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The modified checklist for autism in Turkish toddlers: A different cultural adaptation sample

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ABSTRACT

This study aimed to investigate adaptation of the modified checklist for autism in toddlers (M-CHAT) in a large community sample in Kayseri, a central Anatolian city in Turkey. The M-CHAT was administered to 2021 parents of healthy toddlers aged 18–30 months by a trained team by face-to-face interview at family health centers. Screen positive children and randomly selected screen negative children were evaluated by a child psychiatrist according to diagnostic and statistical manual of mental disorders, text revision (DSM-IV-TR) criteria and childhood autism rating scale (CARS). Screen positive children were re-evaluated at 3 years of age. The M-CHAT detected both cases of autism spectrum disorders that were diagnosed. Cronbach's α was found to be 0.84 for the 23 items and 0.79 for the 6 critical items. Although the M-CHAT originally was designed to be filled by the parents, this study showed that, in Turkey, the M-CHAT can be used as a screening tool by face-to-face interview method at well child visits.

1. Introduction

Autism spectrum disorders (ASDs) are lifelong developmental disabilities that have impairments in social skills, verbal and nonverbal communication. Prognosis varies with autism severity and comorbidities; however, intensive intervention can improve the social-communicative behavior of autistic children (Ben Itzchak, Lahat, Burgin, & Zachor, 2008). Although some methodological differences among the studies exist that might explain some of the wide range of prevalence estimates, prevalence rates of ASDs vary across countries as follows: 14.7 per 1000 (one in 68) children aged 8 years in the United States (Centers for Disease Control and Prevention, 2011); 15.7 per 1000 children aged 5–9 years in United Kingdom (Baron-Cohen et al., 2009); 2.66 per 1000 in mainland China, Hong Kong and Taiwan; 18.9 per 1000 children from regular schools in South Korea (Sun et al., 2013); 3 per 1000 births among children diagnosed by age 8 in Western Australia (Nassar et al., 2009). Prevalence of ASDs in Turkey is unknown. However, since the global prevalence has increased (Baron-Cohen et al., 2009; Ben

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Itzchak et al., 2008; Centers for Disease Control and Prevention, 2011; Nassar et al., 2009; Sun et al., 2013; Zeglam & Maound, 2012), it is important to improve recognition and documentation of the symptoms of ASDs at the well child care visits. Although there are several early signs and symptoms of the disease, social deficits and behavioral patterns might not be recognized until a child is unable to meet social and educational stage demands. During the routine developmental surveillance it is emphasized to elicit parental concerns and observe the child. In addition, American Academy of Pediatrics recommends autism-specific screening at 18 and 24 months of age (Johnson & Myers, 2007).

The modified checklist for autism in toddlers (M-CHAT) is the most widely used instrument for early detection of the disease (Albores-Gallo et al., 2012; Canal-Bedia et al., 2011; Chlebowski, Robins, Barton, & Fein, 2013; Wong et al., 2004; Yama, Freeman, Graves, Yuan, & Karen Campbell, 2012). It was modified from the checklist for autism in toddlers (CHAT) (Baron-Cohen, Allen, & Gillberg, 1992) first by Robins, Fein, Barton, & Green (2001). It takes a short time to administer and can be completed by the families and offers higher sensitivity compared to CHAT (Sunita Bilszta, 2013). Validation and cultural adaptation studies of the M-CHAT have been performed in many countries (Albores-Gallo et al., 2012; Canal-Bedia et al., 2011; Chlebowski et al., 2013; Kamio et al., 2014; Wong et al., 2004; Yama et al., 2012). There is no study in Turkey on validation and cultural adaptation of the M-CHAT in a community sample. In a previous hospital-based study from Turkey, the M-CHAT was used in a well-child-clinic (Kara et al., 2014). Although results of this study showed that the M-CHAT could be used as a screening tool, before integration of screening we aimed to evaluate the adaptation of the M-CHAT in a community sample. This will be the first community based study to adapt the M-CHAT to healthy 18–30-month-old toddlers in Turkey.

2. Methods

2.1. Participants

This study was approved by the Ethical Committee at Erciyes University Faculty of Medicine. Healthy toddlers aged 18–30 months were screened at Family Health Centers (FHCs) located in the city centre and suburbs of Kayseri between June 2011 and June 2012. Kayseri is one of the large cities in Turkey, with 1,200,000 inhabitants, and attracts people from different locations due to its industrial and commercial opportunities. We used the data of the local health authority to determine the FHCs and to group families into low, middle and high socioeconomic levels based on their income. There were 35 FHCs located in the city centre and suburbs of Kayseri and 58% of the families that registered to these FHCs were from middle socioeconomic level, 31% from high and 11% from low. Fourteen FHCs were determined to include children and parents from each of these three socioeconomic levels. Approximately 4000 children aged 18–30 months were estimated to be registered at these FHCs. Children and their families were invited to participate in the study by their nurses/midwives during well-child visits or by telephone. Children who have been diagnosed with any neurodevelopmental disease or ASDs before, or those who had a severe sensory or motor disability and whose parents did not want to participate in the study were excluded. However, there was no child who had been diagnosed with ASDs in the whole cohort. The M-CHAT was administered by a trained team at the FHCs by face-to-face interview.

2.2. Screening instrument and procedure

The original M-CHAT is a 23-item parent report measure that is designed by Robins et al. (2001). Recently, Robins et al. (2014) reported the M-CHAT revised with follow-up that contain some modifications to improve utility. However, when we started this study the revised form had not been published yet. Therefore, we used the original M-CHAT in this study.

Since this is the first study in Turkey in which low-risk toddlers were screened, we translated the M-CHAT by taking into account previous Turkish version (Kara et al., 2014) and original version (Robins et al., 2001). Then it was back translated to Turkish. Prior to the field study, we conducted a pilot study with 20 children in our well child clinic.

Although the M-CHAT is scored based on parent reports, in the previous study from Turkey it was reported that when parents completed the forms the number of false positive children were very high (Kara et al., 2014). Therefore, in this study, the M-CHAT was administered to the parents by a trained team by face-to-face interview. We used single step screening without a follow up interview. First and third authors trained a group of health sciences students to ask items to parents at FHCs by face-to-face interview. This group consisted of 6 students from department of Child Development and Health Services Vocational College, so they have knowledge about child development. Parents were instructed to listen to the questions and choose the most appropriate answer for their child. The interviews were standardized. Trained person read the items in the same order as they appear on the survey questionnaire and scored the forms according to the parents answers. They were trained to give some examples or to show the behavior to the parents for failed items. For example, to show playing properly with small toys (cars or bricks) (item 8), plugging ears (item 11), unusual finger movements (item 18) or to explain that though their child passed the hearing test in the newborn period have they ever wondered if the child is deaf (item 20). It took 5–10 min for parents to complete the interview.

The M-CHAT was administered and scored by using previously published cutoffs. A positive screen was accepted if $\geq$2 of 6 critical items or $\geq$3 of 23 items were positive (Robins et al., 2001). First author collected forms weekly from FHCs and evaluated them again and then informed the screen positive children's parents by telephone. Screen positive children were invited to Child Psychiatry Clinic for clinical evaluation. Randomly selected screen negative 50 children were also invited to