

**The effect of overseas maternal
employment on the executive functions of
children**

by

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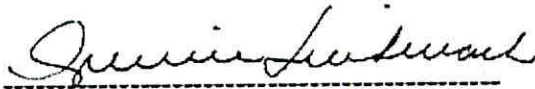
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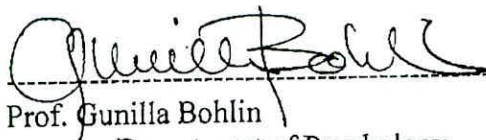
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ABSTRACT

THE EFFECT OF OVERSEAS MATERNAL EMPLOYMENT ON THE EXECUTIVE FUNCTIONS OF CHILDREN

HEWAGE DON CHANDANA

Mothers in Sri Lanka are increasingly seeking overseas employment, leaving their children under care of next of kin. Changes in childcare environment can influence neurocognitive functions of those children. The working memory (WM) and inhibition are two of the core executive functions (EFs) in the prefrontal cortex that have been implicated in maturation of cognition and behavioural competency in childhood.

The study was designed to assess and compare EFs, behaviour and school performance in children of mothers working overseas with children whose mothers are employed in Sri Lanka. A sample of 60 healthy children with mean age of 11.6(0.23) yrs comprised the study group. The comparison group was selected from the same school matched for age, sex and the employment status of the mother. Children were selected using simple random sampling in the schools located within two educational zones (Sri Jayewardenepura Kotte and Piliyandala) in the district of Colombo. Computerized executive function tasks (EF tasks) were used to assess the executive function. A visuospatial working memory task and counting span task were used to assess WM, while inhibition was assessed using Stroop, go/no-go and stop signal tasks. Child behaviour was assessed using Child Behaviour Check List (CBCL) - parent version and Rutter's behaviour checklist - teacher's version. The child behaviour while engaged in EF tasks was assessed separately, while term test marks and teacher rating of reading and writing ability were collected to assess the school performance. Home Observation for the Measurement of Home Environment (HOME) scale-Middle

childhood version was used to assess the quality of the home environment. The EF tasks, child behaviour and school performance were assessed at the start of the study (T₁) as well as after one year (T₂).

The quality of home environment was significantly lower in the study group compared to the comparison group as seen in HOME total scores, with mean(SD) as 23.6 (6.4) vs. 26.0(6.4) with $p < 0.05$. Significantly higher internalized (7.3(7) vs. 2.2(3) with $p < 0.001$) and externalized symptoms (12.5(11) vs.4.3(5) with $p < 0.001$) in caregiver rating with the CBCL and higher externalized problems (4.1(4) vs. 2.4(2.9)) at $p < 0.01$) in teacher rating with the Rutter's scale were found in the study group compared to the comparison group at T₁ as well as at T₂ (0.7(.8) vs. 0.2(0.04), 5.3(4) vs.1.6(1) with $p < 0.001$ and 3.2(3) vs. 1.9(1.6) at $p < 0.05$). The study group had significantly higher observed problem behaviour for seven items out of 11 while they engaged in computerized EF tasks at T₁ ($p < 0.05$) and for three items out of 11 at T₂ ($p < 0.05$) compared to the comparison group. The children with mothers working overseas had significantly poorer performance on all EF tasks except visuospatial working memory and stop signal reaction time at T₁ ($p < 0.05$) compared to the comparison group and in all the EF tasks performance except in stop signal commission errors at T₂ ($p < 0.05$). Poor inhibition significantly mediated the group difference in teacher rated externalized behaviour (Rutter's scale) at T₁(Sobel test =2.31, $p < .05$), but at T₂ it was non- significant (Sobel test = 1.69, $p = 0.09$).

Children with mothers working overseas had impaired EFs and higher behaviour problems compared to the children in the comparison group whose mothers were employed but stayed with their children in the first assessment as well as in the second assessment after one year.