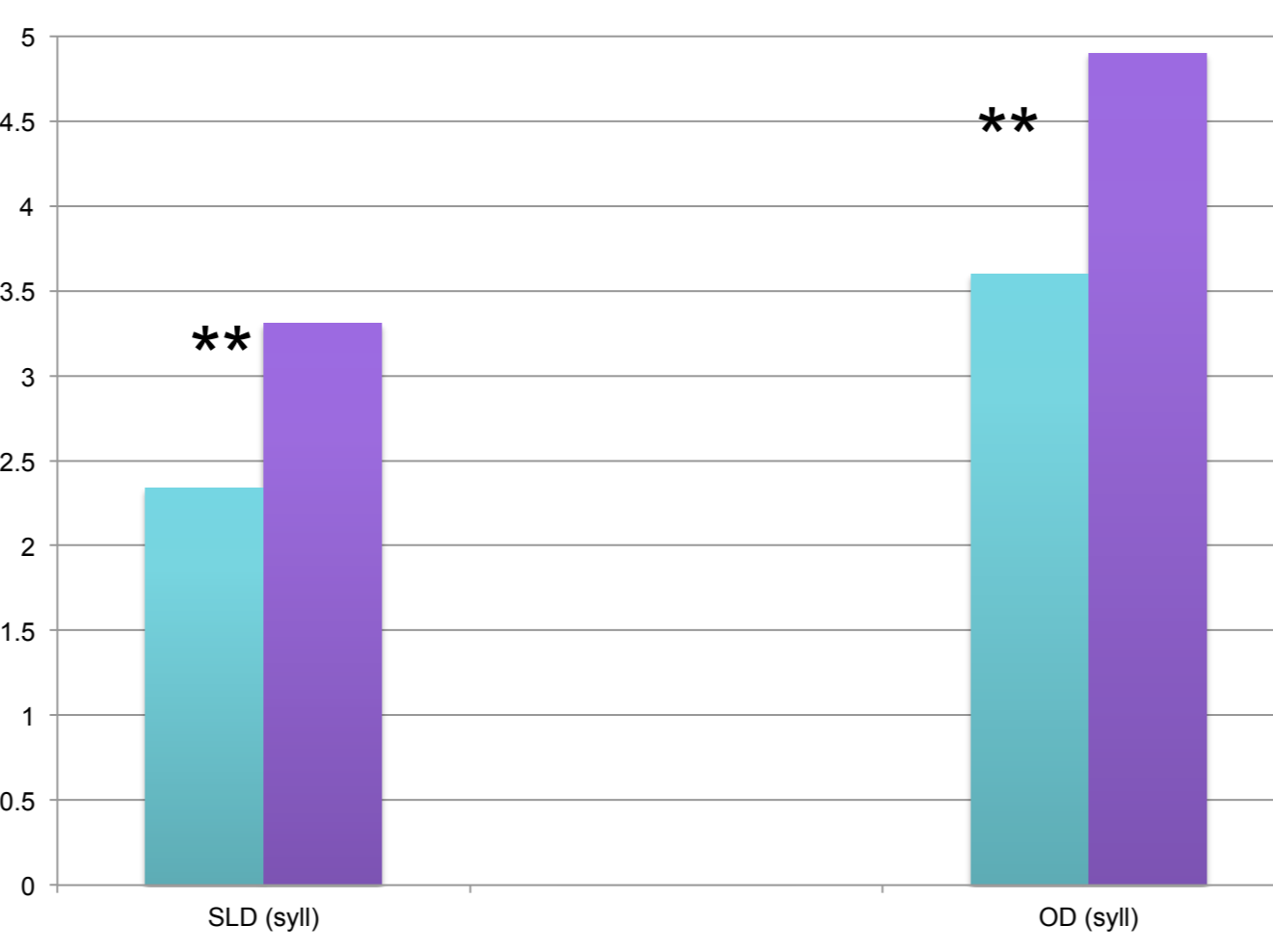


Fig. 4: Types of disfluencies (spontaneous)

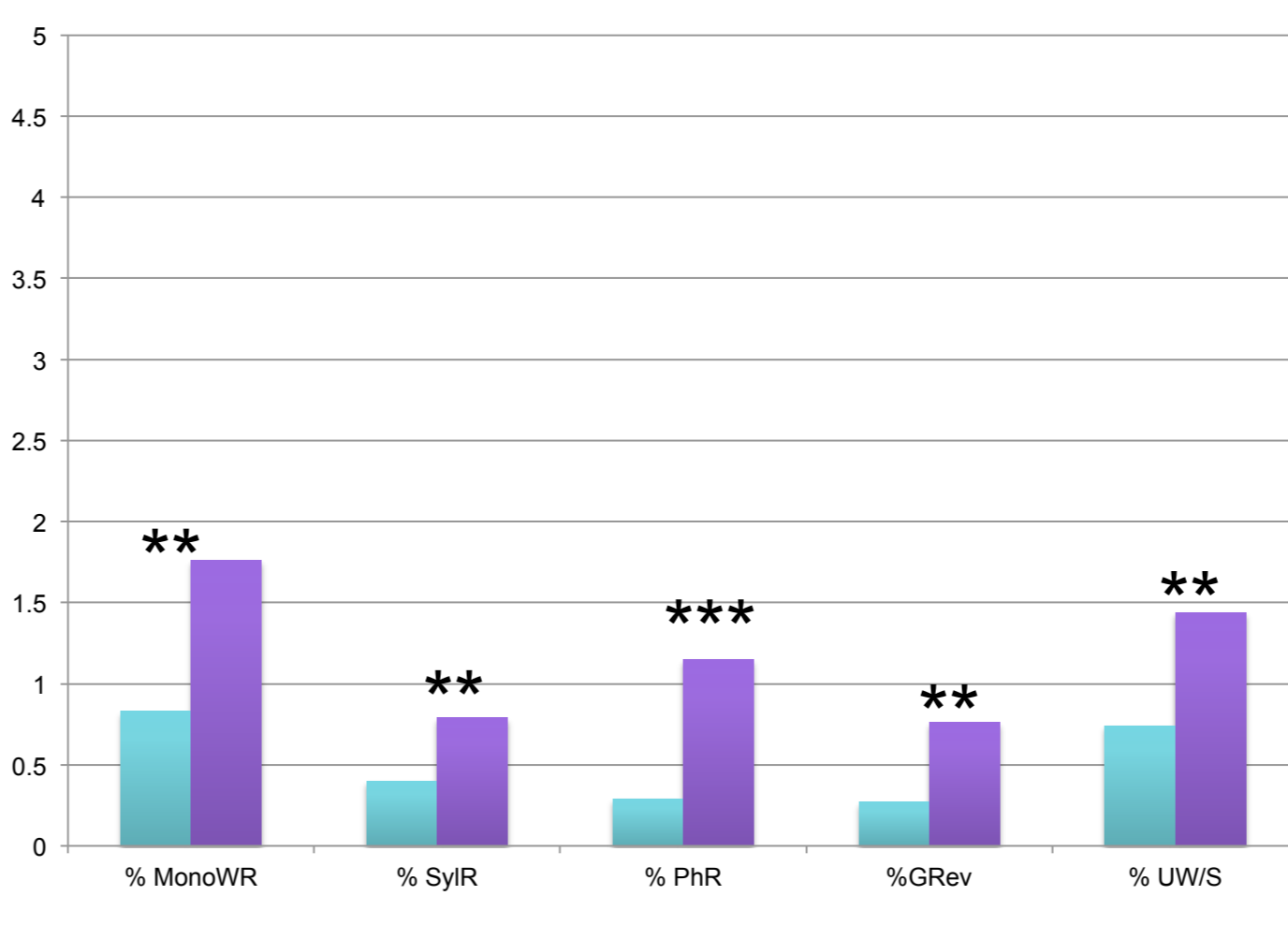


Fig. 5: Types of disfluencies (narratives)

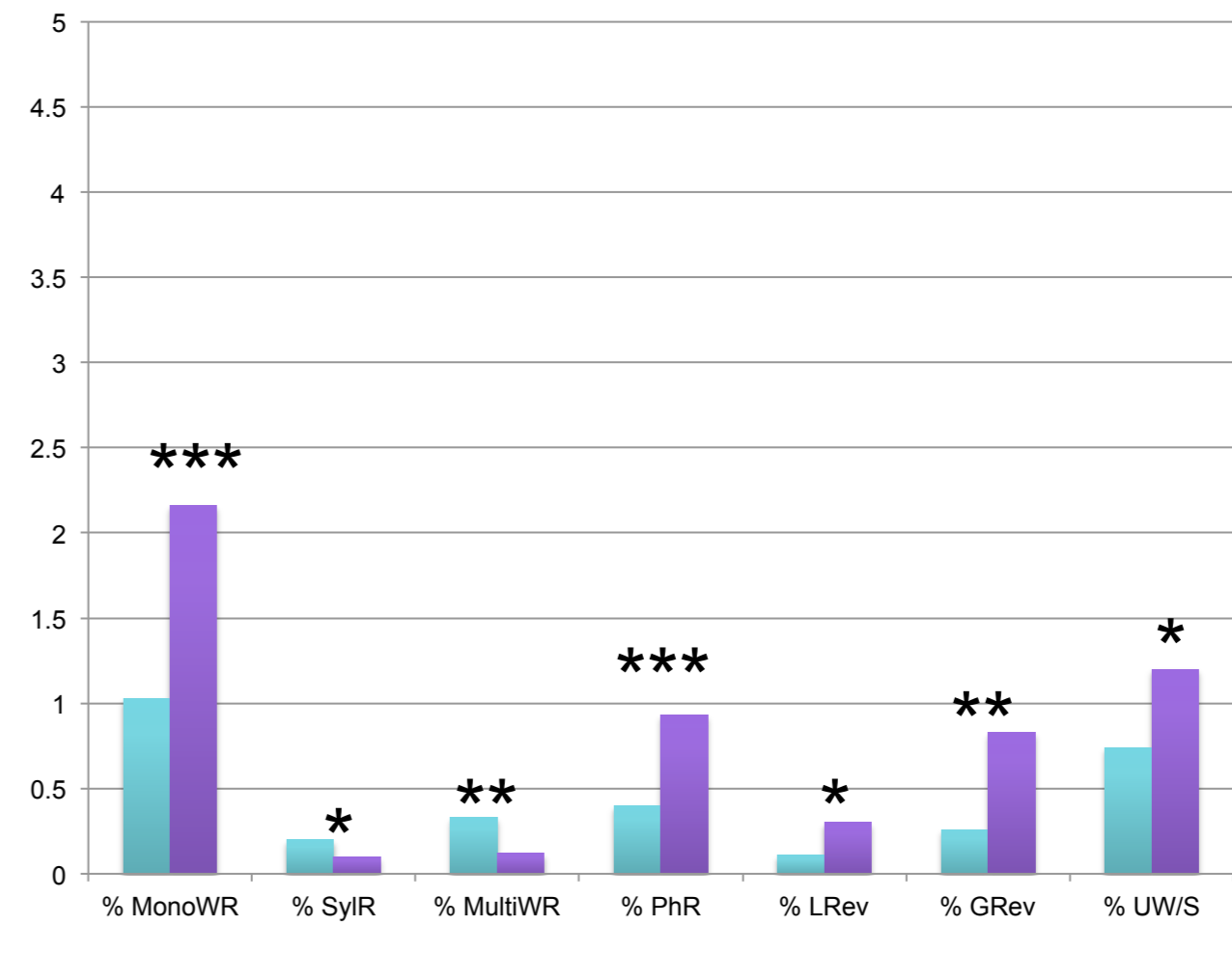
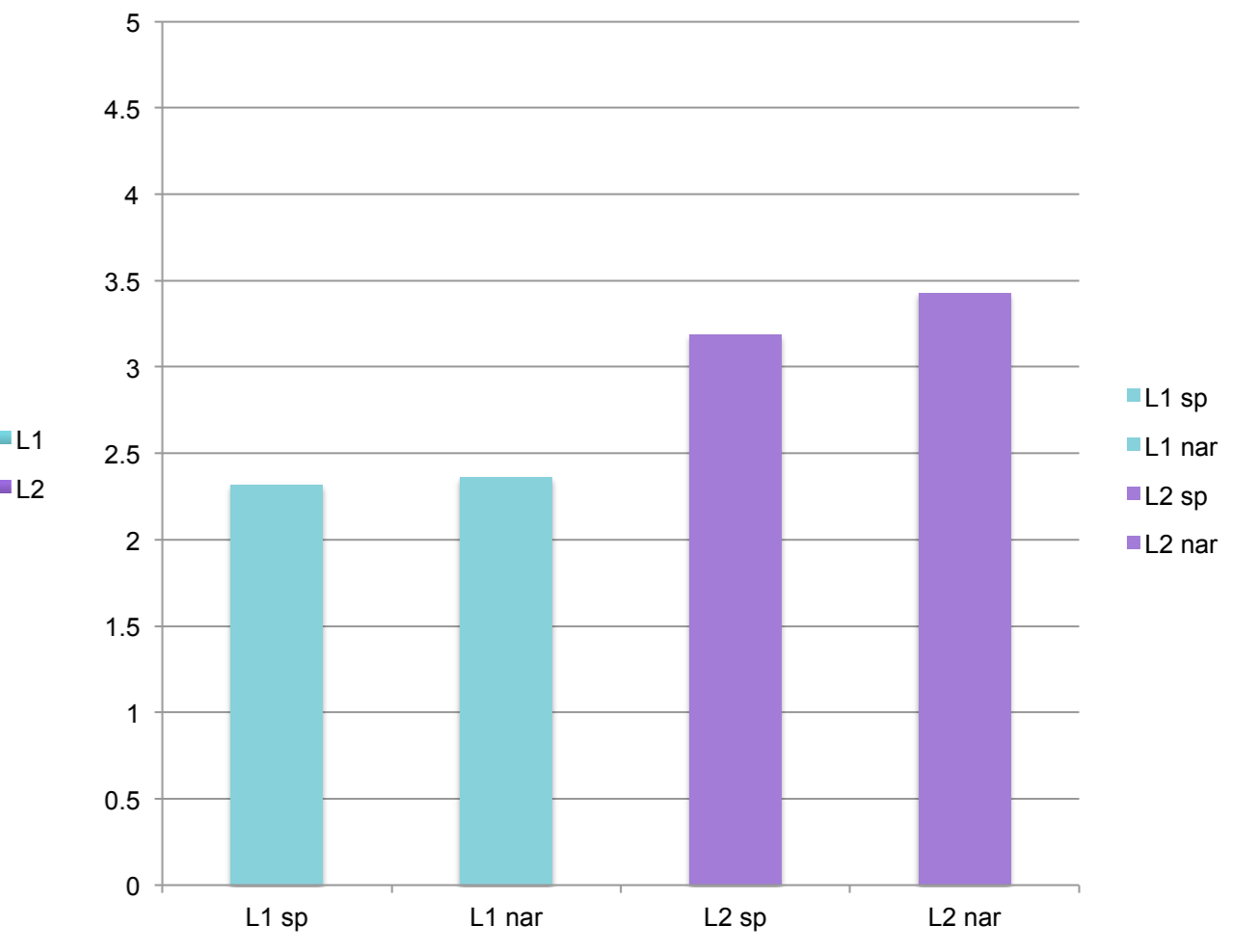


Fig. 6: SLD% in L1 & L2: sp vs. nar



6. Conclusions

- **Participants exceeded the diagnostic criteria of 3% SLDs (per 100 words) in all their speech samples (Byrd et al., 2015).**
- **There was a significant difference in %SLD & in %OD as a function of language dominance (Lim et al., 2008).**
- **No difference found in disfluencies between nar. & sp. speech samples, in L1 & L2, in contrast to results of Byrd et al. (2015).**

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