Introduction

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Major Depression Disorder and Cognitive Impairment

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Major Depression Disorder and Cognitive Impairment

Major Depression Disorder (MDD) is perhaps one of the most prevalent forms of psychopathology (Steffens & Potter, 2008; Keller et al., 2019). In USA alone, the lifetime prevalence of the major depression disorder is estimated at around 16% (Hardeveld et al, 2010). Common symptoms manifested by people with depression are feelings of sadness, lack of interest in what previously entertained a person, difficulty finding sleep, impaired thinking, concentrating, or making decisions (Rock et al., 2013). For a person to be diagnosed with depression, the symptoms should have lasted for about two weeks and should be showing a change in the previous functioning. While MDD is prevalent in all ages, it's most common among adult and elderly population (Baune, et al., 2010) .Importantly, MDD is a highly recurrent disorder which means that each episode will likely leads to another occurrence. Although MDD is generally characterised as mood disorder, there is an increasing evidence and suggestion that it is a cognitive disorder for most adults and elderly population (Reinherz et al., 1999; Hammar, & Årdal, 2009; Steffens & Potter, 2008). Given the personal and public burden associated with cognitive impairment in adult, it is important to investigate the role of major depression disorder in causing cognitive impairment.

Even though the cognitive disorder can be associated with age, there are situations when the extend of the disorder is worse in some adults than others. It may result from already existing cognitive-related issues, delirium, and brain disorders, among other physiological causes. Yet, studies have shown that the elderly with major depression are likely to exhibit impaired cognitive functioning (Hammar & Ardal, 2009). The claim may be valid since both disorders are most common in the elderly, or they may be two disorders that are non-associated, but both were occurring in old age. Nevertheless, it is essential to address disorders among the elderly.

MAJOR DEPRESSION DISORDER

According to (Kizilbash & Vanderploeg, 2002) symptoms shown from a depressed patient have a high degree of relation to cognitive impairment. Addressing depression could therefore help in improving the cognitive problems in older adults. Some research findings indicate that engaging adults in activities that relax their minds helps reduce the related cognitive issues and consequently depression symptoms (Pellegrino et al., 2013; Marazziti et al., 2010; Baune, et al., 2010). By the fact that a common remedy may help both disorders, there is a high possibility of an existing relationship between the two disorders.

Several research types have been carried out to prove the hypothesis of an existing relationship between primarily depressed patients and cognitive abilities. In a research carried out (Rock et al., 2013), they sought to determine the pattern and rate of cognitive decline in adults with different depressive symptoms. A total of 69,066 participants with an average age of 64years and 55% were considered for the research. The research lasted for two years. The matrix for testing the cognitive abilities was based on immediate recall, delayed recall, and the ability to communicate fluently. Symptoms of depression were measured on a EURO-D scale. A growth mixture model was used to determine the extent of depression, while the cognitive assessment was performed using smoothing splines and linear mixed-effects models. The research finding showed four different extents of depression from constantly low, constantly high, increasing, and decreasing levels. Compared to the cognitive status, the research obtained that people with increasing and constant depression levels had a correlated cognitive decline. In contrast, those with decreasing and constantly low depression had fluctuating cognitive issues. From the research, it can be concluded that there is a relationship between an adult's cognitive status and depression levels. Individuals with major depression have a higher probability of experiencing

cognitive impairment issues, unlike those with mild or decreasing depression (Pellegrino et al., 2013). In the attempt to reduce cognitive impairment, depression should be addressed as well.

Another study tried to prove this hypothesis based on associating a remedy that is cognitive leisure and obtaining its effect on cognitive abilities and consequently depression (Joormann, & Gotlib, 2010). Older adults were considered for the study, and the most common leisure activities among them being reading books, writing for fun, solving crossword puzzles, playing board games and cards, etc. Though there was some relationship, the researchers concluded that the relationship between cognitive impairment and depression symptoms was complex (Hardeveld et al, 2010). There was some extend of dependency on the two disorders since studies a relationship between symptoms of depression and memory functions as they connectively affect the hippocampus. Although this study suggests that depression symptoms may lead to a risk of cognitive decline, other studies claim that depression results from cognitive decline (Keller et al., 2010; Rock et al., 2013). Therefore, the study does not give a conclusive report on whether major depression is the cause of the cognitive disorder.

Despite the claims and existence of research evidence showing the relationship between major depression and cognitive impairment in adults, some researchers still dispute the claim. According to a research by Reiherz et al (1999), there are several limitations to the claims. Reiherz claims that, before making the relational conclusion, it should be considered whether the hypothesis is only valid for a small number of people with significant depression or valid for the majority of the people with mild to decreased levels of depression. Furthermore, improvement in depression does not always indicate an improvement in cognitive skills neither does improvement in cognitive skills indicate an improvement in depression (Joormann, & Gotlib, 2010). Instead of directly associating depression with cognitive decline, the research suggests

that the relationship would better be associated with an underlying condition. Considering the limiting factors and the suggested views, the research was conducted with 562 persons aged from 45 years and above in order to prove if at all there was a relationship between major depression and cognitive decline. The participants had to be having an underlying disorder such as cardiovascular disorder or its risk factors and a history of depression. Depression symptoms were measured using PHQ-9 at 4, 8 and 12 weeks while the cognition was measured using an online version of Cog state. Besides the testing, the people were also required to fill questionnaires concerning their demographic and sociological characteristics in order to limit effect of biasness (Reiherz et al., 1999). Unlike the previous study which indicated a correlation between depression and cognitive decline, the research does not find such. The findings of this research show no correlation. From the findings, there were improvements in symptoms associated with depression. However, over the 12 weeks period, only executive functions improved and not the cognitive abilities.

There was also no noted reduction in the depressive symptoms with improvement in cognitive abilities. However, it may be argued that the change in the depression measures was too small to result in any changes in cognitive abilities a there was only a mean change of 3 or 4 on the PHQ-9. From this study, a definite conclusion cannot be made (Reiherz et al., 1999). Further research should be conducted while focusing on other factors that were not captured in this particular research. For instance, the age when the person began having depression, the span with which the person has been experiencing depression, the frequency of occurrence and any other medically related factors instead just focusing on cardiovascular disorders as this study. It could also be possible that the hypothesis was true only for people with major depression disorder and a certain kind of cognitive impairment.

MAJOR DEPRESSION DISORDER

Studies have used different cognitive and depression assessments methods. For cognitive impairments, general intelligence, memory, reaction time, speech and psychomotor skills are the most common (Marazziti et al., 2010). Visual memory and perceptions are relay spatial relation and memory for newly learned materials or issues. Although tests assessing psychomotor skills do not necessary measure depression, it's one of the most affected ability in depressed patients (Marazziti et al., 2010). Impaired psychomotor skills then results in slowed speech, reaction time and psychomotor activities. Therefore, assessments and tools measuring speech, reaction time and psychomotor activities are ideal. CI, medical records, self-report questionnaires are then used to collect data for assessments.

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