Replication Study: Cognitive Outcomes in Nigerian Saturation Divers from Port Harcourt,

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Abstract

Saturation diving is a critical technique for deep offshore oilfield maintenance, yet it carries potential neurological risks. While international studies have reported cognitive deficits in divers, their findings are inconsistent. There is a notable lack of longitudinal data from the West African diving industry, particularly from the environmentally challenging Niger Delta region. This replication study aimed to longitudinally assess cognitive function in a cohort of Nigerian saturation divers. Its primary objective was to determine the prevalence and progression of measurable cognitive changes over time within this specific occupational group. A longitudinal cohort study was conducted with professional saturation divers based in Port Harcourt. Participants completed a comprehensive neuropsychological test battery at baseline and at follow-up intervals over a five-year period. The battery assessed memory, psychomotor speed, and executive function. Results were compared against a matched control group of non-diving offshore workers. Analysis indicated a statistically significant decline in psychomotor speed and visual memory in the diver cohort over the study period compared to controls. Approximately 18% of divers exhibited a clinically meaningful decline in at least two cognitive domains. No significant change was observed in measures of verbal fluency or attention. This replication confirms that long-term saturation diving in this environment is associated with measurable decline in specific

cognitive functions. It supports earlier international findings and underscores a significant occupational health concern for the regional industry. Routine, periodic neuropsychological screening should be implemented for saturation divers in the region. Further research is needed to identify specific diving exposure variables linked to cognitive outcomes and to explore potential protective interventions. saturation diving, cognitive function, neuropsychology, occupational health, longitudinal study, Nigeria This study provides the first longitudinal data on cognitive outcomes for saturation divers working in the Niger Delta, filling a critical gap in the regional hyperbaric medicine literature and replicating key international findings in a local context.