



**Wellbeing
& Recovery
College**

**Midlands Partnership
NHS Foundation Trust**



A Keele University Teaching Trust

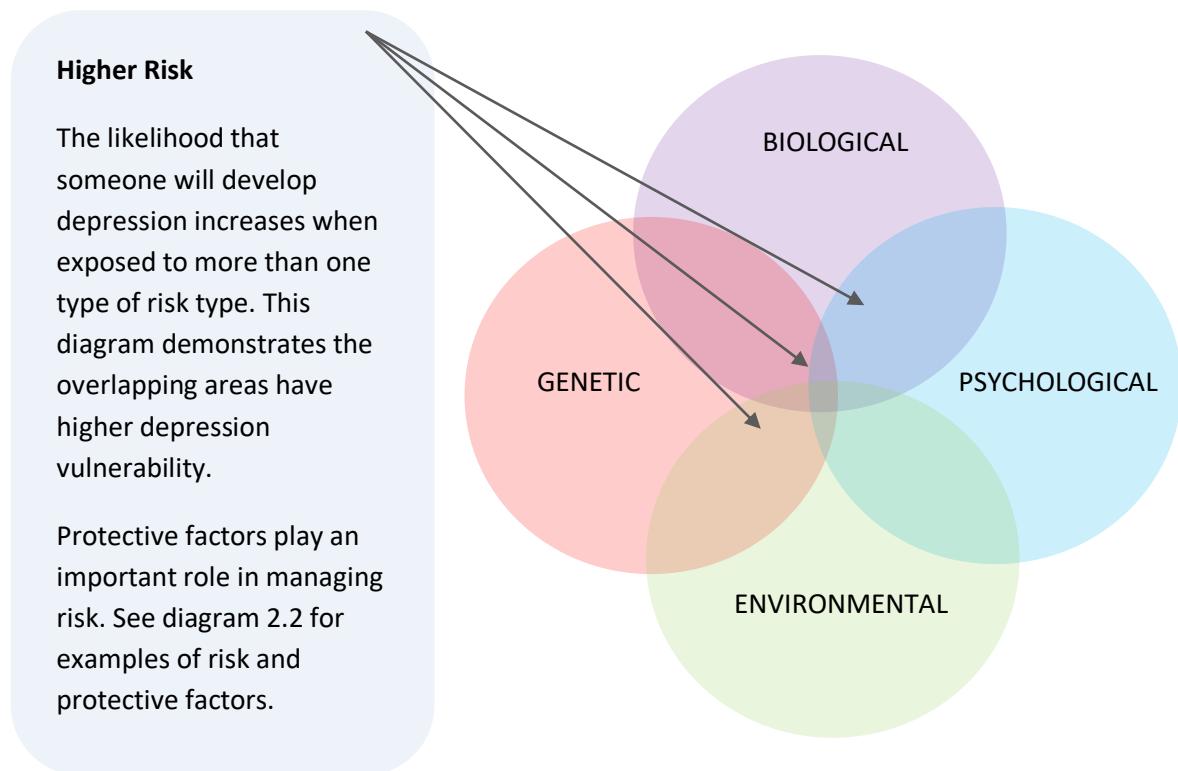
Understanding Depression Week 2

1.0) What Causes Depression?

The question of what causes depression is often asked and it's a topic that is still not fully understood. Research dedicated to the field of depression indicates that there is no one definitive cause; however, there are aspects of life that influence a person's likelihood of developing depression. What scientists do know is that there are environmental, psychological, genetic and biological factors¹.

There are no certainties that these aspects of life will determine whether a person will or won't develop depression, but these factors indicate the potential; it is for this reason, that the likelihood of developing depression is referred to as a person's 'depression vulnerability' (see N.B below).

1.1) Depression Vulnerability Diagram



NB 'Depression vulnerability' describes the likelihood someone will develop depression, based on, but not determined by, environmental, psychological, genetic and biological factors.

¹ Woo-kyoung Ahn, Caroline C. Proctor and Elizabeth H. Flanagan: 'Mental Health Clinicians' Beliefs About the Biological, Psychological, and Environmental Bases of Mental Disorders, April 20th 2010, viewed at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2857376/>

RISK FACTORS

PROTECTIVE FACTORS

- Being Male
- Calm and relaxation
- Healthy lifestyles
- Exercise
- Good nutrition
- Good health/health management
- Age appropriate physical development



Biological

- Stress
- Mental/physical illness
- Vitamin D deficiency
- Medication side effects
- Aging brains
- Hormone changes
- Apathy
- Exposure to toxins
- Substance misuse
- Alcohol

- No prior family history of mental illness
- Genetic makeup that promotes a healthy balance of the body's mood regulating chemicals (see pgs. 5-6)
- Genes with protective personality traits such as agreeableness and emotional stability



Genetics

- Close family members with depression
- Early childhood depression
- Repeated episodes of depression
- History of severe depression
- Stressful environment
- Genetic makeup that increases vulnerability to depression (see page 6 for more information)

- Social inclusion
- Stable home environment
- Healthy relationships
- Support networks
- Secure economy
- Supportive parents/caregivers
- Low ration of children to caregivers
- Access to job opportunities



Environmental Psychological

- Trauma/abuse within communities
- Family dysfunction
- Wounded family e.g. loss, illness, homelessness
- Community stress such as inequality/poverty/lack of job opportunities/ poor access to services
- Everyday life events that cause chronic stress



- Temperament: neuroticism, rumination, stress vulnerability, impulsivity
- Trauma or abuse
- Low self esteem
- Negative thinking
- Loneliness
- A sense of not fitting in
- Poor social skills e.g. aggressive, passive or withdrawn

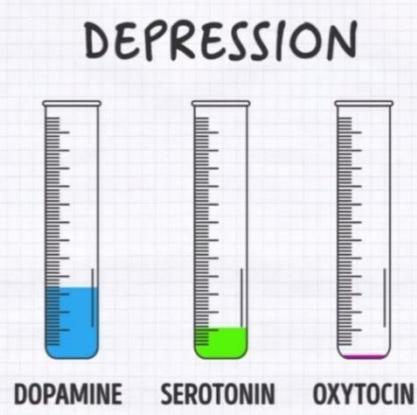
1.3) Risk factors continued....



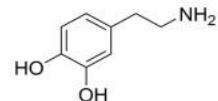
Biological

There are many aspects of the human body that influence how we experience emotion. The brain is at the centre of biological functions that govern bodily functions. Like genetics, this field covers vast and complex research and if you are interested in learning more, there are research papers readily available online that provide in-depth information. In this section, the focus will be on the chemicals's dopamine, serotonin and oxytocin that are linked to depression.

Hormones drive large scales changes within the body and regulate all of our unconscious systems such as breathing, heart rate, sleep cycles and digestion. Hormonal changes also drive fluctuations in mood and behaviour by influencing the production of chemicals such as serotonin, often referred to as the brain's 'happy chemical'. An example of this process is easily observed during puberty; the body experiences a surge in hormones resulting in teenagers experiencing mood swings. This is due to chemical changes in the body. The next sections look at the chemicals linked to depression, their function and their influence.

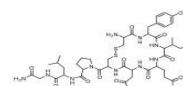


Dopamine



Function: dopamine has many functions and is mainly associated with reward, motivation, memory, attention and regulating body movement. When released in large enough quantities, people will experience pleasure and motivation to repeat the behaviour

Impact of low levels: lacking enthusiasm and decreased motivation²



Oxytocin:

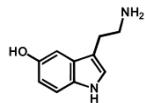
Often referred to as the 'love hormone' because it is produced when cuddling up to a loved one or even stroking a pet. The influences of oxytocin are still uncertain. High levels can reduce stress and increase feelings of love and connectedness, but studies show that oxytocin can drive disconnection when experiencing high levels of stress.

Function: promotes bonding between a mother and new-born, influences social behaviour, social recognition and emotion.

Impact of low levels: Low levels of oxytocin are still not fully understood. However, the evidence shows a connection to altered social behaviour and increased depression³.

² Erica Julson (MS, RDN, CLT); '10 Best Ways to increase dopamine levels naturally', Health Line (evidence based), May 2018, viewed at: <https://www.healthline.com/nutrition/how-to-increase-dopamine>

³ You and Your Hormones, 'Oxytocin', March 2015, viewed at: <https://www.yourhormones.info/hormones>



Serotonin:

Serotonin plays an important role with mood and motor skills.

Function: in relation to emotions, serotonin is believed to regulate anxiety, happiness, and mood. It also regulates other chemicals linked to mood such as noradrenaline.

Impact of low levels: levels of noradrenaline drop and risk of depression increases⁴.

Types of depression with persistent chemical changes include: Bipolar disorder, Seasonal Affected Disorder (SAD), nutrient deficiencies such as vitamin D which has been linked to people with SAD, Dythimia and Post natal depression.

Biology is not a determining factor on whether someone will develop depression. There are many ways that chemical imbalances can be altered, such as medication, lifestyle and behavioural alterations.



Genetics-

Various studies have linked 600 genetic factors to depression. In this course, the focus will be on landmark studies by Caspi, Sugden et al. (2003). This research has been cited thousands of times as a breakthrough in understanding depression. The paper confirmed that individuals who have the

⁴ Annamarya Scaccia, medically reviewed by Debra Rose Wilson (PhD, MSN, RN, IBCLC, AHN-BC, CHT) 'Serotonin: What You Need to Know', Health Line, May 2018, viewed at: <https://www.healthline.com/health/mental-health/serotonin#functions>

presence of one or two copies of the short (5-HTT) gene were most likely to develop depression when experiencing stressful life events compared to individuals with two long copies, which were least likely. The results confirmed that two short copies of the gene increased a person's 'vulnerability to depression'⁵. Interestingly, people who carry two copies of the short gene were also shown to be least depressed when not faced with any life stresses. These results suggest that the presence of this gene leads a person to have a greater sensitivity to the environment rather than determining whether a person will develop depression i.e. without stress, these individuals are least likely to develop depression and in stressful circumstances, they are most likely.



Statistics:

Twin and family studies estimates that it's typically 40 % heritability for general depression and higher heritability estimates for very severe forms (Institute of Psychiatry, King's College London)



ENVIRONMENTAL

Factors influencing depression are endless because what affects one person in a positive way, may impact another in an adverse way. There are no certain predictive elements in

⁵ Pezawas, Meyer-Lindenberg et al; '5-HTTLPR polymorphism impacts human cingulate-amygdala interactions: a genetic susceptibility mechanism for depression', Nature Neuroscience volume 8, pages 828–834 (2005).

our surroundings linked to depression but there are conditions that increase the likelihood of developing depression. The following section highlights some key influencers:

Sleep Environment:

Sleep is still a subject of great mystery but what is known is that the brain is very active during the night. In relation to depression, sleep can play an important role when it comes to stress. As highlighted in the genetics section, stress increases a person's risk of depression. When a person experiences stress, they release the stress chemical, cortisol amongst others and when we sleep, it's understood that this is the brain's 'housekeeping' time when these chemicals are rebalanced. Steps can be taken to improve sleep habits such as reducing screen time and caffeine but for more information, the Wellbeing and Recovery College offer a Sleep Well course where you can find out more.



Statistics:

Women are twice as likely as men to be diagnosed with depression.

50 % of people who have an episode of depression will experience a relapse.

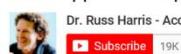
Social Environment:

Humans are naturally social beings and there are many studies that prove health benefits to those who feel connected. Social connections help people to develop a sense of self; we create an image of ourselves in what we believe others see of us. This interconnected sense of self has evolutionary benefits. In prehistoric times, humans needed 'the tribe' to survive. If there was any sense that others had a negative image of us, it would create stress as being excluded made us more vulnerable. Stress motivates a person to check that they are fitting in so behaviour can be adjusted to make sure individuals fit in with the group (view the Happiness Trap video by Dr Russ Harris for more information on evolution of social habits).

In the modern world, groups are so large that there are now countless mini groups that send out messages of how people should behave in society to be accepted e.g.... "Be pretty", "be strong", "be different", "follow them" etc. There are many conflicting messages that can leave people feeling that they don't fit in, which causes stress, anxiety and depression. Other relational social factors of depression include abuse, loss of a loved one, peer rejection, bullying, exclusion, stigma and discrimination.



The Happiness Trap: Evolution of the Human Mind



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Physical Environment:



The natural environment influences vulnerability to depression too. The Diagnostic and Statistical Manual of Mental Disorders, (DMS) recognises environmental pollutants in depression. High levels of pollutants and chemicals within our foods have the potential to alter the way our bodies function. It's still an area of developing research but there is mounting evidence to support healthy lifestyles, support good mental health and includes good nutrition, time out in nature and exercise.



Psychological

In this section, the focus is on psychological factors influencing a person's vulnerability to developing depression. As with all of these headings, there are interlinking aspects that impact how a person externalises and internalises events thus influencing their experience. How a person's psychological state has developed is complex and it's influenced by the factors described (page 4). Below are three broad influencing factors in more detail:

Stress:



Stress is an important and normal part of everyday life; in healthy doses, stress increases focus, motivation and concentration. It's the body's response to help us manage and respond to changes in our environment. When a change occurs that requires a response, the body kicks the flight, fight and freeze response into action; the heart beats faster, muscles tighten, and the body is ready for action. There is a feedback loop that allows the body to turn the flight

response on and off but in some cases, it remains open and people can develop chronic stress, anxiety and depression. People who have depression have been observed to have higher levels of cortisol⁶ which in turn can impacts thoughts, behaviour, mood and immune system function.

The types of situations that cause people stress and increase a person's chances of developing depression depends on several factors, two of which are a person's genetic traits, a person's stress vulnerability and background.

People experience anxiety from stress when there is a sense that what is happening around them is beyond their ability to cope. It is for this reason that everyone experiences stress differently; what causes one individual to experience anxiety from stress may not register as something to worry about for another. Attending an interview, for example, may be panic inducing for someone with low self-worth or exciting for someone who believes they are good in interview situations. The person in this example, who experiences high levels of stress, is more vulnerable to depression than the other.

Common sources of stress include many aspects of life for example; no work/life balance, dysfunctional home life, loss, conflict in relationships, high pressure and demanding lifestyles or bullying at work or school.

Personality:



Another influencing factor is personality. A person who inherits genes that are protective temperament traits such as openness, trust and agreeableness (person 1) is likely to

⁶ <https://www.health.harvard.edu/mind-and-mood/what-causes-depression>

interpret events differently to person 2, who has a risk factor temperament such as disagreeableness and a high level of neuroticism (someone who experiences emotions to the extreme).

Example situation: if person 1 was walking down a street and someone bumped into them, they may perceive it as an accident, exchange apologies and move on without much thought but person 2 may perceive it with hostility, feel angered and confront the other person aggressively. In this fictional scenario, person 2 is likely to experience more stress. This is only one incident in the day of person 1 and 2 but if person 2 responds to more interactions in a similar way, stress will build, increasing their risk of developing depression.

In this example, there are many aspects at play; genetics influence temperament, temperament impacts perceptions, perceptions influence behaviour and the environment present situations. The interaction of all these elements will affect how vulnerable someone is to stress, anxiety and depression.

Personal History



It has been emphasised that there is no certainty to any of these factors. Using the example above, person one with a

temperament that is a protective factor, under certain circumstances, may develop traits that increase their vulnerability to stress and depression. For example, person 1 with the easy temperament appeared relaxed in the fictional scenario; however, if that person had been brought up in an abusive home or neighbourhood and had suffered several traumas, their internal and external view of the world will be altered. This will impact their beliefs, perceptions and behaviour. A person's psychological state is fluid and with this fluidity, so is their vulnerability to depression. In summary, a healthier psychological state will lessen the likelihood that a person will develop depression.