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The Role of Religious Experience vis-à-vis Religious Belief in Improving Mental and Physical Health: Empirical Findings from Psychology and Neuroscience

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Abstract

The question is: do *religious experiences* improve mental health, and how does this differ from a *religious belief*? The empirical studies put forward in this paper will attempt to show that religious experience contributes more to mental and physical health, by strengthening the immune system, than undemanding religious belief. Furthermore, numerous studies in mind and body health-care, especially those surrounding *neural pathways* and *genetics*, have produced a substantive body of evidence showing the role of positive emotions and their impact on the brain in treating illnesses.

Keywords

Emotions, Genetics, Neural Pathways, Religion, Mental Health, Immune System, Hedonic, Eudaimonic, Psychoneuroimmunology, Mirror Neurons.

Introduction

The study will concern itself with the idea that attending church, building positive relationships, and having some or other religious form of practice, contributes to good mental and physical health, leading to a more positive outlook on life. This is especially so, when one appreciates the importance of a proper functioning immune system and its correlation to good mental health.

It must be noted that this paper will only present a brief overview of a convoluted study involving the relationship between the mind, God and religious experience. Although each aspect presented is a study on its own, the hope of the author is to generate further discussion on the topic of how religious experience and positive emotional stimulus benefit us in improving mental and physical health, including how cognitive science is assisting us in understanding the complexity of this relationship.

Emotions and Religious Belief

As specified by Norris (2005: 181), "Emotions plays a central role in religion …" This is further corroborated by Smith (2007: 167) who maintains: "the belief content of the Christian faith gives rise to certain practices and experiences - particularly emotional ones - that many people find highly engaging, compelling, persuasive, and convincing". Additionally, Stefan Huber (2010: 21) affirms that "religiosity is closely linked to emotional experiences".

Furthermore, and as conveyed by Ziemssen and Kern (2008: 309-310), "Over recent decades, reasonable evidence has emerged, that brain-to-immune interactions are highly modulated by psychological factors which influence immunity and immune system-mediated diseases". In other words, poor mental health negatively affects the immune system via destructively functioning neural paths, leading to the body being susceptible to stress and disease. This paper will concisely explore these and similar ideas on the subject.

Religion and Mental Health

It should come as no surprise that this area of research concerning religion vis-à-vis mental health and the immune system is actively growing. In the past decade, for example, more research has been undertaken on the interface between these entities than ever before. The vast majority of results demonstrate that religious involvement positively impacts our mental health, thus beneficially affecting the proper functioning of the immune system.

In various interviews and surveys undertaken over several decades by prominent scientists and medical doctors (see Breslin and Lewis 2008; Masters 2005; Meyers and Benson 1992; Angel *et al.* 1977), it was determined that most people believe not only that the mind affects the body, but also that there are also supernatural forces that have an intense effect on one's physical and emotional well-being.

Furthermore, two psychologists (see Law and Sbarra 2009: 803-823) published a study looking at the rates of mood disorders in a large population of people. They specifically targeted and studied the rates of mood disorders in an elderly population (mean age = 75.6 initially) over an eight year period, in relation to the rates of church attendance and involvement. The study was designed to examine the relationship between church attendance vis-à-vis church involvement, human interaction, and the occurrence of depressed mood among the elderly and its effect on their bodies. The results indicated that there was a marked improvement in mental health, leading to an improvement in attitude and physical well-being for those that are actively involved in their church. This would include forging solid positive relationships with others, and having some form of religious practice.

Some may not be surprised that good or bad mental health is often related to a person's religious belief and practice, including their relationship with people. This becomes important when one understands that there is a correlation between our thinking and our bodies. According to the American Heart Association, medical evidence has uncovered an indisputable reciprocal connection between the mind and body (see Emani and Binkley 2010: 715-725; Honderich 1995: 1009). Our minds are governed by our emotions (whether good or bad) and regulated by our experiences.

Emotions and Religious Experience

Indeed, emotions toward God are expressions of religious experience. As presented by Huber (2010: 21-22), "Emotions emerge in situations that are interpreted in relation to God or a higher supernatural power". For instance, during prayer someone may perceive an answer from God, inducing a feeling of being protected by God. Others may feel anger towards God, since what has happened to them seems unjust. Evidently, within *religious experience*, rather than *religious belief*, one has mixed emotions, either good or bad, disappointment, or delight.

It can thus be assumed, in Huber's view (2010: 22), that religious *experiences* and especially religious *emotions* have deeper impacts on psychological make-up than just religious *beliefs*, since emotions are more deeply rooted (e.g. have a strong connection to physiological processes) than beliefs.

Spiritual experience and spiritual beliefs are, in one sense, agreeable, but in another sense, they are different, since the efficacy of each is different in their emotional impact on an individual. The one is experiential, such as being actively involved in one's church life, interacting with like-minded people, and praying and expecting results, while the other is simply an idea or an assent to a belief in a higher being.

Furthermore, research conducted by Law and Sbarra (2009: 803-823) showed that being involved in a church not only encourages one to *interact* with fellow believers, but the latest scientific research shows that it can help lower rates of depression, since as expressed, there is an undeniable emotional correlation between the mind, body and people (note that human physiology is specifically designed to make humans interrelate emotionally through *mirror neurons*). As newer studies come to the fore, the results show that *religious involvement* has a *positive* influence on mental health, and it begins, according to Leaf (2009: 19-20) by getting rid of toxic thoughts, as shall now be explored.

Neural Pathways and Toxic Thoughts

As correctly affirmed by Stebnicki (2008: 64-65) our brains consist of a phenomenal mass of neural pathways which affect our bodies (positively or negatively) and the more each pathway is used, the more entrenched they become. When it comes to toxic thoughts, Leaf (2009: 19-20) presents the following: "Toxic thoughts are thoughts that trigger negative and anxious emotions, which produce a biochemical reaction that cause the body stress. They are stored in our minds *through neural pathways*[1], as well as in the cells of our bodies". It would be reasonable to argue, that choosing to focus on new positive thoughts and putting them into action where possible, would literally create new neural patterns within our brains, leading to positive chemical reactions thus strengthening our immune system (See Leo

[1] Italics mine.

and Lacasse 2008: 35-45). Prayer, positive meditation, reading the bible (including inspirational books), fellowshipping with others and involvement in church activity, are certainly effective methods of positively changing these neural pathways. It is known as *Neuroplasticity*, a field of medicine that explores the ability of the brain to improve itself through positive thought and mental exercise. Furthermore, the idea is that the brain is able to form new neural connections, by people noticing and making more mindful choices about their thoughts, feelings and reactions (see Marsha *et al.* 2013: 22-23 and Schwartz and Begley 2002).

Conversely, when we allow negative or toxic thoughts to stream through our bodies, there is a negative chemical reaction that takes place. As these chemicals are released, they can, according to Leaf (2008: 36), change the shape and even destroy parts of our neural pathways, causing modifications right down to the cellular level. This would ultimately have a detrimental effect on our immune system.

It has also been shown that stress, according to Kandel, Schwartz and Jessell (2000: 1227-1246), affects the bodies' protective system through an imbalance of cortisol levels[2]. They state that when cortisol levels increase because of stress, excessive quantities are released into the brain, causing memory impairment. As will now be shown, our health is further affected at the genetic level, and can produce either positive or negative results, depending on one's attitude. Note that the latest studies on genes are now focusing on *epigenetics*, the study of changes in organisms caused by modification of gene expression rather than alteration of the genetic code itself. Researchers have recognized that the *epigenome* – chemical modification at the level of the genome – also influences a wide range of biomedical conditions. This new perception has opened the door to a deeper understanding of normal and abnormal biological processes and has offered the possibility of innovative interventions that might prevent or ameliorate certain diseases (see Fridovich-Keil 2008).

2 Cortisol regulates and supports functions in the heart, immune system and metabolism (Leaf (2009:32).

Stress, Depression and our Immune System

For more than a decade, researchers have known that behavioural and psychological events can influence the immune system. The study is known as *Psychoneuroimmunology* (or PNI), and according to Hill and Mullen (1996: 240) it was psychologist Robert Adler who coined this word, following a series of experiments that demonstrated physiological links between the immune system and the central nervous system (see Strand 2003: 29). Additionally, states Friedman (2012: 38), in the past few years researchers have begun to develop a clear picture of the connection between the nervous system and the immune system, which will have a profound effect on how we understand and treat a wide variety of illnesses. Equally, new research shows that the immune system sends signals to the brain (via neural pathways) which reach to the very level of our genes. As affirmed by Beck,

> Bodily relation-events reach down to genetic linkages. Genes are not merely present, in their damaged or healthy form, but they interact, and they can be switched on or off. Only switched-on genes are effective. The mechanisms for such switching are only partially known so far. But it seems that the brain, and thus a person's thinking and feeling, is involved in them (2007: 79).

Bauer (2002: 143) expands on this by stating that "Stress and depression change the activity of genes, not only in numerous immune messenger substances (cytokines)[3] but also within the cells of the immune system (for example T-cells and natural-killer cells)." They are properly known as *Cytotoxic T lymphocytes* cells. Their function is to attack viruses that hide and grow inside infected cells and help return the immune system to normal. In addition, many of the changes over time in mood and cognition are driven by events in the immune system of which we are unaware.

A significant study conducted by Slavich and Cole (2013: 331–48) further concluded that the impact of stress on health can certainly be mapped to changes at the *genetic level*. Stress, they found, can slow the healing of wounds and impair the immune system, making infection and disease more

[3] Cytokines are cell signalling molecules that aid cell to cell communication in immune responses and stimulate the movement of cells towards sites of inflammation, infection and trauma.

dangerous. In other words, stress and depression can hamper Cytokine cells from signalling T cells (*T lymphocytes* cells) to attack viruses and help return the immune system to normal.

The question is: how does one combat this? Some have suggested that stress can be kept at bay by the pursuit of happiness. Conversely, new research conducted by Fredrickson, Grewen, Coffey *et al.* (2013: 13684-13689) puts an important qualifier on this idea. Their research states that the *type* of happiness a person pursues dictates whether they are more or less at risk for poor health. For example, if someone is a dedicated church attendee and they *experience* the joy of church life by being actively involved, and develop good relationships with others in that environment, they have a good chance of living a healthier lifestyle than someone who never or rarely attends church (see Ellison, Boardman, Williams and Jackson 2001: 215-249).

As validated by Bauer (2002: 143), inter-human relationships do influence the activity of genes, which impact either positively or negatively on our immune system. Thus, if disease and ill health rests on communicative events and if it is related to *disrupted* inter-human relationships or to a *disrupted* physiological balance, then according to Jaspers and Zahrnt (1963: 70) the relationship and activity between man, church attendance and God, is highly relevant for medicine. The following empirical study augments this view.

Hedonic vis-à-vis Eudaimonic as Stress Controllers

In a controlled study conducted by Fredrickson et al (2013: 13684–89) they characterised the well-being of 80 subjects. They were specifically looking at two forms of well-being: *hedonic* (a school of thought that argues that pleasure is the only intrinsic good), and *eudaimonic*[4]. Hedonic well-being is simply seeking pleasure and avoiding any pain in the process. Conversely, eudaimonic well-being, according to Kashdana, Biswas-Dienerb and King (2008: 219-233), derives from "striving toward meaning and a noble purpose beyond simple self-gratification." As mentioned, individuals who regularly

[4] Etymologically, it consists of the words "eu" (good) and "daimōn" (spirit). One could probably relate this to John 16:33 which says "Be of good cheer (spirit) …" (see also Beck 2007: 75).

attend church services, are actively involved, and have developed relationships with like-minded individuals, are more likely to say that they are very happy with their lives, and optimistic about the future, than those who do not (see Brooks 2008: 44). It would be reasonable to assume that for most religious beliefs, eudaimonic well-being is the typical idea of what is espoused for their followers, especially since it enhances their quality of life by its connection to good physical health. The study by Fredrickson *et al.* (2013: 13684–89) produced the following results.

To describe the subjects, the researchers used the *short flourishing scale* (see Kobau, Sniezek, Zack, Lucas and Burns 2010: 272-297). This metric asked the subjects to think about the previous week and then answer how often they felt:

- Happy?
- Satisfied?
- That their life had a sense of direction or meaning to it?
- That they have experiences that challenge them to become a better person?
- That they had something to contribute to society?

The first two questions score hedonic well-being and the last three indicate eudaimonic well-being. Interestingly, but not surprisingly, there was a high correlation between eudaimonic and hedonic well-being ($r = 0.79$). Furthermore, both types of well-being showed an antithetical relationship with depression symptoms (see Fredrickson *et al.* 2013: 13684–89).

However, although all the subjects experienced similar feelings of happiness (e.g., level of conscious affect), their immune responses differed significantly depending on the type of well-being that described them. Eudaimonic well-being was associated with reduced CTRA (conserved transcriptional response to adversity) expression, while hedonic well-being demonstrated increased CTRA expression. What CTRA signifies is that when human beings are stressed out, the genes expressed by our bodies are negatively affected.

Additionally, the researchers found that hedonic well-being was associated with increases in pro-inflammatory gene expression and decreases in antibody synthesis gene expression. Conversely, eudaimonic well-being showed significant decreases in pro-inflammatory gene expression. These results suggest that those pursuing meaning in life, and who were purpose-driven, had a lower risk for diseases associated with inflammation such as cancer. The reason for this is that when stress levels are down, it is easier for *Cytokines* cells to signal and stimulate *Cytotoxic T lymphocytes* cells to move and attack sites of inflammation, infection and viruses, and help return the immune system to normal.

Furthermore, hedonic well-being biochemically *mirrors* the experience of mourning, social isolation, or diagnosis with a life-threatening illness (see Beck 2007: 79). The indication is that people who find hedonic well-being but do not experience eudaimonic well-being develop the same health risks as those with depression and stress. The reason, as given by Bauer (2002: 136), "is that depression (*in whatever form*) [turns off] several genes of the immune system, which are responsible for creating immune messenger substances". Consequently, Fredrickson *et al.* (2013: 13684–89) concluded that "striving predominately toward meaningful eudaimonic well-being may have a more favourable effect on health than simply striving toward positive affect independently".

Mirror Neurons and Observed Actions

The idea that *religious experiences* and *positive relationships* improve mental health is further established by current neuroscience studies around our immune system. Scientists have found that the brain contains *mirror neurons.* The recent discovery of these neurons, according to Arden (2010: 16), has shown that parts of our brain are acutely sensitive to the movements and intentions of others. This discovery provides proof that human physiology is specifically designed to make humans interrelate emotionally, meaning that we mirror the observed actions of others, whether that be positive (eudaimonic) well-being or negative (hedonic) well-being (see Buccino, Binkofski, & Riggio, 2004: 371). To reinforce this, Arden (2010: 60) presents the following. "When your connection with people is positive, your *orbital frontal cortex* (OFC) is relieved. In this case the OFC seems to be important in signalling the expected rewards punishment of an action given the particular details of a situation (see Schoenbaum, Takahashi, Liu and McDannald 2011: 87-99). When your relationships are negative, your OFC goes through withdrawals". This is especially so when one takes into account that we possess these mirror neurons, and that they can positively or negatively affect our immune system, depending on with whom or how and where we interact with others. As further presented by Arden (2010: 159): "Since mirror neurons may also be part of the neurobiology of empathy, they make you respond to a person who appears sad and dejected and you feel sad along with that person".

Than (2005: 26) presents the idea in this way. "Buried deep inside your skull are special brain cells ... Dubbed mirror neurons, these cells fire in response to the 'reflection' of another person". Mirror neurons are brain cells with the unique ability to map the actions of others onto our own neural pathway of motor nerves. This in turn can either positively or negatively affect our immune system" (see Hennenlotter, Schroeder, Erhard *et al.* 2005: 581-91). If there is a sense of depression or anxiety embedded within a person who may seem happy outwardly, our mirror neurons seemingly pick up this inward depression (since they feel empathy). This may negatively or positively affect us, since we are emotionally connected at a chemical level. In other words, interpersonal relationships and our environment influence our genes, and thus our immune system (see Bauer 2002).

Furthermore, diseases within a body, according to Beck (2007: 69), may also express an internal disharmony that has to do with ones (unconstructive) relationship with God. Disharmony of this kind negatively affects the immunological system, and influences the genes. Conversely, and as presented, if we are surrounded by inspiringly positive people (especially within a religious environment), our mirror neurons will fire and replicate the actions of those individuals, thus creating within us a positive attitude, which positively affects our genes and immune system (see Ekman, Levenson and Friesen 1983: 1208-1210).

In summary, one could state that happiness derived from meaningful activities - many of which involve serving others rather than just ourselves - produces greater health benefits than simply seeking (worldly) pleasurable experiences. Only through God, as stated by Beck (2007: 75), can man unfold his potential and fulfil God's will, including positively interacting with others. This leads to an inner joy, peace and harmony (*eudaimonia*) which translates into a healthy mind and immune system. Specifically, it correlates to less depression and a more positive outlook on life (see Smith et al 2003: 614-636).

The captivating part of this study is that different paths to happiness may feel the same emotionally. However, they can have contrasting effects at the genetic level. This is especially so when one takes into account the idea that we possess these mirror neurons, and that they can positively or negatively affect our immune system, depending on with whom or how and where we interact with others. For example, revelling with friends and, say, helping out at one's local church and interacting with others on these projects, may both result in emotional highs or feelings of pleasure. Nonetheless, the biology of the body distinguishes between the two kinds of pleasures with different gene expressions. One has a positive effect, while the other often has a negative effect, thus impacting on our genes and accordingly our immune system.

Conclusion

Throughout this study, it was shown that there is substantive evidence linking mind/body health-care to regular religious activity (such as regular church attendance), which seemingly helped to form an effective buffer for the stressors associated with various medical conditions. This was specifically related to current studies on neural pathways, and how they affect ones immune system. The study further explored that the link between mind/body health care can be attributed to *psychoneuroimmunology*, a study that links good mental health with a proper functioning immune system. As the various empirical studies show, behavioural and psychological events can influence the immune system (negatively or positively) and that the impact of stress on health can certainly be mapped to changes at the *genetic level.*

It was also shown that medical evidence has uncovered an indisputable reciprocal connection between the mind and body, and that mirror neurons are evidently designed to make humans interrelate emotionally, meaning, we mirror the observed actions of others, whether that be positive or negative. Furthermore, the various case studies correspondingly show that *reli-*

gious experience contributes more to good mental and physical health than undemanding *religious beliefs*.

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