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# Humor as a Buffer for Stress in Nurse Anesthesia Students

Kayla C. Forbis

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The University of Southern Mississippi

Humor as a Buffer for Stress in Nurse Anesthesia Students

by

Kayla Forbis

A Thesis  
Submitted to the Honors College of  
The University of Southern Mississippi  
in Partial Fulfillment  
of the Requirements for the Degree of  
Bachelor of Science  
In the Department of Nursing

May 2014



**Approved by**

---

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---

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David R. Davies, Ph, D., Dean  
Honors College

## **Abstract**

This simple, quantitative study was carried out on 18, first-year, CRNA students to determine if humor could act as a buffer for some of his or her perceived stress. Before an impending final exam, when stress levels would most likely be at their highest, the students were broken into three groups: a control group, a non-humorous group, and a humorous group. The students in the control group ranked their level of stress on a 0-10 scale without any other intervention. The other two groups watched a video clip, either humorous or non-humorous, while ranking their perceived stress on a scale of 0-10. The group that watched the humorous film had a decrease of 43.9% in perceived stress vs. the non-humorous film group who had a decrease of 0%. The t-critical value was computed as  $\pm 2.571$  and the t statistic as 3.37, demonstrating the significant difference in a students stress level before and after he or she watched the humorous film. This change in perceived stress level implies that by adding forms of humor in the lives of high stress individuals, specifically CRNA students, could have positive implications by decreasing the amount of stress he or she senses.

Keywords: Humor, Buffer, Stress, CRNA, Student

## **Dedication**

Dr. Vickie Stuart:

Thank you for your selfless guidance and time commitment through out this process.

Your achievements, work ethic, and knowledge have truly been an inspiration.

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An extra special thank you to my mother. Mama, you are my rock and biggest fan. Without you, I would not continue to push myself to achieve the things I have. I hope that I can grow to become half the woman you are.

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## List of Abbreviations

CRNA	Certified Registered Nurse Anesthetists
MD	Mean of Differences
Mo	Null Hypothesis
NRS-11	Numeric Rating Scale
S <sub>D</sub>	Standard Deviation of Differences
S <sub>MD</sub>	Standard Deviation of the Means
S-IgA	Secretory IgA
USM	University of Southern Mississippi

## **Introduction**

The impact of stress on registered nurses entering a nurse anesthesia program can be detrimental and continued into their impending profession if not handled in an appropriate way. These individuals have most likely worked as an intensive care nurse for some time and in turn have probably experienced some form of stress that they found ways in which to deal with. But, the type of stress that they will undergo in the curriculum differs from what they are used to handling as an independent, working nurse.

There is a need for this type of research in Certified Registered Nursing Anesthetists (CRNA) programs. The majority of the research in this field does not focus on stress, but instead on things from cultural competency to attrition rates (Phillips, 2010). Therefore, there is an apparent need for this type of study.

### **I. Literature Review**

#### **Theories of Stress & Coping**

Many theories of stress and coping have been established to attempt to explain the effect it has on a person and the way he or she deals with it. Stress can be defined as an individual's adaptational response to change. A manageable amount of stress can be perceived as a positive thing or even seen as motivation. But, an amount of stress that exceeds a person's ability to adapt can lead to physical or emotional illness (Selye, 1956). He went on to describe stress as "something that affects people in an automatic, reflex-like way". His theory of stress is seen now as a cognitive approach. Lazarus attempted a more intricate definition of stress by explaining it through the cognitive appraisal system; that parts of the brain evaluate the environment and how it is perceived is a personal experience (Lazarus, 1966). His concept was based on appraisals, primary and secondary,

or how the individual appraised the situation; this prompted how he or she would cope with it. This is seen as the psychological approach to stress. Approaches that later came, resource theories of stress, bridge the two past theories together. These theories focus on what resources are used during a stressful event in order to maintain homeostasis. Hobfoll proposed the conservation of resources theory or that stress occurs in three types of situations: when there is a loss of resources, when resources are endangered, or when resources are invested without any following gain (Hobfoll, 1989). All of these theories of stress and coping are well known in their attempt to explain this phenomenon.

### **Stress & the CRNA**

The stress of nurses has been comparable to that of police officers; for that reason this occupation has been chosen for extensive research on the presence of stress (Arnold, Cooper, & Robertson, 1995). Lees and Ellis (1990) researched the idea that work-related stress can be due to a stressful environment. They determined that a stressful environment tends to involve five characteristics: “an unpredicted workload, the use of high-technology equipment, high levels of environmental stimuli, the possibility of crisis occurring, and frequent needs assessment of priorities”. A hospital operating room, where a CRNA would be working, meets all of these five criteria of a “stressful environment”. With the presence of stress evident in studies, it has spawned further research on the effect this has on practicing nurse anesthesia providers.

With the presence of stress in CRNAs, it raises the question on how these individuals handle this personally. According to Tyler & Gushway (1992), there was a positive relationship between work stress and subjective perceptions of mental distress. However, additional research has shown that the environment nurses practice in expect

them not to show these signs of stress (Marshall, 1980, p. 12). This inability of nurses to express their stress and in turn deal with it can lead to chronic stress. Chronic stress is insidious and the effect of it is much harsher than that of acute stress. Chronic stress uses up the personal resources, both mental and physical, than an individual has. This can depletion of resources can lead to illness such as heart attack and stroke to substance abuse (Chipas & McKenna, 2011). These effects of stress play a role on a CRNA's ability to care for not only themselves, but also their patients. In order to deal with this stress, nurse anesthetist must find ways to adapt.

Coping with stress is something that humans have been faced with for centuries and is where the ever-popular term of "fight or flight" originated; for nurse anesthetist, neither of these options is feasible. For this reason, other ways of coping have been investigated. Past research, explored the idea of increased job satisfaction as a buffer for stress in nurses, but the results did not depict a strong evidence for this (Tyler & Gushway, 1995). Other research has shown that nurses deal with the pressure of hiding their stress by utilizing avoidance and escape forms of coping, as well as humor (Marshall, 1980). Healy and McKay (1999) further investigated this claim of humor as a buffer for stress in nurses and found that "no main or buffering effects were found for humor coping upon the relationship between stress and mood disturbances". These researchers stated there were further research implications for humor in different situational factors, such as universities. These researchers suggested this based on Safranek & Schill's hypothesis that "it may be that humor is useful in buffering the effects of stress for university students but is not effective for nurses dealing with work-

related stressors” (1982). The lack of research in the use of humor as a coping mechanism for stress in students depicts the need of this study.

### **Stress & the CRNA student**

The presence of stress in nurse anesthesia students is well documented. In a comparison study of CRNA students to practicing nurse anesthetist, students reported a higher incidence of stress compared to those licensed (Kendrick, 2000). Furthermore, a study conducted in 1999, not only established that CRNA students were experience stress but that 79% of the 1,504 students involved in this research project were in the major life crisis category; a major life crisis as identified in this study are at increased risk for experiencing illness, injury, etc. (Perez & Carroll-Perez). In 2010, a study was conducted to see if the glucocorticoids,  $\alpha$ -amylase, a hormone released by the adrenal cortex in prolonged stress, were present in the saliva of CRNA students during simulation training. The researchers found this hormone in the saliva of the students during simulation and therefore concluded that at least acute stress is present in the nurse anesthetist student (McKay et al). The chief complaint of stress experienced by nurse anesthetist students was identified as information overload (Perez & Carroll-Perez, 1999). These students are then being tested on this abundant amount of information, probably increasing the amount of stress. The presence of stress is evident in the CRNA student and in turn must have an effect on them.

The effects of stress on CRNA students have been a focus of much research. According to Kendrick, her study found that CRNA students experiencing stress had problems with starting relationships, maintaining the already established relationships, and difficulty handling the expectations of their faculty and instructors (2000). It has also

been widely accepted that high levels of distress in the years of education could lead to impairment in the actually practicing years of a profession (Beck & Srivastava, 1991). Perez & Carroll-Perez agreed with these findings in their research, stating that research findings of high levels of stress correlated with a decrease in clinical and academic performance of the student (1999). With the presence of stress and the effect on the CRNA student it is suspected that there must be forms of coping strategies as well.

### **Coping strategies**

Though stress in the CRNA student has been researched, the coping strategies for CRNA students have been poorly investigated. According to Kless (1989), stress reduction strategies for students have not been studied sufficiently and even less is known about how they deal with this stress. He also stated that the faculty of CRNA schools must understand the effect of stress on the students' learning processes and how it could impact them as emerging nurse anesthesia care providers. Furthermore, McKay, Buen, Bohan, and Maye stated that further research on acute stress could lead to the development of strategies to intervene early in the lives of these students (2010). As Bette Wildgust, CRNA, MS, stated, "efforts to learn new adaptive mechanisms for coping with stress are the responsibility of both students and faculty" (1986). Coping strategies are a necessity for these students under these conditions and the need for it is evident.

### **Humor & Stress**

The use of humor as a buffer for stress has been researched in different realms of health care professions. This theory began with Martin and Lefcourt in 1983. These researchers found that if an individual utilized high levels of humor, it effectively "insulated subjects from the deleterious effects of negative stress" (Martin & Lefcourt,

1983). Research done by Keller (1990) found that emergency room nurses effectively used humor to prevent burnout because of the constant exposure to mutilation, death, pain and suffering, etc. Although, another study by Healey & McKay (1999) found that nurses that used humor more to cope had higher levels of mood disturbances. These researchers believed that these results might have been due to the sample difference and the context. They believed that if this study would have been done on university students, that there would have been a different outcome; “It may be that humor is useful in buffering the effects of stress for university students but it is not effective for nurses dealing with work-related stressors...the lack of any findings for humor coping strategies as either a stable coping style or a moderator has research implications” (Healey & McKay, 1999). A study by Lambert and Lambert looked at S-IgA levels, a part of the humoral immune system secreted in saliva, of fifth-graders before and after they watched a humorous film. The results from this study showed that the humorous group had less S-IgA levels, or less stress, than the non-humorous group. Research thus far has not evaluated whether these same results would occur in a self-evaluation of stress in college students, specifically those enrolled in a CRNA program (1994). The lack of research on coping strategies for students paired with the preexisting research suggesting implications of humor as a tool for nurse anesthetist students fueled the design of this project.

## **II. Methodology**

### **Purpose**

The research question that this study sought to question was “Can humor buffer the stress experienced by CRNA students?” After approval by the institutional review board of the University of Southern Mississippi, a simple experiment study was carried



out on a group of CRNA students in the universities' doctoral program. The aim of this study was to evaluate if humor, experienced by watching an amusing film, could buffer the effect of stress due to an impending test.

### **Sample Selection**

A convenience sample of eighteen, first-year, USM nurse anesthesia students in the doctoral program volunteered to participate in this study. Each student has at least received a bachelorette degree in nursing and has completed a minimum of one year as an intensive care registered nurse. The students were selected based on convenience and their willingness to participate.

### **Instrument**

This study utilized a single-question questionnaire in the evaluation of stress. The questionnaire consisted of a self-evaluation of stress measured by a NRS-11 scale with zero being no stress, five being moderate stress, and ten being severe stress.

### **Design**

The study utilized a quantitative, single question survey approach that employed a between-group design. This study complements a previous experiment completed by Lambert and Lambert involving IgA levels in fifth-graders that watched humorous and non-humorous films. The purpose of using this statistical between-group design is to make a comparison between the two groups, humorous and non-humorous group, and to show the relationship of the student's perceived stress. The students were split into three groups and each administered the same self-evaluation of stress survey. There was an independent and dependent variable in this experiment; the dependent variable was the

amount of stress experienced by the student. The independent variables were the humorous and non-humorous film clips.

### **Procedure**

The students were split into three groups: a control group, a humorous video group, and a non-humorous video group. There were 6 in the humorous group, 5 in the non-humorous group, and 7 in the control group. The students in the control group took the questionnaire to assess their level of stress and then took the test as planned without watching any type of video. The humorous video group watched a short, 4-minute clip of the “Funniest Game Show Answers”. The non-humorous video group watched a 4-minute informative video on the “Flight of a Humming Bird”. Each of the groups that watched a video was assessed on their level of stress with the questionnaire and then again after watching the video. The students were not allowed to confer while answering the stress questionnaire nor see what other participants were answering. The primary researcher, in person, collected data from the surveys on the day of the experiment by means of paper and pen. Confidentiality of the participant’s responses was maintained. The questionnaire results and any information containing the identity of the applicants were destroyed after analysis.

### **Analysis**

Data was transcribed by utilizing a repeated-measures analysis of variance in comparing the perceived stress level before and after the humorous group watched their clip. This type of statistical analysis tests hypotheses while considering the differences of the means in a within a study (Hertzog & Rovine, 1985). Also, the mean was calculated

for the humorous group before and after the film. The average perceived stress of the control group was calculated to depict the amount of stress experienced by the CRNA students without any time of intervention.

### III. Results and Discussion

Humorous Video Group Perceived Stress Level 0-10 Scale			Non-Humorous Video Group Perceived Stress Level 0-10 Scale			Control Group Perceived Stress Level 0-10 Scale	
	Before Film	After Film		Before Film	After Film		
Student 1	7	5				Student 1	10
Student 2	0	0	Student 1	10	10	Student 2	4
Student 3	4	1	Student 2	10	10	Student 3	7
Student 4	10	4	Student 3	7	7	Student 4	7
Student 5	10	8	Student 4	8	8	Student 5	8
Student 6	10	5	Student 5	4	4	Student 6	7
						Student 7	8

Table 1: Results Table

#### Statistical Results

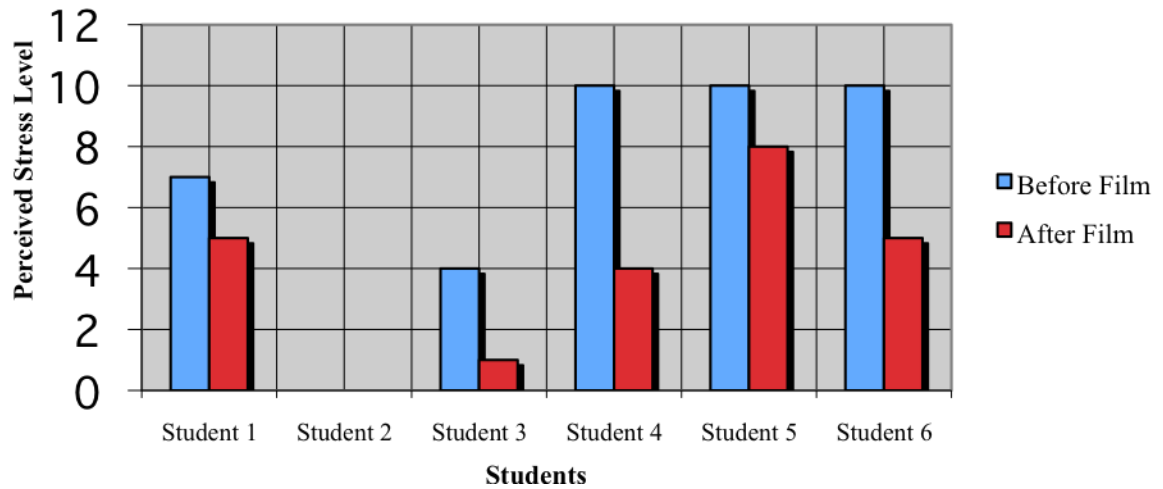
According to the repeated measures analysis, there is a significant difference in a student's stress level before and after he or she watches a humorous film. The alpha level, or level of significance, that was used for this analysis was 0.05 or 95% ( $\alpha=0.05$ ). The alpha level generated a t critical, the value of t necessary to be significant, as  $\pm 2.571$ . The standard deviation of the difference in the before and after humor perceived stress levels of the humorous film group was 2.19 ( $S_D=2.19$ ). Using the  $S_D$ , the standard deviation of the means, the  $S_{MD}$ , was computed by dividing the  $S_D$  by the square root of the mean, 6.

The  $S_{MD}$  was computed as 0.89 ( $S_{MD}= 0.89$ ). By utilizing the mean of the differences,  $MD=3$ , subtracting it by the  $M_0=0$ , and dividing this value by the  $S_D$ , the t statistic was found. The t statistic was computed as 3.37; because this value is greater than the t critical,  $\pm 2.571$ , this proves that the difference seen in the change of stress level in the humorous group before and after watching the video clip is significant. See Appendix

### **Amount of Stress**

When evaluating the data from the control group, the average amount of stress experienced by the CRNA students of the University of Southern Mississippi without any kind of intervention is 7.29 on a scale of 0-10. The mean of the humorous group before watching the film was 6.83 and after watching the film it was 3.83. This was a decrease of three on a ten-point scale. The results from distributing this survey with the video interventions revealed that the humorous video group had a 43.9% decrease overall in their perceived level of stress versus a 0% decrease overall in the perceived stress level of the non-humorous film group. Graph 1 depicts the change in the amount of perceived stress in the humorous film group before and after viewing the humorous film.

## Humorous Film Group



Graph 1: Humorous Group Stress Level

### Impact of Humor

In evaluating the non-humorous video group, there is no change seen in any of the participants before or after watching the humming-bird documentary. Therefore, there was no significant difference at all in stress levels in the non-humorous group. Because there was no change, this signifies that it is not the enjoyment of watching any time of film that decreases stress, but the type of film, particularly a humorous genre, that can make a difference. These results have a significant impact on scholarly literature because, to the researcher's knowledge, this type of study has not been performed before on students in a CRNA program.

### IV. Conclusion & Summary

The goals of this study were to identify if humor could buffer the impact of stress experienced by the CRNA students of the University of Southern Mississippi. The data after analysis showed that there is a significant amount of stress experienced by the

students of this program and that entertainment in the form of humor could have a positive effect in decreasing this. Instructors and students involved in CRNA programs could utilize this information in order to buffer the negative effects experienced by the perception of stress.

### **Limitations of Study**

This study was limited to a single survey in one program and therefore cannot be generalized to all CRNA programs or students enrolled. The effect of this group being the first CRNA class in a new program must also be considered. These individuals could be experiencing more stress than those in an established program based on instructors and administrators still figuring out what works best. Future studies may want to take these limitations into consideration when administering a similar survey. Different designs could include multi-state, multi-program, or programs that have been established for many years.

The data derived from this study could have been affected by it being a self-assessment, single questionnaire survey. Future studies may consider having a multi-question survey that asks questions in regard to factors that would determine the students is experiencing stress (i.e. signs and symptoms) verses asking the students to rate their own stress level on a scale of zero to ten. These factors must be considered when identifying how much reliance can be placed on the data derived from this study.

Future research involving stress levels and humorous coping strategies may consider allowing students to watch the clips at home. In other words, having the students come to the place where they take exams, consequently where it is presumed their level of stress is the highest, may have affected the results. The researcher chose to have them

take it at the university in order to ensure the environment was not affected by outside variables. Having the students watch the film at home would have also given them the opportunity to take it alone and not in a group; the fact that the students had these interventions done to them in a groups could have affected the data. Both of these alternatives should be taken into consideration in future studies.

### **Implications for Nursing**

The findings from this study provide pertinent information for both nursing instructors and nursing students. The simple act of using humor could have a positive impact on the lives of those attending CRNA School and act as a coping mechanism for when he or she enters the field. In the lives of those who are overcome by so much stress, the knowledge of knowing that by watching a short-video clip such as the “Funniest Game Show Answers” could decrease these negative effects is pertinent information.

Nursing instructors could use the information from this study as a tool for their teaching methods. A professor could start a clinical evaluation, such as starting an IV, with a short video to ease the tension of the students. The teacher might also consider putting a joke at the beginning of each examination to remind the students to calm down. According to this study, these are simple interventions taken by instructors that could really make a difference in the outcome and performance of their students.

The students enrolled in CRNA programs could take an active role in decreasing the stress in his or her life by incorporation comedy into his or her life when the symptoms of stress begin. He or she could take a few minute study breaks to watch one of the top YouTube clips or sign up for a daily joke to be sent to their email. Based on the

data interrupted in this study, these quick and easy interventions could have results that may be significant.

### **Recommendations**

Other researchers in the future interested in coping mechanisms of stress involving humor could improve this study by increasing the amount of participants. Future investigators could administer a survey electronically to many different CRNA programs across the US to minimize the limitations of this study only involving one school in one state. This would give a broader scope of data that could decrease the chance of characteristics of the individuals in the program instead of the aspect of humor skewing the results.

Another change for future research in this area would be the type of humor administered. There are implications for future studies to test if reading a joke or a humorous situation. Also, the type of video clip could be changed instead of a mix of funny game show answers, would it make a difference if the class were listening to a comedian? These are changes to be considered if this area is going to be studied more for the implication of humor in the classroom setting to decrease a student's perceived stress level.



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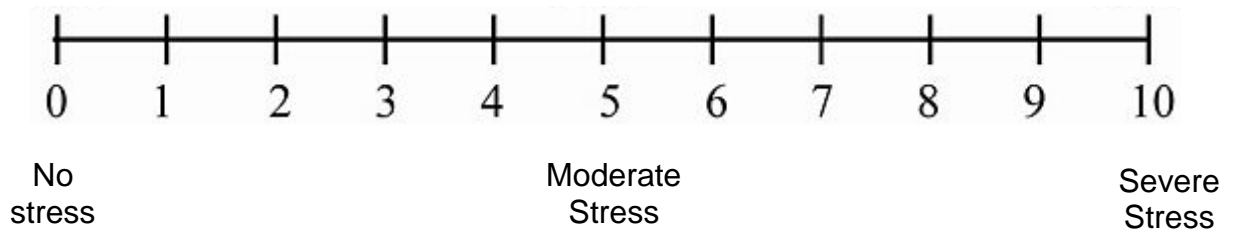
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## Appendices

### Appendix A

#### Level of Perceived Stress



## Appendix B

### Null Hypothesis: Repeated Measures

Student	Before	After	Difference (Before- After)
1	7	5	2
2	0	0	0
3	4	1	3
4	10	4	6
5	10	8	2
6	10	5	5
			$\Sigma D = 18$ $MD = 3$

#### Step 1

- $H_0 = \mu_D = 0$ 
  - Watching humorous films has no affect on stress level
- $H_A = \mu_D \neq 0$ 
  - Watching humorous film has an affect on stress level

#### Step 2

- $\alpha = 0.05$ ,  $df = 5$ ,  $t_{critical} = \pm 2.571$

#### Step 3

$$SS_D = \Sigma D^2 - (\Sigma D)^2 / n \quad SS_D = 78 - (324/6) \quad SS_D = 78 - 54 \quad SS_D = 24$$

$$S_D = \sqrt{SS_D / n} \quad S_D = 2.19$$

$$S_{MD} = S_D / \sqrt{n} \quad S_{MD} = 0.89$$

#### Step 4

$$t = S_{MD} / t = 3.37$$

Reject Null hypothesis-- There is significant difference in a students stress level before and after they watch a humorous film

**Appendix C**

**THE UNIVERSITY OF SOUTHERN MISSISSIPPI  
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT**

Participant's Name \_\_\_\_\_

Consent is hereby given to participate in the research project entitled Humor as a Buffer for Stress in Nurse Anesthesia Students. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained by the researcher, Kayla Forbis and advisor, Vickie Stuart. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions regarding the research and procedures was given. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to Kayla Forbis at 228-861-3765. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

\_\_\_\_\_  
Signature of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of person explaining the study

\_\_\_\_\_  
Date

## Appendix D



### **INSTITUTIONAL REVIEW BOARD**

118 College Drive #5116 | Hattiesburg, MS 39406-0001

Phone: 601.266.5997 | Fax: 601.266.4377 | [www.usm.edu/research/institutional-review-board](http://www.usm.edu/research/institutional-review-board)

### **NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.  
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **13111802**

PROJECT TITLE: **Humor as a Buffer for Stress in Nurse Anesthesia Students**

PROJECT TYPE: **New Project**

RESEARCHER(S): **Kayla Forbis**

COLLEGE/DIVISION: **College of Nursing**

DEPARTMENT: **Nursing**

FUNDING AGENCY/SPONSOR: **N/A**

IRB COMMITTEE ACTION: **Expedited Review Approval**

PERIOD OF APPROVAL: **11/25/2013 to 11/24/2014**

**Lawrence A. Hosman, Ph.D.**  
**Institutional Review Board**