



# Scientia Psychiatrica

Journal Homepage: [www.scientiapsychiatrica.com](http://www.scientiapsychiatrica.com)

eISSN (Online): 2715-9736

## The Role of Intelligence Quotient as a Risk Factor for Depression: A Literature Review

Bella Sagita Pratiwi<sup>1\*</sup>

<sup>1</sup> Undergraduate Programme, Faculty of Medicine, Universitas Bengkulu, Bengkulu, Indonesia

### ARTICLE INFO

#### Keywords:

Depression  
Intelligence  
Dysthymic disorder  
Anhedonia  
Personality disorder

#### \*Corresponding author:

Bella Sagita Pratiwi

#### E-mail address:

[bella\\_sp@gmail.com](mailto:bella_sp@gmail.com)

The author has reviewed and approved the final version of the manuscript.

<https://doi.org/10.37275/scipsy.v2i1.30>

### ABSTRACT

Depression is a mood disorder with general characteristics in the form of changes in sleep patterns and appetite, psychomotor disorders, concentration problems, anhedonia, fatigue, hopelessness and helplessness, and suicidal ideation. If the depressive disorder goes on for a long time (dysthymia), the person is suggested to be moody, lazy, or withdrawn from relationships because he loses interest in almost all aspects of his life. Depression is a psychiatric disorder that is often found with a prevalence of around 15%. In general, the onset of major depressive disorders is at the age of 20 to 50 years, but the most often is at the age of 40 years. Cognitive plays a role in the aetiology and prognosis of someone with depression. The higher the cognitive level of a person, the more it will affect the cure rate and prevent recurrence in someone experiencing psychiatric disorders. This literature review will explain the role of intelligence quotient in depressive disorders.

### 1. Introduction

Depression is a mood disorder with general characteristics in the form of changes in sleep patterns and appetite, psychomotor disorders, concentration problems, anhedonia, fatigue, hopelessness and helplessness, and suicidal ideation.<sup>1,2</sup> If the depressive disorder goes on for a long time (dysthymia), the person is suggested to be moody, lazy, or withdrawn from relationships because he loses interest in almost all aspects of his life. Depression is a psychiatric disorder that is often found with a lifetime prevalence of about 15%. In general, the onset of major depressive disorders is at the age of 20 to 50 years, but it is most often at the age of 40. Severe depression often occurs

in people who are not married, divorced, or separated.<sup>3</sup>

A study conducted by Weismann-Archace et al. found that a higher prevalence in women than men is likely due to an imbalance of hormone regulation that directly affects the brain substance that regulates emotions and mood. For married women, depression can be compounded by family and work problems, caring for children and elderly parents, domestic violence, and poverty.<sup>1</sup>

A large number of studies have reported various abnormalities in biogenic amine metabolites, which include the neurotransmitters norepinephrine, serotonin, and dopamine. In other studies also

mentioned that in addition to the neurotransmitter factors mentioned above, several other causes could trigger the onset of depression, namely amino acid neurotransmitters, especially GABA (Gamma-Aminobutyric Acid) and neuroactive peptides, neuroendocrine and neuroanatomic regulation.<sup>2,4</sup>

In neuroendocrine regulation, mood disorders can be caused mainly by abnormalities in the adrenal glands, thyroid, and growth hormones.

### **Intelligence quotient (IQ)**

According to David Wechsler, intelligence is the ability to act in a direction, reason, and deal effectively with the environment. It can be concluded that intelligence is a mental ability that involves a rational thought process. Therefore, intelligence cannot be observed directly, but instead must be inferred from various concrete actions that are manifestations of the rational thought process.<sup>6</sup>

Intelligence quotient (IQ) is a term for grouping human intelligence that was first introduced by Alfred-Binet, a psychologist from France in the early 20<sup>th</sup> century. Lewis Terman from Stanford University tried to standardize the IQ test developed by Binet by developing population norms. The IQ test was then known as the Stanford-Binet test. At the time of intellectual intelligence (IQ) is a single intelligence of each individual, which is only related to the cognitive aspects of each of these individuals. The Stanford-Binet test is widely used to measure the intelligence of children up to age 13 years.<sup>6,7</sup>

The higher the level of intelligence a person has, the more it is possible to do a task that requires a lot of reason and reason and carries out complex. Intelligence, in general, can also be interpreted as a level of ability and speed of the brain to process a particular form of task or skill. The ability and speed of the work of the brain are also called the effectiveness of the work of the brain.

### **The role of intelligence quotient in the depression event**

According to Hung et al., IQ scores in children aged

seven years have an essential role in the incidence of depression in adulthood.<sup>7</sup> Children or young adults with low cognitive abilities, seen from IQ scores, experience psychiatric disorders more often as adults. Cognitive plays a role in the aetiology and prognosis of someone with depression. The higher the cognitive level of a person, the more it will affect the cure rate and prevent recurrence in someone experiencing psychiatric disorders. In his research, IQ performance and verbal IQ were combined to assess cognitive abilities, and these results have a strong relationship with the incidence of chronic depression and suicide. People with low IQ performance are strongly associated with past depressive events, the most extended episode duration, hospital admission due to depression, suicide ideas, and attempted suicide.<sup>7</sup>

This fact is in line with research conducted by the Harvard School of Public Health (HSPH), which states that children with low IQs have an increased risk of developing psychiatric disorders. Also, people with low IQs are at risk for more severe psychiatric disorders accompanied by an increased risk of having a diagnosis of more than one psychiatric disorder. Koenen et al., in their study, said a low IQ in children is predicted to increase the risk of schizophrenia, depression, and anxiety in adulthood.<sup>6</sup>

Even so, low IQ scores are not related to the incidence of phobias, panic disorders, and obsessive-compulsive disorders. Koenen et al. conclude the results of their research as follows; Children's lower IQ can be a marker of neuroanatomical deficits that increase susceptibility to certain mental disorders; children with lower IQs may be associated with psychiatric disorders in adulthood through psychosocial stress.<sup>6</sup> Individuals with lower IQs in childhood do not have the readiness to cope with events or events in a stressful life, making them more potential for mental disorders.

In line with Koenen, Kaplan said that MRI studies showed that patients with severe depressive disorders had smaller caudal nuclei and frontal lobes than control subjects. Depressed patients had abnormal hippocampal T1 relaxation times compared to control

subjects. Many reports in the literature show brain blood flow in mood disorders, usually measured using Single Photon Emission Computed Tomography (SPECT) or Positron Emission Tomography (PET). The majority of studies show reduced blood flow generally occurs in the cerebral cortex and, in particular, the frontal cortex area. In contrast, researchers in the study found an increase in cerebral blood flow in patients with major depressive disorders.<sup>8,9</sup> They found a state-dependent increase in the cortex, basal ganglia, and medial thalamus, with the impression of an increase depending on the innate traits in the amygdala.

### **Cognitive aspects of depression disorders**

According to cognitive theory, depression occurs due to specific distortions found in someone prone to depression. The distortion, referred to as depressogenic schemata, is a cognitive template that receives internal and external data in a way that is altered by previous experience. Beck gives a postulate triad of cognitive depression, consisting of; a view of self, negative self-regulation, the tendency to experience the world as something hostile and demanding, regarding the future, hopes regarding suffering and failure.<sup>9-11</sup>

### **2. Conclusion**

There is a close relationship between IQ levels and depressive events. Indirectly, the cognitive role in aetiology and prognosis in someone with depression. The lower the cognitive, in this case, is the IQ value, will increase the risk of depression, recurrence rates, recovery, prognosis, and morbidity.

### **3. References**

1. Weismann-Arcache C, Tordjman S. Relationships between depression and high intellectual potential. *Depress Res Treat.* 2012; 2012: 567376. <https://dx.doi.org/10.1155/2012/567376>
2. Kaplan and Saddock. *Comprehensive Textbook of Psychiatry.* 7th Ed. Lippincott Williams And Wilkins. Philadelphia, 2010.
3. Maslim, Rusdi. *Diagnosis of Mental Disorders, Reference PPDGJ-III Summary "Depression Disorders".* PT Nuh Jaya. Jakarta, 2001.
4. Arozal W, Gan S. *Psychotropic in Pharmacology and Therapy* 5th edition. Jakarta: FKUI, 2007.
5. Maslim, Rusdi. *A Practical Guide to clinical use of psychotropic drugs* third edition. Jakarta: 2002.
6. Koenen KC, Moffitt TE, Roberts AL, Martin LT, Kubznsky L, Harrington H, et al. Childhood IQ and adult mental disorders: a test of the cognitive reserve hypothesis. *Am J Psychiatry.* 2009; 166 (1): 50–57. <https://dx.doi.org/10.1176/appi.ajp.2008.08030343>
7. Hung GC, Pietras SA, Carliner H, Martin L, Seidman LJ, Buka SL, et al. Cognitive ability in childhood and the chronicity and suicidality of depression. *Br J Psychiatry.* 2018; 2: 1–8. <https://dx.doi.org/10.1192/bjp.bp.114.158782>
8. Holm-Hadulla RM. Goethe's anxieties, depressive episodes and self-therapeutic strategies: a contribution to method integration in psychotherapy. *Psychopathology.* 2013; 46(4): 266-74. <https://doi.org/10.1159/000345169>
9. Navrady LB, Ritchie SJ, Chan SWY, Kerr DM, Adams MJ, Hawkins EH, et al. Intelligence and neuroticism in relation to depression and psychological distress: Evidence from two large population cohorts. *Eur Psychiatry.* 2017; 43:58-65. <https://dx.doi.org/10.1016/j.eurpsy.2016.12.012>
10. Navrady LB, Adams MJ, Chan SWY, Major depressive disorder working group of the Psychiatric Genomics Consortium. Genetic risk of major depressive disorder: the moderating and mediating effects of

neuroticism and psychological resilience on clinical and self-reported depression. *Psychol Med.* 2018; 48(11): 1890-9.

<https://doi.org/10.1017/s0033291717003415>

11. Hafferty JD, Navrady LB, Adams MJ, Howard DM, Campbell AI, Whalley HC, et al. The role of neuroticism in self-harm and suicidal ideation: results from two UK population-based cohorts. *Soc Psychiatry Psychiatr Epidemiol.* 2019; 54(12):1505-18. <https://doi.org/10.1007/s00127-019-01725-7>