

Initial Psychometric Properties of the Hong Kong Chinese Version of Child Behavior Checklist 1½-5 (CBCL 1½-5)

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INTRODUCTION

- Early childhood is a critical stage for detecting socio-emotional difficulties
- **Reliable, culturally sensitive tools** are needed for accurate assessment and timely support
- CBCL 1½-5 is a widely used tool for assessing preschool behavioural and socio-emotional problems
- The existing simplified Chinese translation **may not fully reflect Hong Kong's cultural and linguistic context**.
- A **Hong Kong Chinese version** was developed and reviewed by experts and parents for cultural relevance and clarity
- This study evaluates its **psychometric properties** to establish a valid screening tool for preschoolers in Hong Kong

RESULTS

287 parents of children aged 2-5 were recruited, with 252 from kindergartens, and 35 from a psychiatric clinic. Among all children, 147 were boys (51.2%) and 140 were girls (48.8%). 102 of the children were three or below (35.5%).

Table 1 shows that the majority of parents endorsed 'strongly agree' or 'agree' that the translated Hong Kong Chinese CBCL 1½-5 is clear and easy to understand (99%), uses appropriate wording (99%), and comprehensively covers the scope of preschool children's mental health (98%).

As shown in Table 2, most subscales demonstrated acceptable to excellent internal consistency in both genders and age groups (ω ranged from .73 to .97), except the somatic complaint subscale ($\omega = 0.64$), which had questionable internal consistency.

Table 3 shows that test-retest reliability was excellent for all the summary scales, including Internalizing (ICC = .89, $p < .001$), Externalizing (ICC = .91, $p < .001$), and Total Problems (ICC = .91, $p < .001$). Test-retest reliability for the individual subscales was also acceptable to excellent, with ICCs ranging from .74 to .92.

CONCLUSION

The Hong Kong Chinese translation of the CBCL 1½-5 was rated by most parents as clear, appropriate, and comprehensive. It demonstrated acceptable to excellent internal consistency across genders and preschool age groups, with excellent test-retest reliability for all summary subscales and acceptable to excellent reliability for the individual subscales. However, the somatic problems domain showed questionable internal consistency across groups. Further investigation of additional psychometric properties, including criterion validity, is needed to strengthen the evidence supporting its use as a reliable tool for assessing socio-emotional difficulties among preschoolers in Hong Kong.

METHODOLOGY

Cultural Validation

The Hong Kong Chinese version of the CBCL 1½-5 was developed through translation and back-translation by bilingual psychiatrists, and subsequently reviewed by a multidisciplinary expert panel of 10 experienced professionals, including child psychiatrists, pediatricians, educational psychologists, social workers, and kindergarten educators, to ensure clarity, cultural relevance, and comprehensiveness. A focus group of 10 Chinese parents further assessed clarity, acceptability, and face validity.

Validation of CBCL 1½-5

From September 2024 to March 2025, parents of children aged 2-5 were recruited from local kindergartens and a psychiatric clinic. They completed the translated CBCL 1½-5, and 30 of them underwent a follow-up assessment two weeks later. The internal consistency of the CBCL 1½-5 was comprehensively analysed using Cronbach's alpha, McDonald's omega and omega hierarchical in both sex, and in both 2-3 year-old and 4-5 year-old. Test-retest reliability was assessed using intraclass correlation coefficients (ICC). All statistical analyses were performed using R Studio.

Table 1. Parent's Acceptability of the translated Hong Kong Chinese Version of CBCL 1½-5

| Acceptability | N(%) of parents endorsed "strongly agree" or "agree" |
|---|--|
| The questions in the translated Hong Kong Chinese CBCL 1½-5 are clear and easy to understand | 285 (99%) |
| The wording of the questions in the translated Hong Kong Chinese CBCL 1½-5 is appropriate | 286 (99%) |
| Overall, the translated Hong Kong Chinese CBCL 1½-5 comprehensively covers the scope of preschool children's mental health. | 282 (98%) |

Table 2. Reliability of CBCL 1½-5 domains for different genders and age group

| | | Total Problems | Internalizing | Externalizing | Emotional Reactivity | Anxiety | Somatic Problems | Withdrawn | Sleep | Attention | Aggressive | Others |
|-------------------------|-------------|----------------|---------------|---------------|----------------------|---------|------------------|-----------|-------|-----------|------------|--------|
| Total Sample (N=287) | Alpha | 0.97 | 0.91 | 0.93 | 0.81 | 0.80 | 0.56 | 0.81 | 0.76 | 0.67 | 0.92 | 0.88 |
| | Omega-total | 0.77 | 0.92 | 0.94 | 0.85 | 0.85 | 0.64 | 0.86 | 0.83 | 0.74 | 0.93 | 0.89 |
| | Omega-hi | 0.97 | 0.66 | 0.75 | 0.73 | 0.71 | 0.23 | 0.78 | 0.59 | 0.68 | 0.74 | 0.56 |
| Boys (N=147) | Alpha | 0.97 | 0.91 | 0.93 | 0.82 | 0.79 | 0.59 | 0.82 | 0.72 | 0.69 | 0.92 | 0.89 |
| | Omega-total | 0.97 | 0.93 | 0.94 | 0.86 | 0.85 | 0.70 | 0.87 | 0.81 | 0.75 | 0.94 | 0.90 |
| | Omega-hi | 0.69 | 0.53 | 0.82 | 0.67 | 0.70 | 0.09 | 0.67 | 0.52 | 0.68 | 0.75 | 0.53 |
| Girls (N=140) | Alpha | 0.96 | 0.90 | 0.91 | 0.79 | 0.80 | 0.40 | 0.80 | 0.80 | 0.61 | 0.91 | 0.84 |
| | Omega-total | 0.96 | 0.91 | 0.93 | 0.85 | 0.87 | 0.56 | 0.85 | 0.85 | 0.69 | 0.92 | 0.86 |
| | Omega-hi | 0.69 | 0.74 | 0.66 | 0.56 | 0.54 | 0.31 | 0.67 | 0.54 | 0.65 | 0.75 | 0.54 |
| Aged 3 or below (N=102) | Alpha | 0.97 | 0.93 | 0.94 | 0.84 | 0.84 | 0.63 | 0.85 | 0.78 | 0.64 | 0.93 | 0.89 |
| | Omega-total | 0.98 | 0.94 | 0.95 | 0.89 | 0.89 | 0.73 | 0.89 | 0.85 | 0.75 | 0.94 | 0.91 |
| | Omega-hi | 0.73 | 0.67 | 0.77 | 0.56 | 0.67 | 0.36 | 0.80 | 0.58 | 0.62 | 0.76 | 0.59 |
| Aged above 3 (N=185) | Alpha | 0.96 | 0.90 | 0.92 | 0.80 | 0.76 | 0.48 | 0.79 | 0.91 | 0.69 | 0.91 | 0.87 |
| | Omega-total | 0.97 | 0.91 | 0.94 | 0.84 | 0.81 | 0.57 | 0.84 | 0.93 | 0.76 | 0.93 | 0.88 |
| | Omega-hi | 0.68 | 0.61 | 0.74 | 0.66 | 0.63 | 0.28 | 0.75 | 0.69 | 0.67 | 0.69 | 0.54 |

Table 3. Test-retest Reliability of CBCL 1½-5 for total problems, internalizing and externalizing subscales

| N=30 | Total problems | Internalizing | Externalizing | Emotional Reactivity | Anxiety | Somatic Problems | Withdrawn | Sleep | Attention | Aggressive | Others |
|--|----------------|---------------|---------------|----------------------|---------|------------------|-----------|--------|-----------|------------|--------|
| Intraclass correlation coefficient (ICC) | 0.91** | 0.89** | 0.91** | 0.74** | 0.74** | 0.78** | 0.91** | 0.92** | 0.91** | 0.88** | 0.84** |

** $p < .001$