

**End of Project Report**

**A. Project number: NO 305/PPSP/61102411**

**Project Title: To Study Electroencephalogram (EEG) Patterns (Brain Mapping) In Chronic Stress**

**Project Leader: Assoc. Prof. Dr. Hasanah Che Ismail**

**Tel: 012-9640568**

**Fax:**

**B. Summary for the MPKSN Report** *(For publication in the Annual MPKSN Report, please summaries the project objectives, significant result achieved, research approach and team structure)*

**TITLE: To Study Electroencephalogram (EEG) Patterns (Brain Mapping) In Chronic Stress**

**Introduction:** EEG is an assessment (measurement) of functional (electrical) activity of the brain. EEG has been utilized for the assessment of a number of neurological and psychological disorders, but very few studies have been done to find out its usefulness as parameter for assessment of chronic stress.

With the advent of EEG frequency analysis by a computer programme it is now possible to map out the different EEG frequencies.

**OBJECTIVE:** To determine topographic pattern on EEG of patients under chronic stress.

**METHODOLOGY:**

1. Patient identification, 11 normal and 21 stressed people (identified by psychiatrist) agreed to participate .
2. Brain mapping study was done in all 32 subjects and the percentage of alpha activity in the posterior cerebral and that of Beta1 and Beta2 activity in the frontal regions of the brain were subjected to spectral analysis. The mean of the 21 subjects were compared to that of the 11 controls.

**RESULT:**

There is a significant difference (increased) fast EEG activity (Beta1 & Beta2) in the frontal regions of the brain when compared to that of controls. Furthermore there is also a significant difference (decreased) alpha activity in the posterior regions of the brain when compared to that of control. This of course signifies that alpha activity is reduced in stressed and anxious patients and the reverse is true for Beta activity in the frontal regions as expected.

**CONCLUSION:**

Brain mapping appears to be a useful parameters in verifying (diagnosis) of patients with chronic stress.

**C. Objectives Achievement**

- **Original project objectives** *(Please state the specific project objectives as describe in Section II of the Application Form)*

**To determine topographic pattern on EEG of patients under chronic stress.**

- **Objectives Achieved** *(Please state the extent to which the project objectives were achieved)*

**Brain mapping appears to be useful parameters in verifying (diagnosis) of patient with chronic stress.**

- **Objectives not achieved** *(Please identify the objectives that were not achieved and give reasons)*

**To use EEG response in assessment of effectiveness of treatment of chronic stress. Reason for not achieving the objective is difficulty in getting patients to give consent for the EEG recording, mainly due to delay in getting treatment because of the study procedures.**

**D. Technology Transfer/Commercialisation Approach** *(Please describe the approach planned to transfer/commercialise the result of the project)*

No

**E. Benefits of the Project** *(Please identify the actual benefits arising from the project as defined in Section III of the Application Form. For example of outputs, organizational outcomes and sectoral/national impact, please refer to Section III of the Guidelines for the Application of R&D Funding under IRPA)*

- **Output of the project and potential beneficiaries** *(Please describe as specifically as possible the outputs achieved and provide an assessment of their significance to users)*

Presented a preliminary result in the 6<sup>th</sup> National Conference on Medical Sciences, 10 – 11 May 2000.

- **Organisational outcomes** *(Please describe as specifically as possible the organizational benefits arising from the project and provide as assessment of their significance)*

Nil

- **National Impact** *(If known at this point in time, please describe as specifically as possible the potential sectoral/national benefits arising from the project and provide an assessment of their significance)*

Nil

**F. Assessment Of Project Structure**

- **Project team** (*Please provide an assessment of how the project team performed and highlight any significant departures from plan in either structure of actual man-days utilized*)

The original team members dropped out from the project because of transfer to other institutions. The original team members already came across difficulty to continue and complete the project. A new project leader was given the impression of available trained research assistant to carry out the EEG recording when in reality the research assistant was undisciplined and untrained. The research assistant was advised to resign and subsequently attempt was made to train a new research assistant.

Then it became apparent that the cooperation of the original project leader incurred a lot of cost on travelling and accommodation as well as request to present the preliminary findings in conference overseas. There is no guarantee of transfer of expertise and submission of report from the study with further enrolment of patients and recordings. The project leader then decide not to waste the IRPA money further and terminate the project in December 2001.

- **Collaboration** (*Please describe the nature of collaborations with other research organizations and/or industry*)

No

**G. Assessment Of Research Approach** (*Please highlight the main steps actually performed and indicate any major departure from the planned approach or any major difficulty encountered*)

The difficult part is getting patient to give consent to EEG recording. Many neurotic cases were not willing to undergo EEG recording because they are already distressed with their illness and they were not willing to wait for the procedure. In the end only 11 recording were done for healthy subjects and 21 for patients with some degree of psychological distress.

**H. Assessment Of The Project Schedule** (*Please make any relevant comment regarding the actual duration of the project and highlight any significant variation from plan*)

Original completion date was 30<sup>th</sup> September 2000. In spite of detected problem to complete the project it was extended twice. The project was finally terminated on 30<sup>th</sup> December 2001.

**I. Assessment Of Project Cost** *(Please comment on the appropriateness of the original budget and highlight any major departure from the planned budget)*

The original budget was appropriate if patients that came for treatment of neurotic cases consented for the study. The latest project leader managed to get more patients and control to be interested, but EEG recording could not be done because the machine broke down and need major repair.

**J. Additional Project Funding Obtained** *(In case of involvement of other funding sources, please indicate the source and total funding provided)*

No

**K. Other Remarks** *(Please include any other comment which you feel is relevant for the evaluation of this project)*

As a project leader that was told to take over the project, my main contribution is terminating the contract staff that was not willing to work or be trained in EEG. I also came to realize the weak methodology and the unwillingness of the original project leader to transfer his expertise in this area of study and the eventual failure to submit the study report. I also realized that the EEG machine used for the study is a very old one (obsolete according to the service company) and each repair will cost close to \$10,000. I decided not to further repair the machine and terminate the study, saving the balance of IRPA for other beneficial use.

Date: 22/6/03

Signature: 

Prof. Madya Dr. Hasanah Che Ismail  
Pakar Psikiatri  
Jabatan Psikiatri  
Pusat Pengajian Sains Perubatan  
Universiti Sains Malaysia  
16150 Kubang Kerian, Kelantan.

## Maklumat Tambahan Yang Diperlukan

**1. Technology Transfer/Commercialisation Approach** *(Please describe the approach planned to transfer/commercialise the results of the project)*

- **Patent** *(Please state full title of the patent by giving the patent number or application number)*

**Nil**

- **Publication Pertaining to The Research Finding**
  - a. **Report/Conference Paper**

**Abstract for the 6<sup>th</sup> National Conference on Medical Sciences is attached.**

- b. **Journal Publication** *(Use only the standard accepted abbreviations for journal titles. If there are none, give the full journal title)*

**To my knowledge, no.**

- c. **Others**

**No**

**2.**

- **Post Graduates** (*Who graduated or who are still participating the project*)

**Nil**

- **Number Of Research Assisstant Or Officers funded By The Project:**

a.

**Research Officers: No**

b.

**Research Assistant: One research assistant.**

- **Collaboration** (*Please describe the nature of collaborations with other research organizations and/or industry*)

3.

**Institution:**

a. **Local Institution/s:**

**No**

b. **International Institution/s:**

**No**