Abstract

The Reynell Developmental Language Scale (RDLS) and Symbolic Play Test (SPT) have been useful language tests for assessing the language age of children. Both tests have been validated in English-speaking children. However, there have been no studies conducted for Chinese children, whether Mandarin (Northerners) or Cantonese (Southerners) is used as the main dialect. As the Chinese population is the largest ethnic group in the world, and Chinese emigration occurred to nearly all parts of the world, it is essential to test whether these language tools can be applied for this ethnic group. The objective of this research was to study whether RDLS and SPT are useful in assessing the language age of Chinese children. Both RDLS (Chinese version) and SPT are conducted for 116 Chinese (Cantonese-speaking) children, aged 13–59 months, in Hong Kong. There is a significant positive correlation of the language age using RDLS and SPT with the chronological age of Chinese children. Both RDLS and SPT can be adopted in determining the language/mental age of Chinese (Cantonese-speaking) children.

Keywords: Reynell Development Language Scale; Symbolic Play Test; Chinese; Mandarin; Cantonese; Children

1. Introduction

There has been a lack of standardized language tests available for Chinese children, who make up the vast majority of children with developmental disorders due to global emigration in this era. The author has conducted a stratified proportional sampling of all 3-year-olds in Hong Kong using the Developmental Language Screening Scale (DLSS) devised for use in Cantonese-speaking children [1]. Of 855 children sampled, 4%, 2.8% and 3.35% are identified as having delay in verbal comprehension, expression or both, respectively [1]. The only available language screening tool for Chinese children was DLSS [2].

The Reynell Developmental Language Scale (RDLS) [3] and Symbolic Play Test (SPT) [4] have been commonly used for assessing the language age of children with suspected language problems [1]. RDLS-Reynell (Chinese-HK version (1997)) has been translated and validated for use in Cantonese-speaking children in Hong Kong. It is used for assessing the language age of children aged 15 months to 7 years. RDLS consists of two scales: language comprehension and language expression.

SPT (Lowe and Costello, Second Edition, 1976) is a language tool for assessing children aged less than 36 months. Language age assessed in SPT has been shown to correlate with the mental age of children [4]. SPT is simple to administer. There are four play situations with standard sets of miniature toys. Children are encouraged to have free play with minimal prompting. SPT has been validated in the United Kingdom for English-speaking children. It is considered an important indicator of the level of cognitive functioning of children. It also provides information on the development of perceptual and memory processes and the ability to sustain attention. When conducting SPT, there is no need to use expressive language. Thus, SPT is useful for assessing children with comprehensive language impairment [5]. A study has shown a high correlation between RDLS and SPT [6]. Both these tests have been validated in Western countries for English-speaking children. There have been no studies for Chinese-speaking children so far.

The objective of this study is to examine the usefulness of RDLS and SPT in assessing the language age of Chinese children and to see if there is any correlation between
chronological age and language age as estimated by RDLS and SPT.

2. Methodology

2.1. Subjects

Altogether 116 children were recruited into this study. The age range is 13–59 months. Subjects are categorized into two groups: (1) normal (N = 71) and (2) developmental delay (N = 45). Normal children were recruited from normal nurseries and playgroups under the Social Welfare Department. These children passed the developmental screening tests performed routinely for all children in the Government Maternal & Child Health Clinics. Children with developmental delay are recruited from Early Education and Training Centers (EETC) of a voluntary organization for early training programs for children with special needs (Heep-Hong Society). These children have been assessed in various Child Assessment Centers with a developmental quotient less than 70. Only Chinese Cantonese-speaking children are included in this study.

2.2. Methodology

Before conducting field trips in the nurseries and data collection, all the investigators were trained and tested for inter-rater correlation of using both RDLS and SPT. The inter-rater reliability is 0.95. The caretakers or parents were encouraged to accompany the children whenever possible. For children from group 1 (i.e. normal nursery), their nursery school teachers or workers accompanied them until they were comfortable. The mothers or caretakers of normal children were usually more confident to leave their children with our interviewers for an evaluation. Children in group 2 (i.e. delay development) were accompanied by their chief caretakers, mothers or center workers until they were comfortable. However, parents were advised against prompting their children. This research protocol has been approved by the Ethics Committee of the Faculty of Medicine of the University of Hong Kong. Written consents were obtained from parents.

The completion of both RDLS and SPT tests takes at least 30 min, depending on the cooperativeness of the children. Thus, the two tests were conducted in random order to avoid underscoring of either test.

2.2.1. Reynell Developmental Language Scales (Chinese-HK version)

RDLS consists of two scales. (1) The Comprehension Scale consisted of 62 items grouped into ten sections: single words, verbs and phrases, clausal elements, auxiliaries and complex structure. Points are given according to the standard instruction, and a maximum of 73 points can be scored for this part. Children were required to respond to standard questions or instructions appropriately and encouraged to speak. Every word spoken by the children was recorded for accurate scoring after the test.

2.2.2. Symbolic Play Test

SPT consists of four separate situations [5]. The investigators placed the miniature toys in front of the children in a standard manner. The children were then encouraged to play with them. Any prompting was kept to a minimum in order to keep the situation natural, in particular to avoid giving any verbal clues or instructions. One point is scored for each task done. The language age of children (up to 36 months) can be calculated from the total scores (maximum score 24).

2.3. Statistical analysis

Spearman’s correlation test was used for analysis of the data. The equivalent language age of the summative scores in both RDLS and SPT were used for analysis. These were calculated from the corresponding reference table of both RDLS and SPT.

3. Results

There was a significantly strong positive correlation of language age with chronological age for both groups of children (P < 0.01). This included a positive correlation between chronological age and language age estimated by SPT, language comprehension and language expression age estimated by RDLS (Tables 1–3).

Table 1
Correlation of language age with two language tests in the cohort (N = 116)

<table>
<thead>
<tr>
<th>Language age estimated by</th>
<th>Symbolic Play Test</th>
<th>Reynell Developmental Language Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Verbal comprehension</td>
<td>Language expression</td>
</tr>
<tr>
<td>Chronological age at test</td>
<td>0.678*</td>
<td>0.680*</td>
</tr>
<tr>
<td>Language age estimated by</td>
<td>Symbolic Play Test</td>
<td>–</td>
</tr>
<tr>
<td>Reynell Developmental Language Test (verbal comprehension)</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

*Statistically significant (P < 0.05).
4. Discussion

We have demonstrated good agreement between language age and chronological age in Chinese children using both RDLS and SPT tests. This suggests that children who perform well in SPT are also likely to perform well in RDLS. Thus, both tests can be adopted for use in determining the language age of Chinese Cantonese-speaking children worldwide.

The strongest correlation was found for the two scales of RDLS. This suggests that children who performed well in the comprehension scale of RDLS are more likely to do well in the expression scale of RDLS. Thus, we have also demonstrated the internal consistency of RDLS.

The positive correlation is better demonstrated in the children with developmental delay. Several reasons may contribute to the difference. Firstly, these children were accompanied by their parents during the tests and they tended to be more at ease and cooperative. On the contrary, most normal children were tested alone as their caretakers were confident that these children were cooperative for the evaluation. Thus, only nursery teachers or workers accompanied them if they needed extra time before testing. Thus, these normal children were a bit too shy to play and speak up with strangers. This may account for the poorer performance in the expression scale of RDLS compared to the comprehension scale. Secondly, most children with developmental delay have been receiving language training as part of the early intervention program, and hence, there may be a training effect.

Our general impression is that children are less shy in the presence of teachers and caretakers, and tend to perform much better and faster. Thus, we suggest that for a truthful assessment of the language ability of children, whether normal or delayed in development, the presence of caretakers or teachers will be more useful in assessing their real performance.

We have demonstrated the usefulness of both RDLS and SPT in assessing the language age of Chinese Cantonese-speaking children, and these two tests can be used widely for Chinese children living abroad in English-speaking communities. Moreover, the developmental process can be tracked for those who need a special language training program.

Acknowledgements

We would like to thank the following for assistance in this project conducted in May–August 2002, particularly the children and their parents: Heep Hong Society (Ms Nancy Tsang, Mrs Yau Ng Lai-Tuen, Mr Au Yeung Wai-Hong, Ms Leung Wai-Ling, other centers-in-charge and workers) for coordinating the smooth running of the assessments; directors, teachers and workers of normal nurseries for coordinating the smooth running of this project; and the Department of Paediatrics and Adolescent Medicine of the University of Hong Kong (Dr Brian Chung and Dr Fung CW for participating; Ms Stella Hui, research assistant).

References