Eye Tracking Study

Questions and Answers from a public meeting
2nd November 2015, Suttie Centre, Aberdeen

Panel: Prof David St Clair, Dr Moyra Guthrie, Rev Jim Simpson

Facilitator: Helen Lemmon

Firstly Professor St Clair spoke about the research project he is currently working on, developing a diagnostic tool for mental health disorders. In medicine, there are thousands of tests to help in the diagnostic process e.g. blood samples, X-rays, scans, but currently there are no objective tests to help in the diagnostic process of mental health.

It has been known for over a hundred years that people with psychotic illnesses have different eye pattern movements than from people who do not have a psychotic disorder. In Aberdeen, Professor St Clair (psychiatry) and Dr Philip Benson (psychology) have developed a method of analysis of eye movement pattern that they think will help to diagnose various psychiatric disorders. They are now conducting a major clinical trial to see if the results hold up and the technology should be commercialised with a view to using it in the NHS. The project is seeking over 200 people as controls (people with no psychiatric disorder) and 1000 people with various psychiatric diagnosis or people who have no clear diagnosis. There are two research sites, Aberdeen and Edinburgh. These are questions raised at the public meeting. Questions referring to the research, plus questions relating to general mental health.

Q. **What is the in/exclusion criteria for the project?**

A. Almost anyone within the age range of 18-60 can participate as we require both people with and without mental health diagnosis. Exclusion criteria are epilepsy, diabetes, major head trauma and neurological disorder.

Q There are various sub groups with bipolar disorder, is this eye-tracker able to distinguish between them

A. As the groups of research subjects grow, we hope be able to distinguish which subgroups do best on which medications. For example, some people with major depression go on to develop bi-polar disorder. We hope the test can identify this group at an early stage.

Q. Sometimes people are given a diagnosis then later it is changed. How confident are you that the eye-tracker will really be able to correlate to the correct diagnosis?

A. That is a huge challenge as there is no way at present to say what the correct boundaries of psychiatric disorder are. The way to try to get round this is to start collecting data with people who have all the core features of a disorder, so there is no doubt as to their diagnosis e.g. schizophrenia or bipolar disorder. These people probably

make up about 30-40% routinely seen in clinic. We then see how well people with unclear diagnosis resemble those with the clear diagnosis.

Q. Is it anticipated that eventually the eye-tracker will be able to pick up diagnoses like personality disorder as this is particularly difficult to diagnose?

A. We plan to recruit a large group of people with personality disorders, and see what their eye pattern movements look like

Q. Are these disorders hereditary? Is it in the genes?

A. There is a genetic component to most psychiatric disorders, but the genetics is very complicated and at present it cannot be used to diagnose or predict diagnosis of psychiatric disorders.

Q. How often do the tests have to be done, and how long do they take?

A. The eye-tracking test takes about half an hour, but the total work up of interview, eye-tracking and memory testing takes about 2 ½ hours. We hope, that at least 25% of the cohort will agree to have the eye-tracking retested between 6 -12 months after initial testing.

Q. What exactly happens during the eye test?

A. Participants have to sit with their head on a chin rest, exactly as they would at the optician. They then look at a computer screen, and at the bottom of the computer screen is a freestanding, fast speed camera that tracks the pupils. There is an administrator in the room who has two computers. Before each task the computer has to be calibrated, so the participant follows dots on the screen. There are 5 tasks, looking at pictures, following dots, either horizontally or around the screen, staring at a particular dot and ignoring other dots that appear, following a dot and finally looking at the mirror image of a jumping dot. The participants are regularly asked to close their eyes to prevent their eyes getting tired.

Q. Once you have applied to do the testing, how long does it take to get the appointment?

A. We have to make sure you have the information sheet, so either it gets e-mailed or sent by post. We ask that you contact us, unless it is agreed we will contact you, thus ensuring everything is voluntary. Then it is just a matter of making an appointment, and how full the diary is.

Q. Can eye-tracking be used for other disorders?

A. Yes, but at present we are looking solely at psychiatric disorder. At a later date they will be looking at other disorders, such as MS and Parkinson’s.

Q. Apart from CBT and other talking therapies, what options or treatments are available to a patient who suffers from acute anxiety attacks?

A. Medical, psychological and social problems can all contribute to anxiety. At present, psychiatrists have to follow the Scottish Mental Health guidelines that recommend that

anxiety is treated in the first instance using psychological approaches. One of these is CBT (Cognitive Behavioural Therapy).This can be difficult for a patient, as it requires concentration, memory and homework. Many people do benefit from this. But after the psychological treatment has been tried and it has not helped the person, or sometimes a person is not well enough to work with a therapist, their doctor may suggest they take medication. There are several medications licensed for anxiety, but we understand why some people are reluctant to take these. All medications have a risk of adverse effects as well as beneficial effects. Sometimes medication taken in conjunction with psychological treatment works best.

Q. What support are people offered once they have been given a diagnosis of schizophrenia, bi-polar or borderline personality disorder?

A. Because these disorders have such enormous impacts on peoples' lives, we are most reluctant to make diagnoses until we can be pretty sure the diagnosis is correct. This can take time.

What happens after a diagnosis is made? Some people may be so unwell they require admission to hospital, others are not and can be treated in the community. They may be attached to a community psychiatric team and have a CPN (community psychiatric nurse) who sees them on a regular basis for therapy, monitoring medication and support. They may see a social worker for help with housing and more practical things. There are a wide variety of members of the team who all have their own roles in providing support to someone with a serious mental illness.

Q. What is the role of the hospital chaplain?

A. When I started this work 9 years ago, one of my first contacts was with a man who came and introduced himself to me as John*changed name who is schizophrenic. I didn't see someone with schizophrenia, what I saw, was John, who was finding it difficult to understand what was going on and my job, from that moment on, was to help him to make sense of where he was. Not to fix him, but to stand alongside the clinicians who were able to give the medication, to help people, almost like a stepping stone, to get them to be able to stand on their own two feet. My job is to support that, to get alongside them and to listen and if it is at all possible, to enable them to make sense of that. We call that existential work, and it is really about helping them to make some kind of journey from the point of where diagnosis is given, to make some sense and come to terms with what is happening, till they are able to take responsibility and move forward. My role with the clinicians is to give that sort of support, not to fix. The great thing about this, is that many patients will trust me in a way they don't trust doctors. Part of the reason for this (one person had said) 'you don't stick needles in me'. I just stand alongside them and try and make sense of what they are going through.

Q. Once people have started taking medication, do they have to take it for life even if they feel better?

A. The answer to that is no. Every person is different. This is about negotiation, what suits them best and what advice they are getting. For some people it is suggested they should be on medication for life. They are in the minority. Without breaking confidence, a few weeks ago, a patient said he wanted to come off medication and the professionals were advising against it. But ultimately, unless you are a threat to yourself or others in the community, it is your decision. All we can do is give advice. There are ongoing

controversies about how long people should be on medications. We have a lot of people nowadays, who are diagnosed with Adolescent Attention Deficit Disorder who are on Ritalin. Should they be kept on it through adult life? A lot of people take anti-depressants year in year out, is that actually doing them good? These are controversial matters. We as clinicians' don't have a lot of evidence on these matters.

Q. The initial treatment for depression is two years of anti-depressants, is that in hospital or primary care setting?

A. Most people probably don't take medication for that long if they only have had one episode of depression. These people usually take advice from their GP and do not routinely see a psychiatrist. People would only be seen in the hospital clinics if they had had more episodes of illness. The guidance for two years of medication is for people who have had more than one episode. Mental illness can be a devastating illness, and often, it is the patients themselves who are reluctant to take the chance without the medicine. This is understandable, as they are in a position to remember the depth of despair, and are not willing to take the chance that they regress back to that. Contrary to that, there are also the people who do want to stop. As psychiatrists, we always try to support the individuals' decision. We don't mind people stopping, just please tell the psychiatrist. We will then ensure that more frequent appointments are made to find out if all is still well, as there is a risk of relapse when someone stops taking medication. At the end of the day, it is the individuals' choice.

Q. Do people have to stop taking medication before doing the eye-tracking test?

A. No. We have tested many hundreds of people, and there seems to be no difference in people who are taking medication compared with those, who also have the same illness, but are not on medication. Likewise people take varying amounts of medication and this doesn't seem to make much difference in the patterns of eye movements we see.

Q. Looking around the room, it is noted that many people are wearing specs. Does this pose problems when carrying out the eye-tracking test?

A. This can lead to problems, depending on the type of glasses, for example varifocal. In the majority of cases, we are able, through minor adjustments, to get excellent data recorded.

Q. Do people get paid for participating?

A. There is not a payment fee for participating, but there are expenses. Transport costs, and out of pocket expenses.

Q. What times can people be tested?

A. The general rule of thumb is that we work Mon-Fri 9-5, however, we can fit people in at other times, such as evenings or Saturday morning if necessary.