



**TESTING FAITH: AN INVESTIGATION OF THE RELATIONSHIP
BETWEEN PRAYER AND TEST ANXIETY**

By: Drey Campbell, Ph.D., LCSW

**Presented at:
NACSW Convention 2016
November, 2016
Cincinnati, OH**

TESTING FAITH: AN INVESTIGATION OF THE RELATIONSHIP BETWEEN PRAYER
AND TEST ANXIETY

Drey Campbell, PhD, LCSW

ABSTRACT:

Quantitative research was completed on the use of Christian prayer in regards to lessening college student test anxiety. It was hypothesized that Christian prayer would significantly reduce physiological test anxiety biomarkers of salivary cortisol (SC), salivary alpha amylase (SAA), and heart rate (HR). 48 undergraduates were split into three 20-minute experimental groups (meditation, study guide, prayer) to determine if a relationship existed between concentrated Christian prayer and test anxiety. Students data was analyzed by the subjective value of prayer in their lives. The mean age of the sample was 20.15. Results did not clearly confirm that prayer is more effective than meditation or studying to alleviate biomarkers of test anxiety. Quantitative results did suggest that students who valued prayer in their lives experienced lowered biomarkers of test anxiety. More studies on the phenomena of prayer and test anxiety are supported.

Literature:

Educational systems test students from a young age to evaluate their performance (Segool, Goforth, Carlson, Von der Embse, & Barterian, 2013; Sarason, 1959). Some students have no problems with tests, but many are impacted by the anxiety a testing scenario presents (Bonaccio & Reeve, 2010). Test anxiety has been revealed to impact a substantial number of college students (Chappell et al., 2005) and have a negative impact on college student performance (Hembree, 1988; Seipp, 1991). College students are using prescription, legal, and illegal drugs to self-medicate for problems with anxiety/stress during the college years, with illicit drug use among Americans over the age of 18 being 23.9 million persons in 2012 (U.S. Department of Health and Human Services, 2012). Learning how to focus and limit test anxiety can be a way for college students to increase performance in their pursuit of higher education (Hembree, 1988; Putwain, Woods, & Symes, 2010).

Due to the interest in prayer and the lively debate of its potential effects, it has been studied in a variety of disciplines, such as education, psychology, medicine, and sociology (Baesler, 2012). Research on meditation, relaxation, and eastern prayer on anxiety reduction do exist (Asadi, 2015; Prato & Yucha, 2013), but a study on prayer's effect on test anxiety levels in university students is nonexistent. For the purpose of this study, the phenomenon of focused Christian prayer was utilized. Focused Christian prayer is a method that believers in the life and resurrection of Jesus Christ use to stay in concentrated communication with God, who shows Himself and communicates to people through Jesus and the books in the Holy Bible (Constable, 2003

Significance of the Study

We exist in a test-conscious/test-giving society where people's lives are partly determined by their performance on tests (Sarason, 1959). Highly anxious college students have been shown to do poorly on intelligence tests, opposite of students with low anxiety that performed better (Sarason & Mandler, 1952). Prayer has been found to be a key coping source for persons facing elevated levels of emotional suffering, and this is particularly the case when other possible coping responses are unreachable or unsuccessful (Das & Anand, 2012; Ellison, Burdette, & Hill, 2009). The researcher has found no reported cases measuring the effect of Christian prayer on test anxiety. With the amount of pressure students face in college, new research is necessary on techniques to cope with test anxiety.

Hypothesis:

Since there is research showing test anxiety can negatively affect student outcomes, (Chappell et al., 2005) and spiritual wellbeing can lower stress, it was hypothesized that there would be a difference in the physiological responses to test anxiety of students who use focused Christian prayer compared to students who meditate or use a study guide.

Methodology:

The study conducted was initially a mixed methods design, but for this presentation the quantitative portion is explored. Students were offered the opportunity to participate in research in a lab and a script was used each meeting. Three groups of students were selected to meet on two separate occasions. At the first meeting, students had their HR and saliva collected, did the Westside Test Anxiety Scale (WTAS), signed a release, and answered a question about the value they placed on prayer in their lives (Very Important, Somewhat Important, Not at all Important).

Three groupings of students were randomly created based on results from the WTAS and met one week later. Deception was used to create anxiety by informing students they would be taking an "IQ test" and that scores were going to be published in a public area on campus. The groupings formed completed either focused Christian prayer, meditation, or a study guide after learning they were going to be evaluated. Saliva and HR were taken three times with twenty minutes between each collection.

Participants

Participant Demographics

Demographics	
Participants (<i>n</i>)	48
Gender ratio (m:f)	17:31
Mean Age	20.15
Mean Test Anxiety Score	2.89

Groups

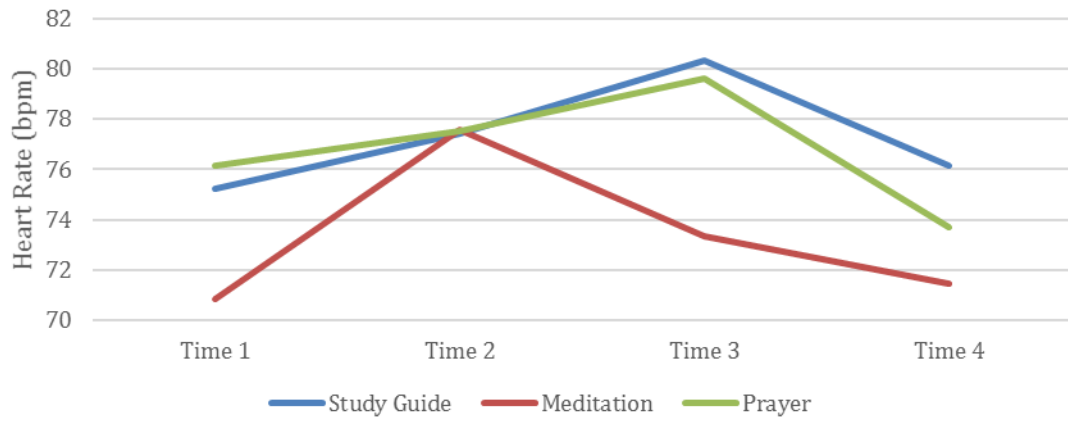
Group	Group Explanation
One: Prayer	Initial HR/Saliva Collected, (One Week Passed), HR/Saliva Collected, (20 min passed), Stressor introduction and HR measured/Saliva Collected, Focused Christian Prayer time (20 min), HR/ Saliva Collected.
Two: Meditation	Initial HR/Saliva Collected, (One Week Passed), HR/Saliva Collected, (20 min passed), Stressor introduction and HR measured/Saliva Collected, Guided Meditation Time (20 min), HR/ Saliva Collected.
Three: Study Guide	Initial HR/Saliva Collected, (One Week Passed), HR/Saliva Collected, (20 min passed), Stressor introduction and HR measured/Saliva Collected, Study Guide Time (20 min), HR/ Saliva Collected.

Analysis/Results

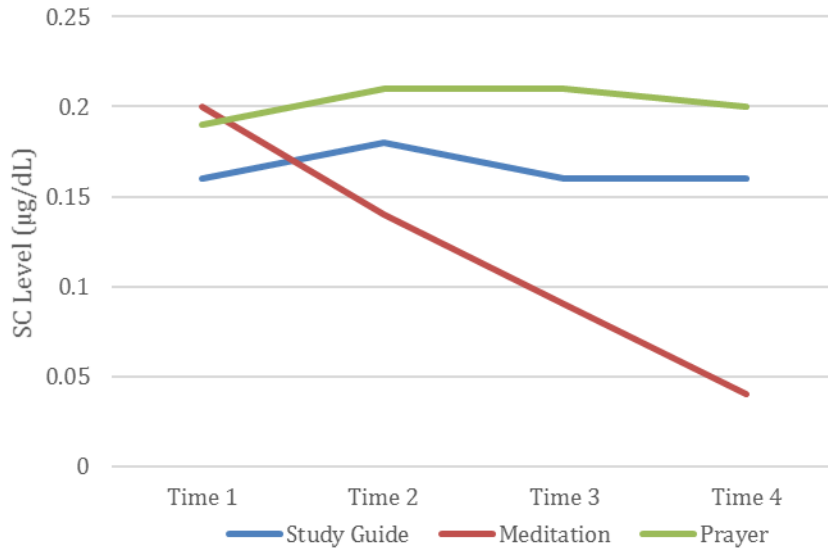
SPSS (IBM SPSS, 2014) was used to analyze the data. ANOVAs were utilized to evaluate HR, SC, and SAA between groups who prayed, meditated, and studied before a test. ANOVAs were also used investigate HR, SC, and SAA in relation to prayer value (very important, somewhat important, not important). ANOVA tests were conducted on the differences between each experimental group at the different measurement times, as well as the different time frames in order to determine if there were a pattern of significant differences which affirmed Christian prayer as a clear alleviating agent for student test anxiety.

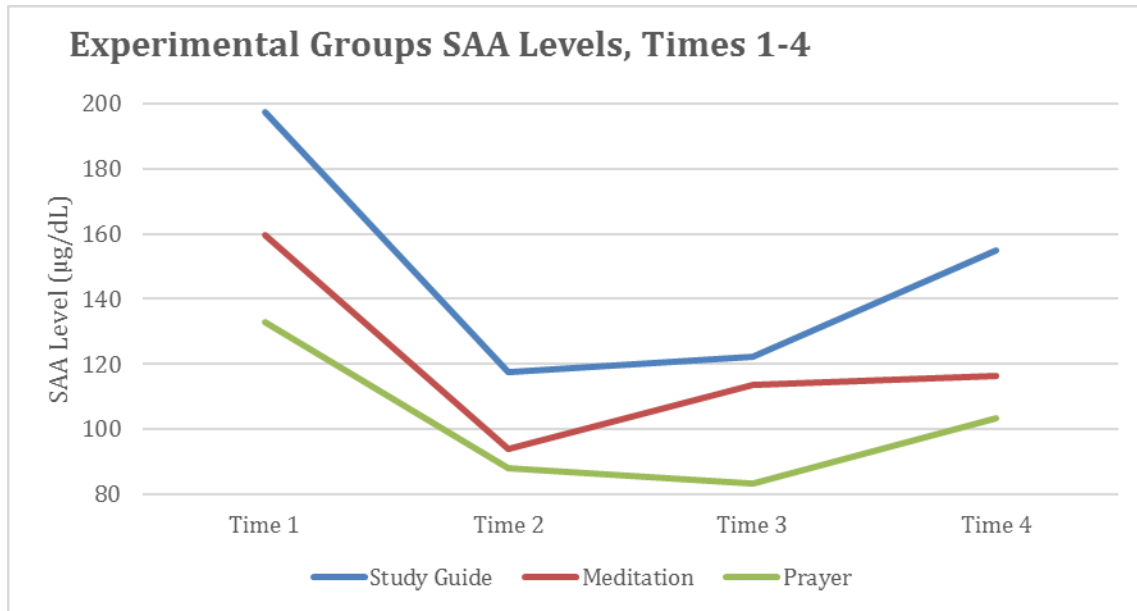
Test anxiety biomarkers of three different experimental groups (prayer, meditation, study guide) over four times were measured. The three test anxiety biomarkers were heart rate (HR), salivary cortisol (SC), and salivary alpha amylase (SAA). The following 3 figures below depict the mean HR, SC, and SAA levels of students in the three experimental groups at times 1-4.

Experimental Groups HR, Times 1-4



Experimental Groups SC Levels, Times 1-4





The study did not discover a *pattern* of significant findings to affirm that focused Christian prayer is a better method for lowering biomarkers of test anxiety than meditation or study guide usage. Significant findings *did exist* within some biomarker measurement points and time frames, but as a whole, the data did not conclusively affirm that focused Christian prayer was significantly more effective than the other two methods.

Aside from the experimental groupings, another grouping was used to collectively look at the quantitative data in an attempt to better understand the impact of Christian prayer on test anxiety in students. Students were grouped by their subjective value of prayer in their lives, with prayer values being very important (VI, 31), Somewhat Important (SI, 15), or Not Important At All (NI, 3). This is shown in the following figure.

Students who ranked prayer as very important (VI) had the lowest HR, SAA levels and SC levels across each of the four times when compared to students who valued prayer as somewhat important and/or not important at all. This is shown in the following tables.

Prayer Value Biomarkers

Group	Average Heart Rate Time 1	Average Heart Rate Time 2	Average Heart Rate Time 3	Average Heart Rate Time 4
Prayer Value—NI	Mean: 78.33 SD: 14	Mean: 82.67 SD: 2	Mean: 81.67 SD: 13	Mean: 77.67 SD: 2
Prayer Value—SI	Mean: 74.85 SD: 17	Mean: 79.71 SD: 10	Mean: 77.79 SD: 9	Mean: 77.29 SD: 14
Prayer Value—VI	Mean: 73.67 SD: 10	Mean: 76 SD: 11	Mean: 77.77 SD:13	Mean: 71.94 SD: 10

Group	Average SC Level Time 1	Average SC Level Time 2	Average SC Level Time 3	Average SC Level Time 4
Prayer Value--NI	Mean: 0.25 SD: .18	Mean: 0.23 SD: .05	Mean: 0.23 SD: .10	Mean: 0.20 SD: .03
Prayer Value--SI	Mean: 0.22 SD: .13	Mean: 0.25 SD: .12	Mean: 0.22 SD: .10	Mean: 0.19 SD: .08
Prayer Value--VI	Mean: 0.17 SD: .07	Mean: 0.17 SD:.06	Mean: 0.17 SD:.09	Mean: 0.18 SD: .09

Group	Average SAA Level Time 1	Average SAA Level Time 2	Average SAA Level Time 3	Average SAA Level Time 4
Prayer Value--NI	Mean: 324.55 SD: 74	Mean: 238.57 SD: 55	Mean: 238.46 SD: 74	Mean: 223.75 SD: 96
Prayer Value--SI	Mean: 157.53 SD: 136	Mean: 93.82 SD: 65	Mean: 104.88 SD: 80	Mean: 138.10 SD: 126
Prayer Value--VI	Mean: 148.71 SD: 127	Mean: 88.9 SD: 63	Mean: 92.54 SD: 111	Mean: 108.38 SD: 106

Discussion

Students who ranked prayer as very important (VI) had the lowest average HRs across each of the four times when compared to students who valued prayer as somewhat important or not important at all. This aligns with research by Harris et al. (2002) that shows student who are active in their relationship with God (i.e. pray more) had lower levels of anxiety.

The importance of prayer was shown to have significant relationships to biological test anxiety levels as well. Across the board, those who found prayer to be very important (VI) had

lower SC levels than those who valued prayer as somewhat important (SI) or not important at all (NI). In each of the four times, SAA levels showed a pattern--those who valued prayer the most (VI) having the lowest SAA levels and those who valued prayer the least (NI) having the highest SAA levels. From the research findings, the data may indicate that the subjective value that a student places on prayer may have been a clearer indication of biomarker changes of test anxiety than the groups of prayer, mediation, or a study guide.

Recommendations for Further Research

The interrelationship between Christian prayer and test anxiety is a new topic of research. The findings from this research lead to recommendations for future research that has the potential to add to the body of literature on the topics of prayer and test anxiety. The study suggests that there may be reason to research the impact that perceived value of prayer has on reported testing stress as well as biomarkers (such as SAA) of stress more fully. More research on Christian prayer as an attempt to explore the benefits of its practice is indicated.

Conclusion

Robotham (2008) stated, the “key role for higher education institutions in relation to stress is the provision of appropriate resources to enable individuals to deal with stress” (p. 7). Although Christian prayer is not part of the culture at every school or workplace, it is part of the culture of some agencies and educational environments. Teaching students to use skills to lower test anxiety has the ability to improve their self-confidence in testing situations, which has been shown to lend itself to higher success in academics (Onyeizugbo, 2010). Although prayer is unique to each individual that partakes in the practice (Ladd and Spilka, 2006) it may be used as a way to improve confidence, increase relaxation, and focus on God. Christian prayer was shown to lower some biomarkers of test anxiety more than meditation or a study guide in students who valued prayer, as well as in students who utilized prayer in the face of a test anxiety stressor. If students in certain environments could be taught that focusing their attention on God is more helpful than focusing on potential predicted negative events related to poor testing, then less stress may be encountered as they walk through the web of tests school systems create.

References

- Baesler, E. (2012). Prayer research: Foundations, review, and agenda. *Review of Communication, 12*(2), 143-158. <http://dx.doi.org/10.1080/15358593.2011.653506>
- Bonaccio, S., & Reeve, C. (2010). The nature and relative importance of students' perceptions of the sources of test anxiety. *Learning and Individual Differences, 20*(6), 617-625.
- Chappell, M. S., Blanding, Z., Silverstein, M. E., Takahashi, M., Newman, B., Gubi, A., & McCann, N. (2005). Test anxiety and academic performance in undergraduate and graduate students. *Journal of Educational Psychology, 97*(2), 268-274.
<http://dx.doi.org/10.1037/0022-0663.97.2.268>
- Constable, T. (2003). *Talking to God: What the Bible teaches about prayer a Biblical theology of prayer*. Retrieved from: <http://www.soniclight.com/constable/prayer/prayer.pdf>
- Das, I., & Anand, H. (2012). Effect of prayer and "om" meditation in enhancing galvanic skin response. *Psychological Thought, 5*(2), 141-149. <http://dx.doi.org/10.5964/psyct.v5i2.18>
- Ellison, C., Burdette, A., & Hill, T. (2009). Blessed assurance: Religion, anxiety, and tranquility among US adults. *Social Science Research, 38*(3), 656-667.
- Harris, J., Schoneman, S., & Carerra, S. (2002). Approaches to religiosity related to anxiety among college students. *Mental Health, Religion & Culture, 5*(3), 253-265.
- Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58*(1), 47-77.

- Ladd, K. L., & Spilka, B. (2006). Inward, Outward, Upward Prayer: Scale Reliability and Validation. *Journal for the Scientific Study of Religion*, 45(2), 233-251.
<http://dx.doi.org/10.1111/j.1468-5906.2006.00303.x>
- Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. *The Journal of Abnormal and Social Psychology*, 47(2), 166-173 <http://dx.doi.org/10.1037/h0062855>
- Onyeizugbo E. U. (2010) Self-efficacy and test anxiety as correlates of academic performance. *Educational Research*, 1(10), 477-480.
- Prato, C. A., & Yucca, C. B. (2013). Biofeedback-assisted relaxation training to decrease test anxiety in nursing students. *Nursing Education Perspectives*, 34(2), 76-81.
- Putwain, D. W., Woods, K. A., & Symes, W. (2010). Personal and situational predictors of test anxiety of students in post-compulsory education. *British Journal of Educational Psychology*, 80(1), 137-160.
- Robotham, D. (2008). Stress among higher education students: Towards a research agenda. *Higher Education*, 56(6), 735-746. <http://dx.doi.org/10.1007/s10734-008-9137-1>
- Sarason, S. B. (1959). What research says about test anxiety in elementary school children. *NEA Journal*, 48, 26 – 27.
- Segool, N. K., Goforth, A. N., Carlson, J. S., Von der Embse, N., & Barterian, J. A. (2013). Heightened test anxiety among young children: elementary school students' anxious responses to high-stakes testing. *Psychology in the Schools*, 50(5), 489-499.
<http://dx.doi.org/10.1002/pits.21689>
- Seipp, B. (1991). Anxiety and academic performance: A meta-analysis of findings. *Anxiety Research*, 4(1), 27-41. <http://dx.doi.org/10.1080/08917779108248762>

U.S. Department of Health and Human Services (2013). *National survey on drug use and health: Summary of national findings*. Retrieved from:

<http://www.samhsa.gov/data/nsduh/2012summnatfinddetttables/nationalfindings/nsduhresulsts2012.htm>