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# Developmental disabilities and behavioral problems among school children in the Western Cape of South Africa

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### ABSTRACT

**Aim:** This descriptive cross-sectional study estimates the frequencies and kinds of potential developmental disabilities (DD) and behavior problems (BP) among children in grades R and 1 who attend a primary public school in rural Western Cape Province, South Africa.

**Methods:** Data were collected on 174 children aged 5.1–8.8 years using the *Ten Question Screener* (10QS) and the *Developmental Behaviors Checklist—Short form*.

**Results:** For the entire sample, 42% ( $n = 73$ ) screened positive for 1 or more possible DD on the 10SQ. Twenty-one percent ( $n = 36$ ) screened positive for one or more possible DDs. Thirty-six percent ( $n = 63$ ) of the sample scored above the cutoff for a behavioral problem that may be clinically significant. For this group the proportion of females ( $n = 36$ , 39%) was slightly higher than males ( $n = 28$ , 35%).

**Conclusion:** The percent of possible DDs and BP among children in grades R and 1 is higher than the number of learners with special needs reported by the Principal for the entire school (18.7%). The findings from this study suggest that there may be more learners than formally designated who have special educational needs that may benefit from special educational programs (e.g. speech, occupational, language, etc.). There may be a need for expanded remedial educational and behavioral services in this school and elsewhere in the district.

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## 1. Introduction

Developmental disabilities (DD) and behavior problems (BP) may result from damage to or anomalies in the developing nervous system due to genetic factors, nutritional deficiencies, infections, exposure to environmental toxins, perinatal and neonatal complications, poverty, and trauma (Durkin, Schupf, & Stein, 2001; Obama, Dongmo, & Nkemayim, 1994). Specifically, nutritional deficiencies, such as vitamin for A, iodine and iron may be associated with DD (Hetzl, 1983; Summer & West, 1997; Viteri, 1998). Perinatal and neonatal outcomes such as low birth weight, fetal alcohol syndrome (FAS), preterm birth and intrauterine growth restriction are all associated with higher incidence of DD in developing countries (Durkin, Khan, & Davidson, 2000).

In underdeveloped regions of South Africa (SA), out of economic necessity, the tendency may be to view childhood disabilities as a low priority, especially when infant and child mortality rates are still excessive. Consequently, there are limited data on the specific kinds and frequencies of DDs and BPs among children in rural, underdeveloped regions of the world, for example, parts of SA.

Pre-Apartheid DD prevalence estimates were inferred from cross-sectional studies and from what was known of risk factors associated with brain injury and abnormal development in other low-income countries. In 1986, Rubin and Davis conducted a retrospective record review of 725 children with DD who attended a neurodevelopmental clinic in Soweto, SA. Most children presented at an early age (2–5 years) with a DD and etiology of the cases contrasted sharply with that found in developed countries (Rubin & Davis, 1986). Among the cases, 4% were prenatal, 41% perinatal, and 22% were due to prematurity or low birth weight.

Since Apartheid, three studies DD and BP have been conducted in SA. In 2001, Molteno reported a prevalence rate of 31% ( $n = 355$ ) for behavioral and emotional problems in children with intellectual disabilities (ID) attending special schools in Cape Town (Molteno, Molteno, Finchilescu, & Dawes, 2001). Boys manifested more BP than girls, especially in relation to disruptive, self-absorbed, and anti-social behaviors (Molteno et al., 2001). In 2002, Christianson and colleagues' study in northern SA screened 6692 children (age 2–9 years). Of these 722 (10.8%) were further evaluated, and 238 were diagnosed with intellectual disability (ID). The authors observed a prevalence of 35.6 per 1000 children, (9) and a male to female ratio of 3:2. The DDs were attributed to congenital (20%), acquired (6.3%) and undetermined (73%) factors. Using the *10 Question Screener* (10) in 2002, Couper (2002) found high prevalence of disabilities in children under age 10 years in the Manguizi sub-district of KwaZulu-Natal, SA. Among children screened ( $n = 2036$ ), the prevalence rate of DDs was 83 per 1000, and confirmed rate of 60 per 1000. Most disabilities were perceptual, learning, CP, hearing, and seizures (Couper, 2002).

### 1.1. Fetal alcohol syndrome and DD and BP

It is well known that alcohol use and alcoholism are ongoing problems in wine producing communities in SA (Centers for Disease Control and Prevention, 2003; Mager, 2004). Almost 50% of pregnant mothers in the Western Cape Province (WCP) drink alcohol and come from families with a history of generations of alcohol abuse (South African National Department of Health, 2001). Various measures of maternal drinking are significantly correlated with negative outcomes in children (Mager, 2004). Besides dysmorphologies, FAS causes DD and BP including fine and gross motor problems, hyperactivity, intellectual disabilities, verbal and learning problems, language disorders, emotional difficulties, and impairment of information processing (Adnans et al., 2001; Rosenthal, Christianson, & Cordera, 2005). In fact, DD and BP are indicators of FAS. The WCP is a high prevalence area for FAS with rates of 40.5–46.4 per 1000 (May et al., 2000) and 65.2–74.2 per 1000 (Viljoen et al., 2005) compared to 0.97 per 1000 in the developed world. In 2007, rates of FAS were confirmed and documented in the community targeted by our study (May et al., 2007). The frequencies of the negative outcomes in school children in this community have not been documented since 2001.

The purpose of this study was to screen for possible DDs and BPs in children attending grades R and 1 at a primary school in a rural school district in the WCP of SA in which there is a purported epidemic of FAS. We did not diagnose or formally identify cases of DD and/or BP among the cohort.

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