The Correlation of the Mindfulness and Placebo Effect

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Abstract. The key finding in this paragraph was that, whether in a biological or functional sense, there are significant differences between the placebo effect and mindfulness therapy. Both methods trigger different brain regions to activate in function as intended, but there hasn't been reliable research to demonstrate this, and the multiple experiments that has been conducted has flaws. Therefore, further research is required to verify this occurrence.

Keywords: Mindfulness; Placebo Effect; Relationship.

1. Introduction

The Chambermaid Study, conducted by Dr. Ellen Langer of Harvard University, revealed that the majority of the chambermaids believed that they receive no exercise from their work, and some even claimed that they do not exercise regularly when asked how much exercise they get. After performing various health tests, she determined that even if they are expending enough calories at work to meet their daily calorie goal, but most of the chambermaids are still in poor health condition. But after she informed them that cleaning up the room is indeed a serious exercise, and it provided unanticipated results. She was successful in helping 44 hotel chambermaids by telling them a few words to lower their blood pressure and body weight, but there were no apparent changes in their behavior. The only thing that has changed is the vast majority of chambermaids view their works as regular exercisers (Langer, 2007). The information that chambermaids received worked as a placebo for their better health condition. The study's result is that mindfulness may significantly alter people's perceptions of what they previously believed to be tiresome, and indeed brought placebo effect. The objective of this piece is to evaluate whether the effectiveness of mindfulness is comparable to that of a placebo. It will be better for daily health if they can consciously regulate themselves and alter their way of thinking without being influenced by other forces. As a result, the paragraph will address each term's meaning, similarities, differences, and recommendations.

2. Mindfulness and Placebo Effect's Similarity

2.1 Placebo Effect

The term "placebo" originally appeared in a Latin translation of the Hebrew Bible in the 1300s, and its original definition was "to walk." Later, the definition of placebo was changed to "to please" due to a mistranslation. The word placebo first entered the language of medicine in the middle to late 1700s. The general consensus is that William Cullen, an English physician and pharmacologist, originated the idea of a placebo in his clinical lectures delivered in 1772. William Cullen's introduction states that at the time, the term "placebo" referred to medications that were given to patients to satiate their desire for a cure even when they physically believed that the medication was ineffectual for treating serious illnesses (Cai & He, 2019). Examination of animal magnetism which conducted by Benjamin Franklin and Antoine Lavoisier, is a great example of the experiment that tests placebo effect. The agent that M. Mesmer claims to have found, animal magnetism, may be used to treat nerve diseases directly and as a means of treating others; it enhances the effects of medications; it causes and directs crises in such a manner that problems may be comprehended and controlled. In this way, the doctor is able to accurately ascertain the current state of each patient's health as well as the cause, characteristics, and progression of even the most complex of diseases. He also stops the spread of the illness and finds a cure without ever subjecting the patients to the potentially harmful consequences of unfortunate consensus. The placebo effect is recently conceptualized as the

consequence of a general expectation learning process in which verbal, conditioned, and social signals are centrally integrated to modify actions and outcomes. Combining latest genetic research on the placebo effect, the relationship between genetic variations in the dopamine, opioid, serotonin, and endocannabinoid pathways and receptivity to placebos, and more (Colagiuri, 2015). The definition states that mindfulness has comparable results.

2.2 Mindfulness

On the other hand, Mindfulness is a concept that is gained popularity in recent years, despite having roots in ancient culture. Helping people focus and be present in the moment, mindfulness is a useful tool and has been proved to help in the management of: Stress, Anxiety, depression, and chronic pain. It is the awareness of one's own thoughts, feelings, and emotions as well as of the environment and circumstance around one, and not interrupted by the automatic repossession, such as stress or judgment. Furthermore, mindfulness therapy is a sort of talk therapy that entails consultations with experts who assist a person in being more conscious of their thoughts and the environment around them. They are able to prevent negative reactions or behaviors due to their heightened awareness. In order to help patients properly see reality instead of forming habitual false beliefs owing to paying attention for just brief periods of time, mindfulness treatment places a strong focus on being "present." Mindfulness-Based Cognitive Therapy (MBCT), Mindfulness-Based Cognitive Therapy (MBSR), Dialectical Behavioral Therapy (DBT), and Acceptance and Commitment Therapy (ACT) are a few mindfulness-based therapies that have gained popularity. These approaches are all supported by a growing body of research (Olive 2022). There are similarities between these two concepts.

2.3 Similarity

First and foremost, these treatments are similar. Main findings suggest that long-term MM (Mindfulness meditation) practice allows a more flexible emotional regulation by engaging frontal cortical structures to dampen automatic amygdala activation. A large overlap exists between cerebral areas activated during MM, psychotherapy, pharmacotherapy and those activated by placebo. MM, psychotherapy and placebo effect both act through a top-down regulation (Chiesa et al, 2010). In conclusion, the main similarities between these two ideas are that they both treat illnesses without the use of medications but do so by using the psychological effects of outside information. Presumably, since these effects are thought to be connected, mindfulness techniques can boost placebo effects as well (David et al, 2017). By enhancing self-acceptance, emotional adaptability, compassion, acceptance of the present moment, relaxation response, avoidance behaviors, and reaction to pain sensations, mindfulness alters the mental experience of pain.

3. Difference between Placebo Effect and Mindfulness

These two therapies appear to have comparable goals, yet they differ significantly. A patient may lessen, and in some cases even completely eradicate, pain via regular mindfulness practices, thereby negating the need for painkillers (Fadel et al, 2015). It is true that mindfulness may help to concentrate, stop thinking negatively, and feel less tense and stressed. However, mindfulness training may reduce pain in a way that is mechanistically different from the placebo effect.

Biologically

While MM, psychotherapy and placebo seem to act through a top-down regulation (determines the level of realized growth), antidepressants seem to act through a top-down regulation, antidepressants seem to act through a bottom-up process (sets the upper limit for trophic-level growth). MM seem to target specific brain areas related to emotions and emotional regulation. Similar mechanisms have been observed also in other interventions, particularly psychotherapy (Chiesa et al, 1994). Moreover, mindfulness meditation produces greater pain relief and employs distinct neural mechanisms than placebo cream and sham mindfulness mediation. To determine whether the analgesic mechanisms of

mindfulness meditation are different from placebo, researchers randomly assigned 75 healthy, human volunteers to 4 d of the following: 1) mindfulness meditation, 2) placebo conditions, 3) sham mindfulness meditation, or 4) book listening control intervention. Importantly, all cognitive manipulations significant attenuated pain intensity and unpleasantness rating when compared to rest and the control condition ($p<0.05$). Mindfulness meditation reduced pain intensity ($p= 0.032$) and pain unpleasantness ($p < 0.001$) ratings more than placebo analgesia. Mindfulness -meditation-related pain relief was associated with greater activation in brain regions associated with the cognitive modulation of pain, inducing the orbits-frontal, subgenus anterior cingulate, and anterior insular cortex. In contrast, placebo analgesia was associated with activation of the dorsolateral prefrontal cortex and deactivation of sensory processing regions (secondary somatosensory cortex). Sham mindfulness meditation-induced analgesia was not correlated with significant neural activity, but rather by greater reductions in respiration rate. This study is the first to demonstrate that mindfulness-related pain relief is mechanically distinct from placebo analgesia. The elucidation of this distinction confirms the existence of multiple, cognitively driven, supra spinal mechanisms for pain modulation (Felda et al, 2015).

In contrast, placebo analgesia was associated with decreased pain-related brain activation. These findings demonstrate that mindfulness meditation reduces pain through unique mechanisms and may foster greater acceptance of meditation as an adjunct pain therapy (Kater, 2015). When compared to "sham" meditation and placebo cream therapies, the study team discovered that mindfulness meditation engaged various brain regions in the brain. The group that practiced mindfulness meditation also saw the biggest decrease in discomfort. This study is the first to show that mindfulness meditation has a unique mechanism of action that goes beyond the analgesic benefits of placebo conditioning or sham mindfulness meditation to reduce pain intensity and pain unpleasantness ratings. However, these reductions also appeared to be correlated with lower respiration rates, leading the researchers to hypothesize that the effect was caused by the relaxation response brought on by the "nonspecific" components of the intervention. The sham mindfulness did result in a significant reduction in pain scores (Justin, 2019).

The orbital-frontal and ungulate cortices, in particular, were engaged by mindfulness meditation-induced pain alleviation. Contrarily, pain-related brain activity was shown to be reduced in response to placebo analgesia. These results show that mindfulness meditation reduces pain via distinct processes and may increase acceptance of meditation as a complementary pain management (Justin, 2019).

4. Recommendation:

However, there are flaws due to the incorrect calculations or the application of the approach to the experiment, which led to subtle deviations in data. The majority of trials that have been carried out lack an adequate control group, therefore the conclusions they draw are about the placebo effect rather than the findings of the mindfulness experiment. The only way for the alternative is by using the passive control group, A method for applying seismic base isolation systems and/or the energy dissipation equipment to the structure to lessen the vibrations without the need of external power (Zeldan 2012). Promoting the use of the computer modeling to research meditation could be the solution to the problem, which can force someone to have solid definitions, as one cannot really argue with an equation. The idea was to ultimately utilize this model to forecast which cognitive functions should benefit from particular forms of mediation. Moreover, it is advised to be more specific about the intervention one is using in order to avoid those subtle errors. For instance, working with people who have practiced meditation for decades is preferable to working with people who are new to the meditation and only doing a 10-minute mindfulness induction. Additionally, it's critical to actively consider any negative side effects these practices may have in addition to considering the advantages of meditation. Willoughby Britton has done some ground-breaking work to begin cataloging the types of negative experiences people encounter, which include things like trouble falling asleep, traumas

revisiting, and changes in perception. Most significantly, a variety of contemplative practices can foster prosocial feelings like kindness and compassion, which are extremely vital in today's culture (Vugt, 2018).

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