Distorted Cognitive Process in Major Depressive Disorder and Relevant Interventions

Peiying Chen*

Guangzhou Foreign Language School, Guangzhou, China

*Corresponding author: 1912100422@mail.sit.edu.cn

Abstract. This paper mainly discussed cognitive distortions of major depression and the methods of intervention for major depression. Then, this paper also contains different studies and different findings that indicate different cognitive patterns and processes of patients with major depression. For example, patients with major depression will be more sensitive to stressful events. Expectations have a significant correlation with major depression. Due to the existence of cognitive dissonance, people tend to reduce this dissonance by changing inconsistent cognition, according to social psychology. An individual's self-esteem level can predict the expectation of future performance. At the same time, some papers have also studied the relationship between mind wandering and major depression, as well as the ambulatory heart rate and variability. There are also relevant studies that found that people with depression post more negative language on social media. Among them, researchers have also developed intervention methods for these cognitive errors. At the same time, it is also important for psychologists to pay attention to patients' expectations when treating patients' mental illness, as the source of most of rumination and loss is to do with the patient's high expectations. Patients struggle to keep track of their most accurate emotions from moment to moment as well. This review can provide some guidance to the design of effective treatment for at-risk individuals.

Keywords: depression; disorder; cognitive process; interventions.

1. Introduction

Depression is a type of mental disorder, people with depression will often have different ruminations to deepen their illness [1]. Rumination in depressed patients is more harmful and mundane than in people without depression. Rumination is when a person encounters something that makes them upset, and then thinks about it again and again, which leads to a negative impact on their psychology. Furthermore, people with Major Depressive Disorder (MDD) tweets differ greatly from those of people without MDD. The messages they post online frequently contain more unpleasant and extreme phrases [2]. Not only can rumination cause major depression, but the size of expectations can also have different effects on the severity of depression [3]. This could be explained by because a person's self-esteem might foretell his or her future mental health. Expectations include the standards a person sets for himself, such as a certain score on an exam or a job that he or she must complete to his or her satisfaction. Therefore, when a person's psychological expectations are high and their expectations are broken, it will lead to the "surprise-attention link" and cause the phenomenon of attention shifting. The surprise-attention link is suggested by the research of cognitive neuroscience because the effect of violating expectations will lead to a neural form of shifting attention to surprise so that the patient's attention will decrease. At the same time, changes in the number of dazed episodes and ambulatory heart rate can also indicate the degree of depression [4]. Because of the increasing pressure of society, people are at risk of depression nowadays, especially from children to adolescents. Because of low fertility, most parents will place their expectations on a few children, which leads to an increasing risk of depression from children to adolescents. The search for cognitive processes in patients with major depression coupled with the search for feasible interventions is very important.

Currently, supportive psychotherapy, cognitive behavioral therapy, interpersonal therapy, and other psychological interventions are the most commend treatment for depression [1]. The main purpose of these interventions is to let patients find out the positive side of themselves, make them

face reality, help patients overcome difficulties, avoid mental collapse, change people's cognitive processes and concepts to correct their bad emotions and behaviors, etc. By assisting patients in changing negative cognition, reducing emotional isolation, changing behavior, and learning to solve problems, cognitive behavioral therapy can help patients in this type of therapy learn how to deal with stress, anxiety, depression, and other emotions. The main theory and explanation in the field of cognition and intervention of depression is the patient's psychological response to the influence and stimulation of negative events. If the cognitive method is wrong, the person will have a distorted cognitive process and produce the disease. At present, the research objects in the field of cognition and intervention of depression are mainly distributed among adolescents, young adults, and middle-aged patients. For adolescents, the main negative situations they encounter are problems in their family of origin, academic pressure, and social interaction peer problems. For young people, the main negative situation they encounter is anxiety caused by the unknown of the future. The main problems for middle-aged people are problems in the workplace and problems in marriage.

The majority of patients with MDD have negative symptoms, including low mood and reduced interest or anhedonia, delayed thinking, three non-symptoms (uselessness, helplessness, hopelessness), self-blame, suicidal thoughts and behaviors, and lack of insight [2]. Sleep disorders, eating and weight disorders, sexual dysfunction, and other non-specific somatic symptoms. As for the intervention methods for depression, with the progress of technology and research, there are some relatively complete and systematic intervention methods for depression, for example, Psychodynamic therapy. In this therapy, the psychotherapist is mainly to help patients understand their own emotions and thoughts, to understand their ability to cope with problems, but also can teach patients to learn to cope with their emotions, learn to control their emotions, and enhance self-confidence. This paper will focus on the causes of major depression and how to make treatment resources faster and easier for patients. Although the field of cognition and intervention of depression has been explored by many people, there are still some areas that have not been studied. One of them is how the cognitive model of patients with depression is carried out, and how to use other effective intervention behaviors and methods to successfully intervene in patients with major depressive disorder. The second mainstream treatment is supportive psychotherapy. This therapy is mainly through listening, encouragement, support, advice, and other ways to help patients understand their own emotions and thoughts, establish good interpersonal relationships, enhance self-confidence, and relieve depressive symptoms. In this paper, different literature will be collected for integration and calculation, to help future generations to complete the research gap in the field of cognition and intervention of depression and make more research.

2. Distorted thinking patterns and MDD

2.1. Patterns of Rumination and Mind-Wandering in MDD

Rumination is more harmful in depressed patients than in people who are not depressed. At the same time, rumination can help researchers predict different negative outcomes in depressed patients receiving stimuli. Research has demonstrated that those who suffer from significant depression are more vulnerable to stressful situations. In this study, Ecological momentary assessment (EMA) was used to investigate the mechanism of stress sensitivity to rumination in depressed and anxious patients, and the result shows that those who suffer from significant depression are more vulnerable to stressful situations, and higher rumination will increase the pressure on the patients. This study also suggested that rumination could improve the resilience and sensitivity of depressed patients to high stress. When patients with depression are stimulated to form rumination, they are less willing to participate even though the activity they are about to participate in is positive and positive [3].

Expectations of future performance can be predicted by a person's degree of self-esteem. Here are related papers that have examined the association between expectancy and MDD. People can also change their mindset from "I don't have to give it a shot because I'll fail anyway" to "I can handle it" and encourage expectation maintenance as opposed to expectation change. According to social

psychology, because of the existence of cognitive dissonance, people will change inconsistent cognition to reduce this incongruity. If people violate their expectations from a neurobiological point of view, it will result in a surprise-attention link', leading to a shift in attention and hindering the process of progress. Expectation maintenance is considered a core feature of depression, and the authors of the paper suggest that expectation maintenance is an information-processing maladaptation of MMD. At the same time, expectations also have great clinical significance. It is crucial for psychologists to pay attention to patients' expectations when treating their illnesses because of the correlation between depression and expectations [4].

At the same time, some papers examine the association between mind-wondering and MDD and Ambulatory heart rate and variability. Every 30 minutes, the participants used an electronic diary to record their thoughts and emotions. In this study, the authors investigated whether mind wandering has a range of adverse consequences. The study involved 18 subjects who were given a psychiatrist's diagnosis and a heart rate measurement device. First, the participants completed a questionnaire about their lifestyles. After that, they were asked to record their moods and thoughts in an electronic diary every 30 minutes and fill out a questionnaire. The result is a higher Ambulatory heart rate and lower variability in patients with major depression. In addition to depression, MDD participants self-perceived more loneliness and higher levels of anxiety. During sleep, there were no differences between samples of depressed and healthy individuals. It has been shown in experiments that people's HRV decreases during rumination. In the study, in both healthy and depressed people, MW had the same effect on mood deterioration as people in the task state. At the same time, more rumination also means more severe depression and increased suicidal ideation [5].

Some papers have also measured mind wanders to study the differences in thinking patterns between patients with MDD and the general population. In this study, researchers measured the moment when the mind wanders began. The researchers hypothesized that people with depression would have more mind wanders than healthy people. Furthermore, the researchers expected variability of the number of depression-specific Self-generated thoughts (SGTs) to be related to symptom severity. Patients with major depression tend to have more negative thoughts and memories of the past than positive ones. This particular SGT pattern of depression may be related to the negative thinking pattern of memories in patients with depression. At the same time, this SGT pattern fits the three elements of rumination: emotion, the alteration and processing of memory, and the processing of self-reference. The researchers also found that the predictors of depression SGT represent that lack of positive affect may predict more depression. The number of positive and negative thoughts the patient has is also a factor in the severity of depression. The researchers also found that although the way depressed people thought about the future had no less effect on themselves than the way they thought about the past, they found that the patients had more negative thoughts about the future than healthy controls [6].

2.2. Distorted Thinking Pattern on Social Media

Studies have examined what natural language people with major depression use on social media. The researchers divided the study population into two groups (D and R). D was a group of people with depression, and R was a random sample. A timeline was used to collect tweets from participants who confirmed their diagnosis of depression offline, then confirmed their depression on Twitter, and then confirmed their depression online. Researchers found that the within-individual cognitive distortion schemata (CDS) prevalence of Team D would be higher than that of Team R, and distorted thinking in the language of Team D would be higher than that of Team R. The researchers also found that both Team D and Team R had a positive sentiment distribution on Twitter due to the Pollyanna effect. However, the researchers found that removing FPP from the experimenter's Twitter did not change the observed results. This represents that online speech in the FPP manner does not represent that the subject is suffering from major depression. At the same time, extreme comments on Twitter do not completely confirm that they are sick [7, 8].

3. The Effectiveness of Cognitive Therapy in MDD

The researchers found that healthcare providers could use the findings and knowledge to help depressed patients escape the cycle of negative thinking. Moreover, in healthy people (those without depression), more rumination initiated after great stress also represents worse thinking. For treatment options, online "chatbots" are also a viable option. Because online language can be a good indicator of depression susceptibility, having a more complete understanding of online language can help to tailor treatment so that online treatment can also meet individual needs. Because of the link between depression and expectations, it is critical for psychologists to consider their patients' expectations when treating their disorders [9].

Some papers look at the content. Researchers have investigated theoretical models of cognitive treatment (CT) mechanisms in the context of community mental health centers. Although most cognitive measures did not detect subsequent changes and differences after depression, multiple theories for the mechanism of CT may have co-existed in the researchers' analysis. This represents the key mechanism of change in different patients. Meanwhile, for most patients, improvement depends on changes in a area. Negative perceptions may be pre-existing, stable, and fluctuate in parallel with symptoms of depression. Thus, different expectations can arise in treatments that elicit changes in depression. This research shows the result that for some patients, the central process is a change in self-structure, and for others, a change in dysfunctional attitudes [10].

4. Conclusion

This article focused on the distorted cognitive processes in major depressive disorder and related interventions. Among them, different studies also have different findings indicating different cognitive patterns and processes in patients with MDD. For example, people with major depression tend to be more sensitive to stressful events and are expected to be strongly associated with major depression. According to social psychology, people will alter their contradictory thought patterns in an effort to lessen cognitive dissonance. The expectations for future performance can be predicted by an individual's level of self-esteem. Meanwhile, some papers examined the association between mind-wondering and MDD, as well as ambulatory heart rate and variability. Researchers discovered that within-individual CDS prevalence is higher in Team D than in Team R, and Team D has higher distorted thinking in the language than Team R. The researchers found that both Team D and Team R had a positive sentiment distribution on Twitter due to the Pollyanna effect. Because online language can be a good predictor of depression susceptibility, a better understanding of online language can assist in tailoring treatment so that online treatment can also meet individual needs. Among them, researchers have also developed interventions for these cognitive errors.

When treating patients' diseases, psychologists must also pay attention to their expectations. First, the psychologist needs to decide whether the patient's experience was accurate. Second, if the patient doubts the accuracy of the examination, the provider needs to recheck its credibility. The therapist should consider whether the expected outcome is similar to the patient's self-description in the experiment. Fourth, it is useful to discuss changing expectations with patients in experiments. Future research should examine the cultural factors in this research area. Longitudinal studies would be necessary to understand the dynamic development of these cognitive patterns in MDD. This review can provide some suggestions to the design of prevention and intervention programs for MDD patients.

References

[1] Morris B. H., Bylsma L. M., Rottenberg J. Does emotion predict the course of major depressive disorder? A review of prospective studies. British Journal of Clinical Psychology, 2009, 48(3): 255–273.

[2] Ochsner K. N., Gross J. J. The cognitive control of emotion. Trends in cognitive sciences, 2005, 9(5): 242-249.

[3] Ruscio A. M., Gentes E. L., Jones J. D., Hallion L. S., Coleman E. S., Swendsen J. Rumination predicts heightened responding to stressful life events in major depressive disorder and generalized anxiety disorder. Journal of abnormal psychology, 2015, 124(1): 17.

[4] Kube T., Rief W., Julia A. G. On the Maintenance of Expectations in Major Depression – Investigating a Neglected Phenomenon. Frontiers in Psychology, 2017, 8: 9.

[5] Ottaviani C., Shahabi L., Tarvainen M., Cook I., Abrams M., Shapiro, D. Cognitive, behavioral, and autonomic correlates of mind wandering and perseverative cognition in major depression. Frontiers in neuroscience, 2015, 8: 433.

[6] Hoffmann F., Banzhaf C., Philipp Kanske, Bermpohl F., Singer T. Where the depressed mind wanders: Self-generated thought patterns as assessed through experience sampling as a state marker of depression. Journal of Affective Disorders, 2016, 198: 127–134.

[7] Bathina K. C., Marijn ten T., Lorenzo-Luaces L., Rutter L. A., Bollen J. Individuals with depression express more distorted thinking on social media. Nature Human Behaviour, 2021, 5(4): 458–466.

[8] Kelley S., Gillan C. M. Using language in social media posts to study the network dynamics of depression longitudinally. Nature Communications, 2022, 13(1): 870.

[9] Radfar M., Saeed Y., Haghighi M., Gharaaghaji A. R. Cognitive-behavioral group therapy in major depressive disorder with focus on self-esteem and optimism: an interventional study. BMC Psychiatry, 2022, 22(1): 299.

[10] Jarrett R. B., Nelson R. O. Mechanisms of change in cognitive therapy of depression. Behavior Therapy, 1987, 18(3): 227–241.