

## **When doctors mislead; the chemical imbalance lie.**

Leonie Fennell and Maria Bradshaw.

### **Introduction – The Telling & Selling of a Lie**

The instinct to protect your child is strong and primal in most human beings. When faced with a child who is sad and tearful, has lost interest in activities they used to enjoy, feels worthless or guilty, can't eat or sleep and has thoughts of suicide, the natural reaction of most parents would be to provide their child with increased nurturing, love and support; not to foist toxic chemicals on them, which may actually worsen the symptoms that are preventing them from functioning. What would induce a parent to give a depressed child a drug that has been shown in some cases to worsen depression, double the risk of suicide, cause aggression and sexual dysfunction, interfere with sleep, retard growth, risk cardiac arrest and expose the child to a host of other serious adverse reactions?

What is required is the telling and selling of a lie. A lie that persuades parents that in giving their child poison, they are correcting a deficiency, inherent in their offspring.

The lie is that the child has a chemical imbalance, usually a deficiency of serotonin, which can be corrected through the ingestion of antidepressants. As lies go, it has all the best features. It's logical, credible and sells a simple solution to a complex problem. Your child is ill. Medical science has the cure. Depression is an act of God but your doctor can correct God's error and fix your broken child. The chemical imbalance lie removes any responsibility from the child or the parents, invokes the science that western societies have learned to worship, positions the doctor as trusted expert and promises a quick fix.

It's intuitive, seductive and believable. It is also effective. A study into laypeople's perception that 'chemical imbalances cause depression' found that the 'imbalance' theory is known to

91.6% of the population. The study also found that only 16.8% disagreed with the notion that depression is primarily caused by an imbalance of chemicals in the brain.<sup>1</sup>

That the chemical imbalance basis of depression is a downright falsehood, has been confirmed by experts from around the world, who tell us:

*The chemical imbalance story is being told about all psychotropic drugs, but it is a big lie. It has never been documented that any of the large psychiatric diseases is caused by a biochemical defect and there is no biological test that can tell us whether someone has a particular mental disorder. As an example, the idea that depressed patients lack serotonin has been convincingly rejected. Nonetheless, until 2003, the UK drug regulator propagated the hoax about lack of serotonin as the cause of depression in patient information leaflets”<sup>2</sup>:*

*...it is completely wrong. We have no idea about which interplay of psychosocial conditions, biochemical processes, receptors and neural pathways that lead to mental disorders, and the theories that patients with depression lack serotonin and that patients with schizophrenia have too much dopamine have long been refuted.<sup>3</sup>*

*It is high time that it was stated clearly that the serotonin imbalance theory of depression is not supported by the scientific evidence or by expert opinion. Through misleading publicity the pharmaceutical industry has helped to ensure that most of the general public is unaware of this.<sup>4</sup>*

## **What's the Harm?**

Does it really matter that a large percentage of the public wrongly believe that depression is caused by an inherent chemical imbalance? What harm is caused by people believing they have a ‘chemically defective brain’, if it means they seek treatment? Explaining neuroscience to the ordinary layperson can be challenging for medical professionals. What then is the harm of using an analogy or metaphor such as the chemical imbalance explanation for depression, if it

simplifies things for both doctor and patient? Isn't this just a 'white lie' that is justified if it leads to good outcomes for the people who believe it?

Research tells us the answer to the latter question is 'no'. Studies have shown that far from being harmless, those who believe that their depression is caused by a chemical imbalance have a poorer prognosis than others. They suffer more stigma and self-blame, have a greater sense of helplessness and hopelessness on their ability to recover, and are less likely to have faith in and engage in talking therapies. Furthermore, they are less likely to take personal responsibility (changing lifestyle, environmental factors, etc), less likely to engage in developing coping strategies, and are more likely to use medication with its risk of adverse reactions<sup>5</sup>.

Author Robert Whitaker who has researched and written extensively on the subject makes it clear that there is nothing benign about telling patients that their depression is due to a chemical imbalance, stating:

*At its core, telling a patient that he or she has a chemical imbalance in the brain, which can be fixed by a psychiatric drug, is medical fraud. And it does great harm.*<sup>6</sup>

In general the blame for the widespread acceptance of the chemical imbalance theory is directed at the pharmaceutical industry. Lundbeck, manufacturer of Citalopram, states that "*Depression is an illness that is thought to result from a chemical imbalance in the brain*"<sup>7</sup>

Pfizer tell patients that *Serotonin and noradrenaline are chemical messengers that allow certain nerves in the brain to work. Effexor-XR capsules increase the level of these two messengers. Experts think this is how it helps to restore your feeling of wellness.*<sup>8</sup>

Professor Pies, MD, Clinical Professor of Psychiatry at Tufts University and Lecturer on Psychiatry at Harvard Medical School, describes the imbalance theory as an "*urban legend*" and claims that:

*No prominent psychiatrists, psychiatric textbooks, journal articles, etc., argued that mental illness in general was "due to" or "caused by" a simple "chemical imbalance."*

*It is probably true that this trope was used a bit too casually by some clinicians, when explaining depression or schizophrenia to patients; and it is certainly true that some pharmaceutical company ads gave the strong impression that a “chemical imbalance” was the root cause of depression...<sup>9</sup>*

While there is no doubt that the pharmaceutical industry widely promoted the idea that depression is caused by a chemical imbalance, research and experience indicate that Professor Pies is mistaken. To suggest that doctors have not actively promoted the theory to their patients is contrary to a vast body of evidence. Today (4th Jan 2015), the College of Psychiatry of Ireland has an article on its website which states the following: *The way I look at it is that it’s a chemical imbalance. I’m missing certain chemicals so, therefore, the sensible thing is to replace those chemicals, and then everything’s fine<sup>10</sup>.*

In an inaugural lecture by the Institute of Psychiatry at Kings College, London<sup>11</sup>, influential American professor of psychiatry Charles Nemeroff, who, before being discredited for accepting millions in pharma payments, was described as ‘the most powerful man in psychiatry’,<sup>12</sup> stated:

*No system has been studied as much as the serotonin system. There is a large body of evidence that the serotonin system is awry in depression in many, if not most, patients. There is truly a real deficiency of serotonin in depressed patients.*

High profile UK Professor David Nutt, when asked whether there was a scientific basis for the chemical imbalance theory of depression, stated:

*It surely may be caused by chemical imbalances – low serotonin in the brain was first noted in 1957 at postmortem and many studies since have confirmed lower serotonin function in depression. There are also examples of low noradrenaline and dopamine in some forms of depression. That’s not to say all depression is due to chemical deficit - but more severe forms almost certainly are.*

## **Governmental influence**

Influenced by these experts and others, psychiatrists and GPs around the world advise worried parents and their children on a daily basis that depression is caused by a chemical imbalance as though this is a scientifically proven fact. As a result, our governments also assist in misleading the public, promoting the chemical imbalance theory on ‘mental health’ websites aimed at educating young people, while encouraging them to seek medical treatment. *Spunout*<sup>15</sup>, a website partly funded by Ireland’s HSE (Health Service Executive), advises young Irish people that “*Chemical imbalances in the brain can cause depression.*” They give the claim credibility by stating that *Depression is a common health problem the same as high blood pressure, diabetes or a heart condition.* According to Peter Gøtzsche, MD, Medical Researcher and Co-founder of the Cochrane Collaboration, the latter is another false, albeit frequently used, analogy<sup>15</sup>.

*Spunout* tell us that their articles are “*professionally proofed*” and that they *liaise with relevant health professionals to ensure we provide the best and most up-to-date information.* How then do we reconcile the HSE having the chemical imbalance theory endorsed by experts, with Professor Pies’ claim that *no prominent psychiatrists, psychiatric textbooks or journal articles’ argued such a thing?* What psychiatric experts did *Spunout* use? If these ‘experts’ are providing the HSE with unscientific advice, why are prominent psychiatrists not correcting them? This is particularly relevant given the fact that, in one year, *Spunout* had almost 600,000 unique visitors to the site - approximately 7% of Ireland’s population.

*Spunout* is not unique. The Irish discourse on depression is replete with references to the chemical imbalance, a myth presented as fact. Examples include an ‘Irish Health’ article which states *It is believed that depression is linked to an imbalance of chemicals within the brain. Different antidepressants have been designed to deal with these imbalances*<sup>15</sup> and *Chemical changes take place in the brain which cause depression...These medicines also help ‘re-wire’ the brain.*<sup>16</sup>

Pharmaceutical companies in their patient information leaflets also claim that the chemical imbalance theory is supported by medical experts. Pharmaceutical giant GlaxoSmithKline (GSK), in its information for consumers of Paroxetine, states: *Many experts believe that an imbalance among neurotransmitters is the cause of depression. Paroxetine works by preventing the reuptake of one neurotransmitter, serotonin...*<sup>17</sup>.

These statements persist despite Ireland’s drug regulator, the Health Products Regulatory Authority (in correspondence with GSK), stating:

*There is no scientific investigation to measure what are normal serotonin levels in the human brain receptors. As such, claiming that a particular medicinal product works by bringing serotonin levels back to normal is not accurate.*<sup>18</sup>

The chemical imbalance theory is not an ‘urban legend’ which has spread by random word of mouth, it is a deliberately developed marketing strategy originally promoted by psychiatrists on the payroll of the pharmaceutical industry and now adopted as truth by ill-informed medical professionals and their trusting, yet misinformed patients.

The following table from a recent research study shows that when physicians and mental health professionals are combined, more research subjects had learned that depression is caused by a chemical imbalance from their healthcare provider (90.2%) than from pharmaceutical advertisements on television (88.6%).<sup>19</sup>

**Table 2**  
*Exposure to the Chemical Imbalance Explanation for Depression*

Seen or heard via the following:	Yes		No	
	n	%	n	%
Television	210	88.6	27	11.4
Friend/family member/other acquaintance	161	67.9	76	32.1
Magazines	152	64.1	85	35.9
Books	121	51.1	116	48.9
Physician or other medical professional	109	46.0	128	54.0
Psychologist/mental health professional	105	44.3	132	55.7
Radio	88	37.1	149	62.9
Newspapers	73	30.8	164	69.2

<sup>20</sup>

The study showed that in addition to believing depression is caused by a chemical imbalance in the brain, around a quarter of participants actually believed doctors can diagnose depression based on measurement of brain chemicals and ascertain the severity of depression based on biological tests. A significant proportion of respondents (35%) believed that doctors can fix depression by adding or subtracting chemicals until the right balance is achieved.<sup>21</sup>

Given that no such test exists; given that not one subject has ever been shown test results - it is clear that doctors are doing little to ensure their patients have good information on which to make treatment decisions. While a minority of doctors may promote belief in the chemical imbalance theory in order to achieve some unanimity with their pharma benefactors, it seems likely that most actually believe a theory which has no evidence base.

Professor David Healy, scientist and psychopharmacologist, in recent comments on the subject stated:

*The lowered serotonin and later chemical imbalance ideas were marketing copy pure and simple, from start to finish. Long before we had SSRIs, the idea that depression had anything to do with lowered serotonin levels had been explored and rejected. The most extraordinary feature of this is how doctors were prepared to swallow the medicine presented to them - I'm not sure the spoonful of sugar from pharma that it came with fully explains what happened.<sup>22</sup>*

When doctors fail to critically examine the marketing messages of the pharmaceutical industry, their advice to patients can have far reaching effects in perpetuating a myth.

Conor Cusack (brother of Irish sportsman Dónal Óg) spoke publicly of his initial experience with depression. He described his first visit to see a psychiatrist at 19: *The psychiatrist explained that there might be a chemical imbalance in my brain, asked me my symptoms and prescribed a mixture of anti-depressants, anxiety and sleeping pills based on what I told him. He explained that it would take time to get the right cocktail of tablets for my type of depression.*<sup>23</sup> Similarly, extensive media coverage has tracked Irish celebrity 'Brezzie' and his experience with depression. While undoubtedly well-meaning, he has been hugely influential in the promotion of the chemical imbalance theory. Many will accept without hesitation his comments that: *Anxiety, depression, all of these things are caused by a lack of serotonin in your brain. It's a chemical imbalance, and the one thing sport and physically challenging yourself does, is it gives you serotonin — that's a fact, no matter who you are. People have this idea about depression; that it's a ghost; it's a mythical, magical thing. It's not. It's science.*<sup>24</sup> Both young Irishmen have

helped to promote positive 'mental health' messages to young people in Ireland; yet both have been duped, there is nothing scientific about an inherent chemical imbalance.

The use of celebrities to promote the chemical imbalance theory, to the point that it goes largely unquestioned, has existed for many years around the world. Twenty five years ago, an article appeared in the LA Times promoting a movie called '*Call Me Anna*'<sup>25</sup>. The movie was based on Oscar winning actor Patty Duke and her battle with 'manic-depression on'. The article states: *Thanks to the psychiatrist who diagnosed her problem and to medication for a chemical imbalance, Duke says, she has been mentally healthy for the last eight years.* This year, another article with Patty was published on News8, this time titled 'Actress Patty Duke talks mental illness'. Has anything changed in the preceding 25 years, apart from Patty's manic-depression morphing into bipolar disorder? It seems not. Speaking of her bipolar disorder diagnosis, Patty again stated *it's a chemical imbalance of the brain. I was born this way* (9<sup>th</sup> Sept 2014).<sup>26</sup>

There is clear evidence that psychosocial issues are linked with depression. Whether biology plays a role, and if it does what that role is, has not yet been established. Mental health professionals, led by psychiatrists, have misrepresented scientific knowledge with information that benefits the pharmaceutical industry, while disadvantaging the public. The result has been a huge increase in antidepressant use, while the numbers being diagnosed with depression continue to rise.

### **Conclusion - Why it matters.**

For decades pharmaceutical marketing divisions have employed and deployed psychiatrists as their public relations agents. This alliance has effectively spread one of the most dangerous and pervasive myths of our time - that the collection of feelings and behaviours we label depression are not a normal response to life's difficulties, but instead a deficiency of brain chemicals which can be fixed by a pill. This has no doubt helped to create healthcare's trillion-dollar industry, from which the pharmaceutical industry and the profession of psychiatry benefit hugely.

This year millions of people worldwide will make a decision to accept a prescription for antidepressants as a result of being told the drugs will fix a chemical imbalance in their brains. In

doing so, they will expose themselves to huge risk on the basis of advertising campaigns which have nothing to do with science and everything to do with selling a product. While dubious advertising campaigns selling us anti-wrinkle cream or the latest diet fads may leave us feeling disappointed and duped, antidepressant marketing using the chemical imbalance theory can effectively leave us feeling suicidal or homicidal.

Whether doctors promulgate the chemical imbalance myth because it persuades patients to accept prescriptions, because it makes depression easy to explain, or because they genuinely do not know it is untrue, the implications are the same. Those suffering emotional distress are being misled by professionals whom they have trusted and given information that research shows worsens their long term outcomes.

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