Reliability and Validity of the Childhood Autism Rating Scale—Tokyo Version (CARS-TV)¹

Hiroshi Kurita²
National Institute of Mental Health, NCNP, Japan, Ichikawa; Japan

Yuko Miyake
Psychiatric Research Institute of Tokyo, Tokyo, Japan

Kaoru Katsuno
Nerima Welfare Center for the Mentally and Physically Handicapped, Tokyo, Japan

A Japanese translation of the Childhood Autism Rating Scale (CARS) (the Tokyo version of the CARS, CARS-TV) was used with 167 developmentally disabled children under age 16. Cronbach's coefficient alpha was .87. The interrater reliability (r) for each of the 15 scales based on 128 children ranged from .43 to .77 with an average of .62. Based on the 167 children, the total CARS-TV score demonstrated a satisfactory level of taxonomic validity (Thorndike, 1982) on DSM-III diagnostic groups. The total score discriminated infantile autism and other pervasive developmental disorders more efficiently from mental retardation without an additional diagnosis of pervasive developmental disorder than an IQ. The total score also showed a satisfactory concurrent validity on the overall rating of autism.

INTRODUCTION

The Childhood Autism Rating Scale (CARS) is an instrument to evaluate the degree of autism of developmentally disabled children. It was developed by Schopler and his colleagues in 1971, and became available to

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²Address all correspondence to Dr. H. Kurita, Division of Developmental Disorders, National Institute of Mental Health, NCNP, Japan, 1-7-5, Konodai, Ichikawa, Chiba 272, Japan.
professionals as an appendix to the paper on its first reliability and validity study (Schopler, Reichler, DeVeUis, & Daly, 1980). Recently, Schopler, Reichler, and Renner (1986) revised the CARS in several points, such as clarifying the scoring criteria and simplifying the determination of the degree of autism.

Although Teal and Wiebe (1986) demonstrated that CARS scores satisfactorily discriminated between autistic and trainable mentally retarded children, the validity of the CARS still seems to need study from various points of view as noted by Parks (1983). Furthermore, up to now, few reliability and validity studies have used the revised CARS and none have been conducted outside the United States.

This study is the first attempt to demonstrate the reliability and validity of a Japanese translation of the CARS on Japanese children with developmental disabilities.

METHOD

Subjects

The subjects were 167 developmentally disabled children under age 16 (mean age = 5.1 ± 2.6 years; mean IQ = 66.4 ± 23.8; male-to-female ratio = 3.4:1), who had attended Nerima (one of 23 wards of Tokyo Metropolitan) Welfare Center for the Mentally and Physically Handicapped from 1982 through 1987.

At the time of their first visit to this center, a skilled social worker observed them and interviewed their parents, frequently together with their nursery teachers, about their family and developmental histories for an average of 1.5 hours. Then, an experienced child psychologist (the third author, K.K.) conducted a psychological evaluation of the children, including the administration of developmental and/or intelligence tests. For 157 of the 167 children, IQs were measured on the Japanese version of the Stanford-Binet. In the other 10 children, untestable on the Stanford-Binet, developmental quotients (DQs) on a Japanese developmental schedule, the Tsumori's Mental Development Scale, were used for IQs. This scale consists of 438 items divided into 5 subscales (i.e., motor, play, socialization, self-help, and speech-comprehension) rated on the basis of an interview with a child's caretaker. A DQ is expressed as a percentage of the mean of the 5 subscale developmental ages to the chronological age of the child. Since the Tsumori DQs are correlated to IQs on the Japanese version of the Stanford-Binet with an r of .77 (Shimizu, Senda, Someya, Ohta, & Kawasaki, 1987), the use of the DQ for an IQ in the 10 children seems warranted. In addition, the parents