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THE CORRELATION BETWEEN GAZE PARAMETER AND COGNITIVE FUNCTION FOR PEOPLE WITH STROKE

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Introduction
More researchers using the eye movement to study the cognitive function as it is a biomarker which is natural and frequently occurs during human behavior. People will look at something when they acquire information and fixation location/duration corresponds to the duration of cognitive processing of the material located at fixation (Irwin, 2004). Visual problems and impaired cognition is common after stroke and it affect the daily performance. Thus, assessment for those areas and understand their relationship is important for the rehabilitation.

Objectives
This study aim at exploration of the correlation between gaze parameter and ocgnitive function. We could predict the clients' cognitive function by simple eye tracking method if we found significant correlation between them.

Methodology
The clients with stroke who attended the occupational therapy department were screened for the study. Those clients who failed the visual acuity test with or without glasses would be excluded.   Their demographic data like age, gender, stroke type, post onset period, education level would be captured before the assessment. Moreover, their score in cognitive test (HK-MoCA) and function test (Functional Independence Measure, Barthel Index) will be recorded. The eye tracking test will be done with the eye tracking device (eyetribe) with 21 inches monitor. The client will sit properly in front of the system and the setup of the eye tracking system will be according to the suggestion of Ooms et al study (2015). The subjects would participate in visual searching tasks during the experiments.   They had to found the specific target (3 digits number) within 50 items. Each experimental would have 20 rounds. The gaze parameters included fixation count/ duration mean, saccade length/

velocity, path velocity and time to target would be captured for analysis.

Result
15 subjects with stroke (aged 39-63, educational level ranged from 9-18 years) were recruited for the study. Significant negative correlation was noted between the fixation duration mean (ms) and HK-MoCA score (r=-0.700 p-value=0.003) and positive correlation between the path velocity and HK-MoCA score (r =0.5873, p-value=0.021). This pilot study showed significant relationship between the cognitive function and gaze parameters. Eye tracking test has potential to be one of the alternatives for assessment of cognition while the clients is not suitable for formal assessment.