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Diagnosis of psychiatric patients using data mining techniques

Submission date
05/02/2016

Recruitment status
No longer recruiting

Registration date
29/02/2016

Overall study status
Completed

Last Edited
23/01/2019

Condition category
Mental and Behavioural Disorders

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[X] Results
[ ] 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 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

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21524

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

Primary study design
Interventional

Study design
Single-centre observational cross-sectional study

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

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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