

Diagnosis of psychiatric patients using data mining techniques

Submission date 05/02/2016	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered
Registration date 29/02/2016	Overall study status Completed	<input type="checkbox"/> Protocol
Last Edited 23/01/2019	Condition category Mental and Behavioural Disorders	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Mental illness is a general term used to describe a range of conditions that affect mood, thoughts and behavior. They are extremely common and it is thought that most people come into contact with mental illness, either directly or indirectly, at some point in their lives. Unlike many physical illnesses, they can be difficult to diagnose as the symptoms can greatly vary from person to person. Data mining is a technique which uses a procedure or formula to solve a problem (algorithm). It is possible that by collecting and analyzing data from people suffering from a mental illness and those who treat them, an algorithm could be used in order to make diagnosing patients easier. The aim of this study is to look at a range of different data mining techniques in order to find the best one for helping the diagnosis of mental illness.

Who can participate?

Adults with a mental illness who are being treated at El Mamoura Hospital and the doctors looking after them.

What does the study involve?

Doctors interview a number of in-patients with mental health problems who are being treated at El Mamoura Hospital using a specially designed survey. The data from these surveys is then entered into a computer so that it can be analysed using a number of different data mining techniques. This involves putting the data into different formulas so that any patterns can be identified by the different algorithms. At the end of the study, the accuracy of these techniques are compared by seeing how well the results of the techniques matches with the patients current diagnosis.

What are the possible benefits and risks of participating?

There are no direct benefits or risks to participants taking part in this study.

Where is the study run from?

El Mamoura Hospital for Psychiatric and Addiction Treatment (Egypt)

When is the study starting and how long is it expected to run for?

September 2015 to November 2015

Who is funding the study?
Self-funding

Who is the main contact?
Ms Horeya Abou Warda

Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

Study information

Scientific Title
Diagnosis of psychiatric patients using data mining techniques

Study objectives
The aim of this study is to identify the best data mining technique to facilitate psychiatric diagnosis.

Ethics approval required
Old ethics approval format

Ethics approval(s)
General Secretariat of Mental Health and Addiction Treatment (GSMHAT), Ministry of Health and Population (Egypt), 17/08/2015, ref: 1860|8/17

Study design
Single-centre observational cross-sectional study

Primary study design
Interventional

Study type(s)

Diagnostic

Health condition(s) or problem(s) studied

Mental disorders

Interventions

Clinicians interview a number of inpatients at El Mamoura Hospital that are known to have a psychiatric condition, assessing them with the help of a survey that the clinicians complete. This data is then used to test a number of different data mining techniques (i.e. Random Forest, Decision Tree, Neural Networks, K Nearest Neighbour and Support Vector Machines) to see which was the best one to use to create an automated model for a diagnosing psychiatric conditions.

Intervention Type

Behavioural

Primary outcome(s)

Identification of the best data mining technique is measured using the accuracy percentage of data mining classification (10-fold cross-validation) after data was collected.

Key secondary outcome(s)

Classification of psychotic diseases are measured using the accuracy percentage of data mining classification (10-fold cross-validation) after data was collected.

Completion date

30/11/2015

Eligibility

Key inclusion criteria

Patients:

1. Adults
2. Diagnosed with a psychiatric condition (major depression, drug-induced psychosis, schizophrenia, schizoaffective disorder, obsessive – compulsive disorder, bipolar disorder - manic episode and bipolar disorder - mixed episode)
3. Being treated as an inpatient at El Mamoura Hospital
4. Not taking any psychoactive substances

Clinicians:

Clinicians working at the El Mamoura Hospital for psychiatric and addiction treatment.

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Key exclusion criteria

Patients:

1. Not being treated as an inpatient at El Mamoura Hospital
2. Taking psychoactive substances

Clinicians:

Not working at El Mamoura Hospital for psychiatric and addiction treatment

Date of first enrolment

15/05/2015

Date of final enrolment

17/08/2015

Locations**Countries of recruitment**

Egypt

Study participating centre

El Mamoura Hospital for Psychiatric and Addiction Treatment

Alexandria

Egypt

21912

Sponsor information**Organisation**

Arab Academy for Science, Technology, and Maritime Transport (Egypt)

ROR

<https://ror.org/0004vyj87>

Funder(s)**Funder type**

Other

Funder Name

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	18/10/2016	23/01/2019	Yes	No