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Smartphones as Prospective Memory Aids after Traumatic Brain Injury

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Abstract

Individuals living with traumatic brain injury (TBI) commonly have difficulties with prospective memory—the ability to remember a planned action at the intended time. This can result in difficulties managing every day functioning, and increased reliance on others. Traditionally a memory notebook has been recommended as a compensatory memory aid. Electronic devices have the advantage of providing a cue at the appropriate time to remind participants to refer to the memory aid and complete tasks, and are currently widely used. Research suggests these have potential benefit in neurorehabilitation. This study investigated the efficacy of a memory notebook and specifically a smartphone as a compensatory memory aid.

Seven participants with moderate to severe TBI completed the study. Two participants first received the memory notebook, and later the smartphone. The remainder received the smartphone as the memory aid of particular interest. Performance was measured using a *message task* in which participants were to place a call or text message at an assigned time, and answer a question and were to post a postcard during the week. During weekly sessions, participants rated mood and provided information about their use of the memory aid. Formal measures of prospective memory function, community and household integration and mood were completed at the start of the study, the end of each treatment and at a follow up two to four months after conclusion of the study.

The smartphone showed improvements in the ability to complete assigned memory tasks accurately and within the assigned time periods. The benefits of the

smartphone occurred over and above benefits seen with those who received a memory notebook first, or who already used a memory notebook on entry to the study. Half the participants learnt to use the smartphone with ease, while others had difficulty. However, despite difficulties participants could still benefit from the smartphone. This study suggests smartphones have the potential to be a useful and cost effective tool in neurorehabilitation practice. This research informs clinicians and researchers of factors that may be important for successful implementation of smartphones as a neurorehabilitation tool.

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