Emotional cues and prospective Memory: Evaluating the role of Rapid Eye Movement Sleep

Prospective memory (memory for future actions), an undeniably important memory, is effected by the nature of cues eliciting it. Recent research suggests emotional valence of cue has directly impact on prospective memory. Sleep has known benefits on the consolidation of cue dependent memories. Rapid Eye Movement (REM) sleep is particularly known to modulate emotional memories. Core idea of the present study combines the above results. The study has the following goal: To test the effect of emotional valence cues on prospective memory and to evaluate the role of rapid eye movement sleep on emotional cue dependent event based prospective memory. The methodology used in the project will be both behavioral and electrophysiological. The process of memory consolidation after sleep is reflected as changed extent and topography of cortical activations during retrieval of information.

Emotional information (either positive/ negative valence) is processed preferentially than neutral information by human adults, is an uncontroversial fact. The effect that emotional stimuli per se are more salient than neutral stimuli and lead to better memory performance has been termed the emotional enhanced memory effect (Talmi, Schimmack, Paterson and Moscovitch, 2007). Since prospective memory is a cue dependent process a large number of studies on prospective memory have focused on physical target cue features. Consists of a retrospective component in it. Prospective memory tasks are typically embedded in some attention-demanding ongoing cognitive activity, it is likely that the perceptual salience of a prospective memory cue would influence prospective memory performance. Salience in its literal meaning is known as "most noticeable or important". This saliency makes the cue more effective in terms of identification and therefore effect the performance. The more distinct the prospective memory

cue is, the less strategic monitoring will be required. The cue characteristics can be manipulated on various grounds like emotions, familiarity, cue pattern, and cue presentation. Among all these cue properties, emotion had received the attention of many researchers. There have been numerous studies on effect of emotional valence and arousal on memory which suggests that as memory declines with age, its only emotional experience and emotional regulation that remains intact or even improves across adulthood (Blanchard-Fiels, 1998). Plenty of studies have examined the influence of emotion on PM performance, but the findings till date didn't provide any clear understanding of valence effect on prospective memory (e.g., Altgassen, Phillips, Henry, Rendell, &Kliegel, 2010; Clark-Foos, Brewer, Marsh, Meeks, & Cook, 2009; Rendell et al., 2011).

So main objective of the study are:

- To study the effects of emotional cues on prospective memory.
- To evaluate the role played by REM/SWS sleep on emotional cue guided event based prospective memory.