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THE EFFECT OF SPIRITUALISM ON THE COGNITIVE FUNCTIONS ON LEARNING AND MEMORY

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ABSTRACT

Last summer I conducted a pilot study which researched whether better working memory would be documented among an experimental group (individuals who report being spiritual) as compared to the control group (individuals who report being non-spiritual). Total scores showed a significantly higher sense of spiritualism among the spiritual participants vs. the non-spiritual participants ($p < .001$) along with a significant improvement in working memory for spiritual participants vs. non-spiritual participants ($p = .027$). The results of this study documented significantly better performance on a task measuring emotional learning and memory among individuals who reported being spiritual as opposed to individuals who reported being non-spiritual. These findings build on prior studies suggesting the effect of positive emotions on broadening cognitive processes (Strauss & Allen, 2003).

My current study is building on what my prior findings have suggested and studies the effect of spiritualism on the cognitive functions of learning and memory. In addition to the Daily Spiritual Experiences Scale (DSES) used in the pilot study, I am including the Spirituality Index of Well-Being, the Wisconsin Quality of Life Questionnaire, and the Test of Memory and Learning-2 (TOMAL-2). At this time, the study is still ongoing.

INTRODUCTION AND PURPOSE OF THE STUDY

The purpose of the current study is to research the hypothesis that better verbal memory, nonverbal memory, and learning will be documented among an experimental group (individuals who report being spiritual) as compared to the control group (individuals who report being non-spiritual). Any positive findings may have implications for a variety of individuals who experience challenges with memory such as our senior population as well as those with differing brain function.

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, Ahmad, 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).

The essential cognitive function of memory has also been shown to be influenced by prayer. Fabbro, Muzur, Bellen, Calacione, and Bava (1999) report that working memory tasks administered while participants prayed resulted in significant reduction of spontaneous, intruding thoughts thereby facilitating memory. Based on evidence from brain scan studies performed during the administration of memory tasks on individuals who practiced prayer and meditation, Newberg and Waldman (2009) found positive and permanent changes in the brain. Another study demonstrated a transformation of personality and increased productivity resultant from the affect of prayer on participants’ memory, imagination, and emotions (Simon, 1989). Given its cognitive influence on memory, the role of prayer warrants further study.



METHOD

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 non-spiritual. The participants will be recruited through flyers posted throughout the University of Nevada, Las Vegas campus.

Materials

Our materials include three scales and one demographic questionnaire. The first scale was the Test of Memory and Learning-2 (TOMAL-2). This measure is a revised version of the widely used TOMAL and is considered a comprehensive instrument designed to evaluate general and specific memory functions of individuals aged 5 to 59 years old (MHS, 2012). The TOMAL-2 encompasses an expanded age range, along with shorter administration times and easier scoring (MHS, 2012). With eight core subtest, six supplementary subtests, and two delayed recall tasks, the TOMAL-2 can be efficiently used to evaluate those who may be believed to have learning disabilities, traumatic brain injury, neurological diseases, serious emotional disturbance, and Attention-Deficit Disorder (ADD) (MHS, 2012).

The second scale was called the Underwood’s Daily Spiritual Experience Scale (DSES). Lynn Underwood of Hiram College designed this 16-item Likert-type self-report measure to assess ordinary experiences of connection with the transcendent in daily life (Underwood & Teresi, 2002). This scale requires answers of: Many times per day, Every day, Most days, Some days, Once in a while, and Never/almost never (Loustalot, Wyatt, Boss, May, & McDyess, 2006). “Many times per day” represented the lowest numerical category (1) and “Never/almost never,” represented the highest (6). Question 16 “In general, how close do you feel to God?” will be scored differently. Responses to this item include: Not close at all, Somewhat close, Very close, and As close as possible. These responses will be scored from 1 to 4 with 1 being “As close as possible” and 4 being “Not close at all” (Loustalot, Wyatt, Boss, May, & McDyess, 2006).

Loustalot, Wyatt, Boss, May, & McDyess (2006) examined the test-retest reliability of the Daily Spiritual Experiences Scale. The data for the the study was gathered on two occasions, 2 weeks apart, from a convenience sample of 40 African American adults (Loustalot, Wyatt, Boss, May, & McDyess, 2006). “Criterion validity, represented by concurrent validity, was assessed in this study with ANOVA methods” (Loustalot,

Wyatt, Boss, May, & McDyess, 2006, p. 165). The findings provide evidence that the 16-item DSES is stable over time and internally consistent.

The third scale was the Spirituality Index of Well-Being. It is a twelve item questionnaire created in order to measure the impacts of spirituality on subjective well-being (Daaleman & Frey, 2004). It was originally designed to examine spirituality in health-related quality of life studies. The two overarching themes that this index examines are self-efficacy and life scheme (Daaleman & Frey, 2004).

Procedure

Qualified participants will be scheduled for testing sessions Monday thru Saturday from 9am-6pm. Upon arrival at the testing room, each participant will be greeted and taken to a private, sound proof study room in CBC-501. The informed consent form, demographic form, Spirituality Index of Well-Being, and the DSES measure will be administered first. Then, the TOMAL-2 will be administered. After the TOMAL-2 is completed, each participant will be compensated \$10.00. The data will be analyzed by comparing the scores from the TOMAL-2 to the DSES and the Spirituality Index of Well-Being.

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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