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“Baby brain”: Examining the link between sleep, information processing speed and executive functioning during late stage pregnancy

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Abstract

‘Baby brain’ is a term given to the phenomenon experienced by many pregnant women who feel that they have some pregnancy induced cognitive disadvantage. Traditionally the investigation of cognitive deficits during pregnancy has focussed on various subtypes of memory, but researchers have broadened their scope in recent years to include a wide range of cognitive functions.

This thesis considers and expands on the conclusions of recent meta-analyses which suggest that deficits occur in the domains of information processing speed and executive functioning. The current study analyses reported findings in respect of these two cognitive domains, which have been inconsistent across individual studies. Further, the thesis seeks to explore the possible inter-relationship between information processing speed and the planning facet of executive functioning. This additional analysis is based on research with other populations indicating that perceived impairments in executive functioning can be more accurately understood as secondary consequences of impairments in processing speed.

Participants were 133 women from within the Wellington region who were either in the late stages of pregnancy with their first child, or who were not pregnant and had not previously had a child.

Scores on the reaction time measure of processing speed showed an impairment in simple reaction times for pregnant women when compared to non-pregnant controls. The more complex ‘choice reaction time measure’ also showed a trend indicative of impairment during pregnancy, but this did not meet the threshold for statistical significance. There was no measurable difference between pregnant and non-pregnant women on the planning measure of executive functioning.

Deficits in sleep quality and altered mood during pregnancy were considered as potential moderating variables when reviewing scores on cognitive tasks. It was found that while pregnant women had significantly poorer self-reported sleep quality than controls, this did not correlate with cognitive scores. However, anxiety was shown to impact on planning time during the executive functioning task, and on performance during that task.

The results of this research will help to clarify the current inconsistencies in results published in extant literature. It also provides recommendations for further exploration of these cognitive domains during pregnancy.

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