

SES Influences on Preschoolers' Performance on the Preschool Language Scale and the Peabody Picture Vocabulary Test

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ABSTRACT

Norm-referenced instruments are widely used in evaluating the language skills of preschool children to make diagnostic decisions. In this study, we examined the performance of a group of children from primarily college-educated families from Nashville, TN on the PLS-4 and the PPVT-III. This group performed substantially above the test mean. In previous studies of disadvantaged preschoolers from Nashville, Qi, Kaiser, and colleagues reported that the group performed substantially below the test mean on the PLS-3 and PPVT-III. Implications for identification of language impairment and enhancement of language skills are considered.

INTRODUCTION

Norm-referenced instruments are widely used to make diagnostic decisions regarding the language skills of preschool children. When assessing the appropriateness of a particular instrument, clinicians are often advised to consider whether the normative sample included a diverse representation of children (e.g., mirrored the US census). Hutchinson (1996) pointed out the limitations of this view, noting that diverse representation may be insufficient if subsamples of children perform quite differently on an instrument (e.g., differing distributions for subsamples of the population).

Although there is substantial evidence in the research literature that children from economically and educationally disadvantaged families perform below the test mean (i.e., 100), to our knowledge, no commercially available language measures report subgroup norms. There is substantial evidence that the group mean for children from families of low socioeconomic status (SES) is below age expectations. In a review of the language abilities of low SES children, Whitehurst (1997) reported that the mean performance of these children was more than one standard deviation below children from higher SES families on measures of receptive vocabulary, expressive vocabulary, metalinguistic skills, narrative skills, and sentence complexity. To illustrate, Lonigan et al. (1998) reported the mean on receptive language for low SES children to be 79.09 (SD = 17.66) and for middle SES children to be 101.11 (SD = 14.25), $d = 1.37$.

With respect to the *Peabody Picture Vocabulary Test* and the *Preschool Language Scale*, commonly used instruments in preschool language assessment, Qi, Kaiser, and colleagues reported group means for low SES preschoolers to be substantially below the test means ($M = 100$, $SD = 15$). For the PPVT-III, Qi, Kaiser et al. (2006) reported the mean for a African American low SES sample ($n = 482$) to be approximately 1.5 SD below the test mean. A similar discrepancy was noted in a smaller group of European American low SES preschoolers ($n = 52$). For the PLS-III, Qi, Kaiser et al. (2003) reported that the mean for the African American low SES sample ($n = 701$) was approximately 1 SD below the test mean. Importantly in both studies, the distribution of scores approximated a normal distribution. These findings suggest a need to explore subgroup means on norm-referenced measures of oral language ability.

PURPOSE

The purpose of this study was to consider the impact of socioeconomic status, as indexed by maternal education, on children's performance on the *Preschool Language Scale* and the *Peabody Picture Vocabulary Test*.

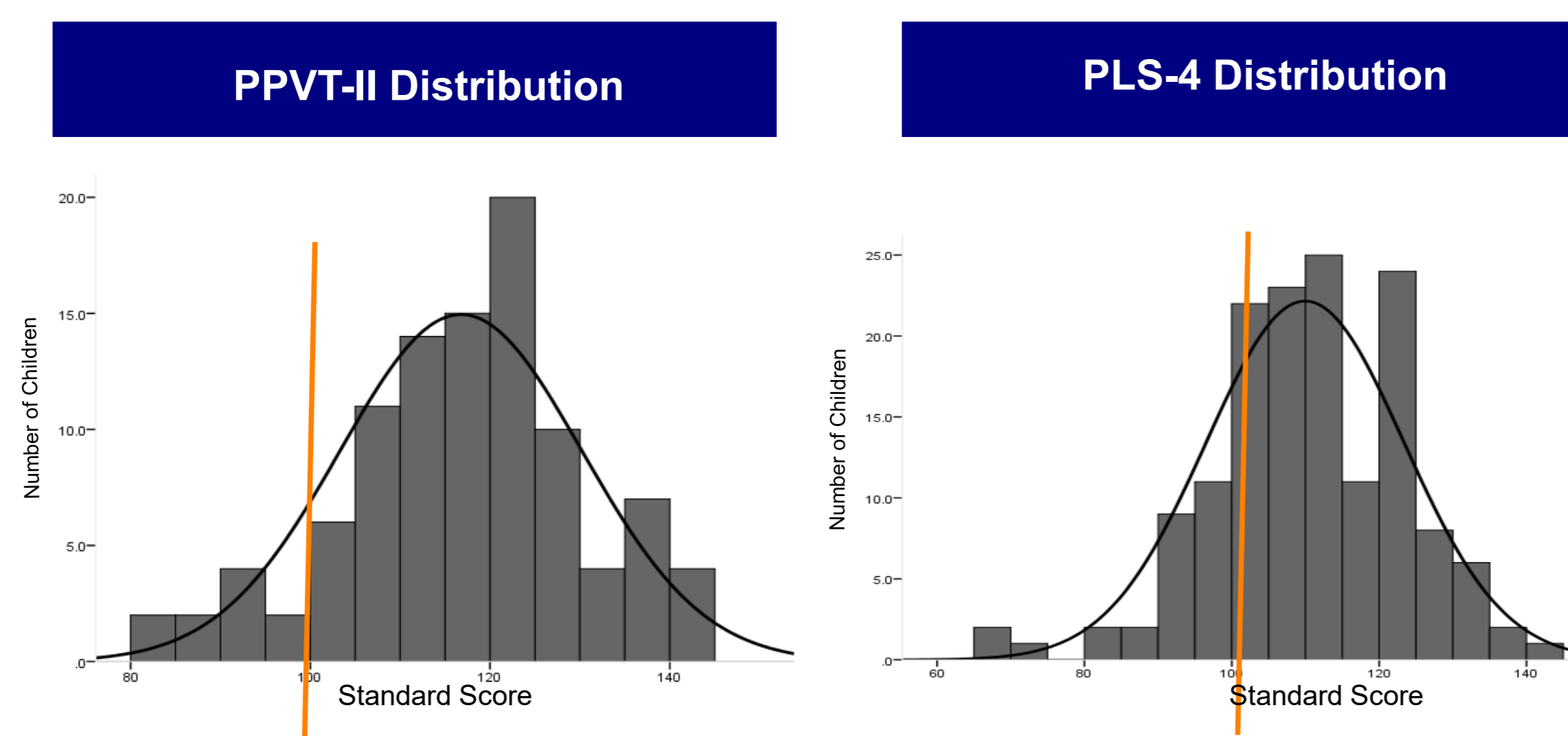
METHODS

This study is a secondary analysis of data from children who participated in a study of word learning ($n = 49$; Abel & Schuele, 2007) or in a study of complex syntax development ($n = 100$; Schuele, 2006). The PPVT-III was administered in both studies; the PLS-4 was administered only in the complex syntax study. Item 66 on the PLS-4 was not administered.

Ten examiners administered the PPVT-III and PLS-4. Participants were recruited from six Nashville community preschools. The study sample included 149 preschool children (78 girls; 71 boys). Mean age was 52.89 months ($SD = 8.6$ months; $Range = 36$ to 67 months). All children were monolingual English speakers. No child was enrolled in speech-language therapy. Nearly all children (XX%) were Caucasian. Of the 82 families reporting maternal education, 97% of mothers had at least a bachelor's degree.

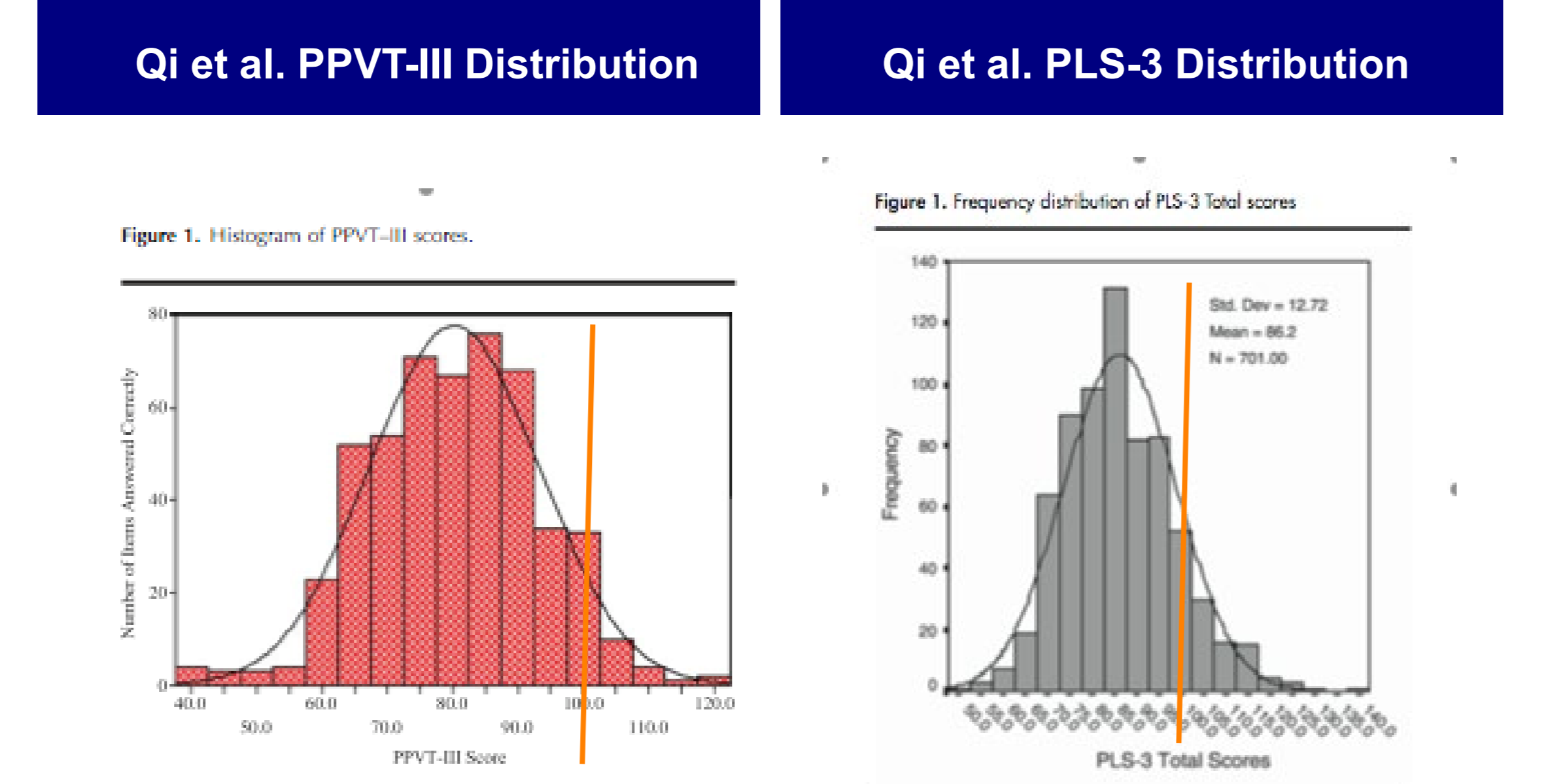
RESULTS

On the Peabody Picture Vocabulary Test-III, the group mean was 109.95 ($SD = 13.4$). On the Preschool Language Scale-4, the group mean was 116.76 ($SD = 13.4$). Thus, a group of children with mothers' who had at least a four-year college degree performed substantially better than what is defined as "average" performance for the population. Only XX% on the PPVT-III and XX% on the PLS-4 received a standard score below 100. The distribution of scores on the PLS and PPVT approximated a normal distribution, indicating that the measures were effective in differentiating strong from weak language skills.



Comparison of Groups Based on Maternal Education		
	PPVT-III Mean (SD)	PLS-3 or 4 Mean (SD)
Test Mean	100 (15.0)	100 (15.0)
Low Maternal Education (Qi et al., 2003; Qi et al., 2006)	81.9 (16.0)	87.4 (13.5)
High Maternal Education	109.95 (13.4)	116.76 (13.4)

Comparison of the data for low SES children, reported by Qi et al. (2003, 2006), to the data reported here revealed discrepant means and distributions for subgroups defined by maternal education. However, the distribution of scores, as illustrated by the figures below, indicated that for the low SES group the group scores approximated a normal distribution. Thus, as with the higher SES group, the PLS and PPVT effectively differentiated children with strong language ability from children with weak language ability.



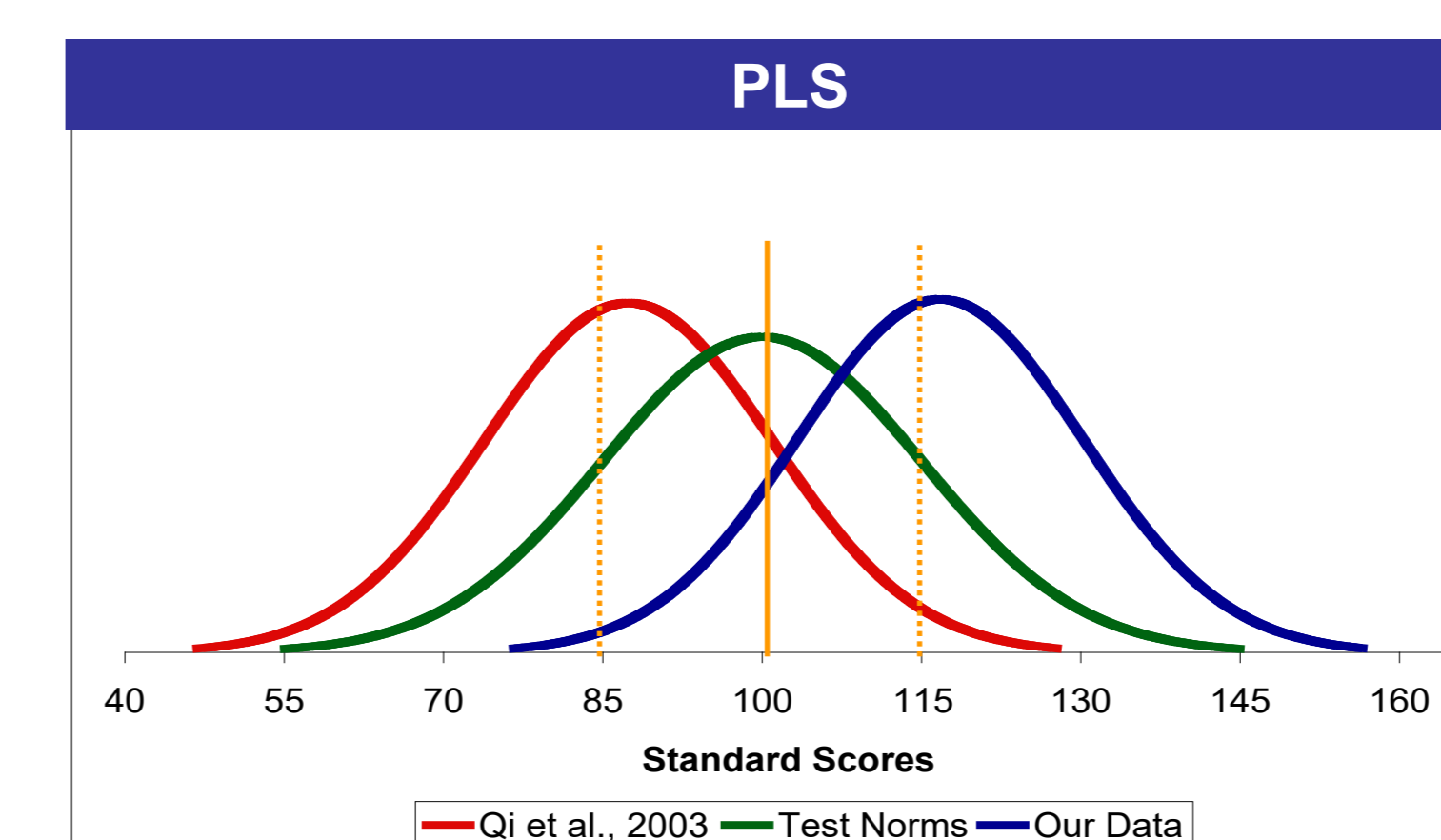
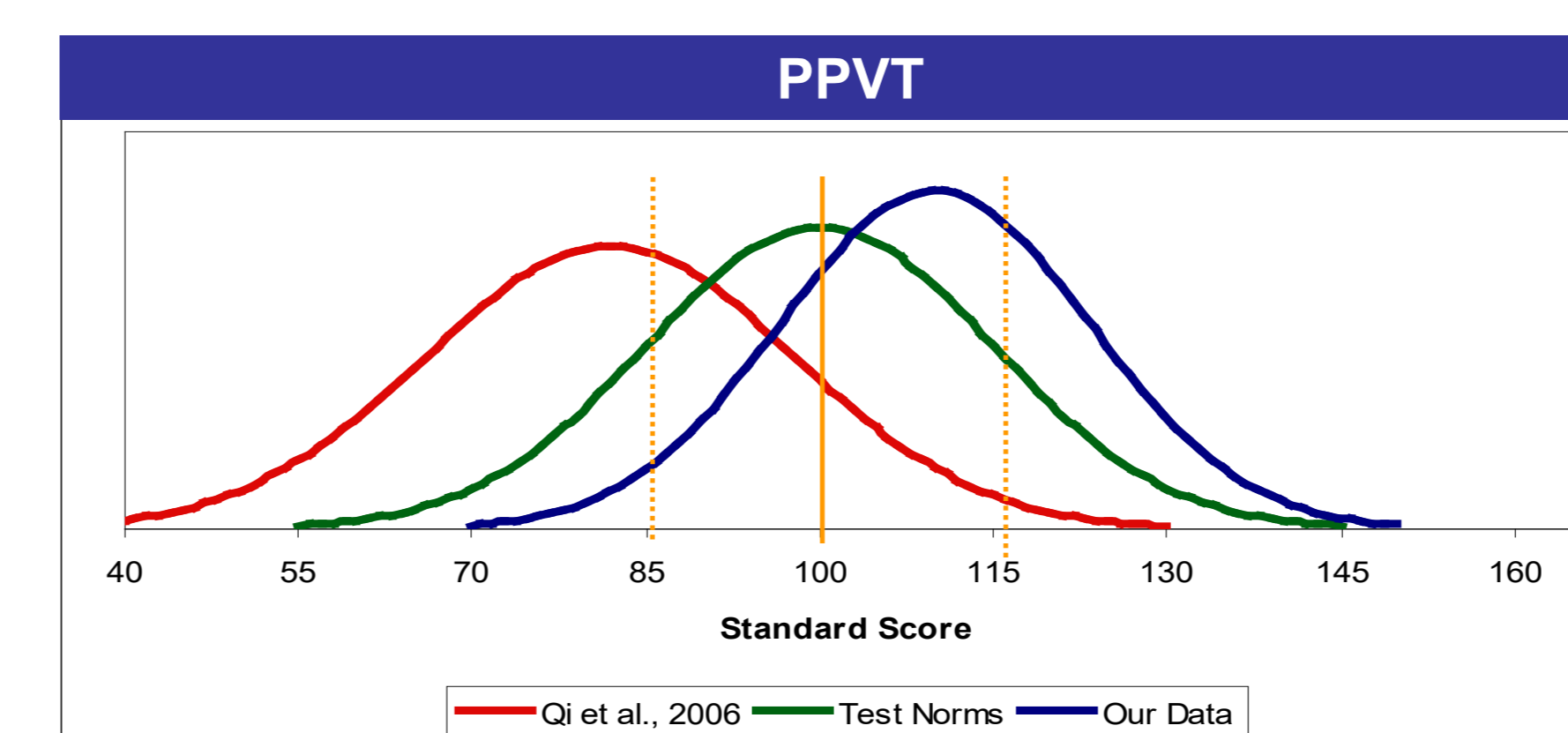
In the groups of low SES children described by Qi et al. (2003, 2006), XX% of the children received a standard score below 100 on the PPVT-III and XX% on the PLS-3.

DISCUSSION

In this study, a comparison of the performance of higher SES children to the performance of lower SES children indicated that the range of scores was not comparable. In fact, there was minimal overlap in group scores. The published test population norms do not adequately characterize either of these subgroups. Language impairment is often operationalized as the "low end of normal" with a cut-off, for example, of one standard deviation below the age mean. However, with a cut-off of one standard deviation below them mean, few children from high SES families but a large proportion of children from low SES families would be identified as language impaired.

The figures below illustrate the test population norms alongside the estimated distribution of scores of children from college-educated families contrasted with the distribution of scores of children from economically and educationally disadvantaged families. These distributions illustrate the challenges of using these measures diagnose language impairment. The findings in the current study, along with the findings reported by Qi, Kaiser, and colleagues (2003, 2006), argue strongly for test publishers to not only report population distributions, but subpopulation distributions as well. With this information, clinicians would be able to make more informed diagnostic decisions.

In the diagnosis of language impairment, the goal is to identify those children who have difficulty learning language. We could argue that children who score on the low end of the population distribution have failed to benefit from language learning opportunities as compared to same age peers. However, this argument is only valid if we are comparing a child to a peer group that has had similar language learning opportunities. Further Hutchinson (1996) explained application of the test distribution is only appropriate to the extent that subgroups of children perform similarly on the measure (i.e., similar distribution). From the data reported here we argue that if the low end of normal is a valid approach to identification of language impairment, then, at least on the PPVT and the PLS, it is necessary to compare a child to the distribution for the subgroup of which he or she is a member. Comparison to the test population distribution is quite problematic.



IMPLICATIONS

IMPLICATIONS FOR IDENTIFICATION OF LANGUAGE IMPAIRMENT

Who is a child with a language impairment?

A child with a language impairment is a child who has difficulty learning language. A language impairment is often operationalized as the low end of normal, defined relative to a child's same-age peers. This definition assumes that the child has had similar language learning experiences as his same-age peers. When language measures correlate with SES, measurement may tap into differences in experience making it difficult to obtain a true or accurate reflection of the child's language learning abilities. To improve accuracy, diagnostic decisions must be made by comparing children to a peer group matched for age and SES, resulting in a similar proportion of children within each SES group identified as language impaired.

Who is a child that does not have strong language skills?

As illustrated, some children have scores that fall outside the range of average as defined by the test norms but who score within the average range (± 1 SD) for their SES peer group. This group of children may be viewed as children who do not have strong language skills rather than children with language impairment. Children who do not have strong language skills may have limited language learning experiences.

IMPLICATIONS FOR CLINICAL PRACTICE

Policy and practice have often placed enrichment and intervention in the same category (i.e., Dickinson & Caswell, 2007). However, it is critical that we differentiate between the purposes, service delivery method, and children served by enrichment versus intervention.

Children who do not have strong language skills need LANGUAGE ENRICHMENT.

- Language enrichment increases the support for language development and facilitates the acquisition of general language skills.
- Language enrichment is provided through enhanced experiences in the classroom and increasing support for parent-child interaction.
- SLPs serve in a collaborative/consultative role in language enrichment.

Children who have language impairments need LANGUAGE INTERVENTION.

- Language intervention targets the improvement of communication abilities and function in children with language impairments (ASHA, 2004).
- Language intervention is provided through direct and indirect therapy, targeting the acquisition of language skills specific to an individual child's needs.
- SLPs serve a primary role in providing language intervention, in collaboration with other members of the educational team.

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