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THE EFFECT OF SPIRITUALISM ON THE NEUROPSYCHOLOGICAL FUNCTION OF MEMORY



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ABSTRACT

The amount of physiological-neurological research performed over the past few years has dramatically increased due to our ability to view the structure and function of the brain in living human beings. The use of imaging tools has resulted in huge strides forward in unlocking some of the mysteries of the 3 pound universe—the human brain. One of the more unique neural processes being recently addressed is the affect of belief and spiritualism—the sense of being connected to something larger than oneself—on the human brain. This study hypothesized that better memory will be documented among the experimental group who report being spiritual and engage in prayer. These findings have very important implications regarding the potential of prayer to improve memory function in individuals of different ages and perhaps with differing brain function.

The materials used for this study included 3 scales (the Emotional Verbal Learning Test, Underwood's Daily Spiritual Experience Scale, and the Beck Depression Inventory–II) and 1 demographic questionnaire. At this time, the study is still ongoing.

INTRODUCTION

The amount of physiological-neurological research performed over the past few years has dramatically increased due to our ability to view the structure and function of the brain in living human beings. The use of imaging tools has resulted in huge strides forward in unlocking some of the mysteries of the 3 pound universe—the human brain. Some of the areas in which we have made remarkable progress include neural issues associated with personality, memory, criminal behavior, impulsiveness, and moral behavior.

One of the more unique neural processes being recently addressed is the affect of belief and spiritualism—the sense of being connected to something larger than oneself—on the human brain. Substantiation of the influence of the mind on the body is plentiful. Biofeedback, visualization, meditation, and practices such as prayer and control of behavior are used in medical and psychological treatments associated with mind-body healing. A body of studies has identified prayer, specifically, as having a significantly positive influence on many brain processes and functions.

Bingaman (2011) reports that “Christian practices rather than beliefs” per se, result in less fearfulness and lowered anxiety during one's everyday life (p. 1). Lower levels of anxiety reduce harmful cortisol concentration in the nervous system thereby leading to longer life and better overall health. Epilepsy, an invasive type of electrochemical brain disorder, has been shown to be mediated by prayer-type yoga exercise because prayer “reduces seizure frequency, relieves depression, decreases social segregation, and promotes cardiac and general health” (Khan, Ah-

mad, Beg, Ismail, Abd Alla, & Nubli, 2010, p. 391). While studying the affect of prayer on outcome in patients with traumatic brain injury, Vannemreddy, Bryan, and Nanda (2009) found that patients who practiced prayer demonstrated better recovery following surgery. A project assessing functional magnetic resonance imaging results of a group of Danish Christians found that brain areas associated with social cognition were highly activated during prayer (Schjøedt, Stødkilde-Jørgensen, Geertz, & Roepstorff, 2009).

Not only have various studies shown improvement of neurological capabilities, but the activities performed by the participants can be administered at any stage of a neurological disorder. Procedural and Emotional Religious Activity Therapy (PERAT; Vance, 2005) incorporates religious activities that are both emotionally-salient and also have a procedural memory component effective in improving memory. Compared to more common therapies like pet, art, or music therapy, the PERAT protocol requires that participants engage in religious activities which have long governed a majority of their lives. This includes, but is not limited to, reading the Bible, lighting the Menorah during Hannukah, or facing in the direction of Mecca during prayer. PERAT has been shown to lessen behavioral problems as well as improve quality of life. Given its neurocognitive influence on memory, the role of prayer warrants further study.

HYPOTHESIS

The purpose of the current study is to analytically research our hypothesis that better memory will be documented among the experimental group who report being spiritual and engage in prayer. These findings have very important implications regarding the potential of prayer to improve memory function in individuals of different ages and perhaps with differing brain function. Although beyond the scope of this project, we hope to follow up on this study by broadening the definition of our participants to include a wider age range, more diverse ethnicities, and individuals with cognitive injuries or disorders.

METHODOLOGY

Participants

Study participants from the University of Nevada, Las Vegas will include 40 individuals; an experimental group of 20 healthy adults aged 18-30 years who consider themselves to be spiritual (the sense of being connected to something larger than oneself) and a control group of 20 healthy adults aged 18-30 years who consider themselves to be atheists. The participants are recruited through flyers which are posted throughout the University of Nevada, Las Vegas campus.

Materials

Our materials include 3 scales and 1 demographic questionnaire.

- Emotional Verbal Learning Test (EVLTL)
- Underwood's Daily Spiritual Experience Scale (DSES)
- Beck Depression Inventory–II (BDI-II)

Procedure

Qualified participants will be scheduled for testing sessions Monday – Saturday from 9am-6pm. Upon arrival at the testing room, each participant will be greeted and taken to a private, sound proof study room. The EVLTL will be administered first. The participant will then complete the first 20 minutes of the test and then will be given 20 minutes of additional tasks that will be used as a working memory distracter. These tasks include the informed consent form, demographic form, BDI-II measure, and DSES measure. After the 20 minute delay, the second part of the EVLTL will be administered. After the EVLTL is completed, the participant will be compensated \$10.

The data will be analyzed by comparing the score from the EVLTL to the DSES. The BDI-II is used as a variable in this study.

FURTHER STUDY

Once finished with the current study, we hope to follow up by broadening the definition of our participants to include a wider age range, more diverse ethnicities, and individuals with cognitive injuries or disorders. One limitation to our current study is that we do not include participants who claim to be agnostic. Including agnosticism may give us a better understanding of the relationship between spirituality and memory.



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