

**EFFECT OF PSYCHOLOGICAL INOCULATION ON ANXIETY AMONG  
UNDERGRADUATE NURSING STUDENTS IN THE DEPARTMENT OF NURSING,  
UNIVERSITY OF PORT HARCOURT**

By

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**Abstract**

*This research was carried out to ascertain the effect of Psychological Inoculation on anxiety among undergraduate nursing students in the department of nursing, University of Port Harcourt. Two objectives, 2 research questions and 2 corresponding hypotheses were formulated to guide this research. The instrument for gathering of data was a modified or adapted "Student Nurses Anxiety Inventory" (SNAI) from Beck Anxiety Inventory (BAI) and Mood Over Mind Anxiety Inventory (MOMAI). 319 undergraduate Nurses representing 100% of the population were used and 228 of them (subjects) indicated positive of anxiety, out of which 95 student nurses of 100-200 levels formed the control Group, 80 student nurses of 300 – 400 levels formed Experimental Group 1. Descriptive statistics of mean and standard deviation were used to answer the research questions while One Way Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA) were used to test the null hypotheses at 0.05 level of significance. Results of the study indicated significant high level of anxiety among the undergraduate nursing students of university of Port Harcourt, with significant effect of psychological inoculation on anxiety reduction of Undergraduate Nurses with anxiety. It was recommended among others that curriculum planner, health teachers and lecturers should expose new students' anxiety reduction orientation.*

**Keywords:** Psychological Inoculation and Anxiety, Undergraduate, Nursing Students

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**Introduction**

Anxiety is seen in psychology as a state of panic, fright, fear, tension etc in the life of an individual probably because of past, immediate or future challenges that bedevils one's emotion. Anxiety can be normal or abnormal. Anxiety is normal when it is required for a particular task or assignment to be completed without causing serious or no emotional troubles or traumas. Anxiety becomes excessive when it brings about unpleasant experience that most people attempt to reduce its aversive state. Macmillan (2016) excessive anxiety is associated with difficulty falling asleep or staying asleep. Excessive anxiety is an anxiety that disrupt the normal functional of human beings both in the workplace and in the personal life. The techniques they employ depend on their previous experiences with anxiety and the success or failure of the technique they imbibed in the past. To escape from the unpleasant situation is one of the most common reactions to anxiety, and to avoid coming in contact with it where possible. For example, nurses who experience excessive anxiety at the accident and emergency units or the operating theatre often are posted to the wards to care for in-patients where blood and scaring injuries are not usually managed.

Escape and avoidance behaviour are achievable in the short-term. It is true that anxiety is not a bad thing but high level of it interferes with concentration and memory, which are critical for academic success. However, without any worry most students would lack the motivation to study for exams, write papers and do home works. Psychological inoculation is when a person tries to convince another (and/or) themselves to strengthen their particular belief(s) by orientating them of the persistent threat out there of them losing their

belief. Thus putting the person(s) on-guard to defend or attack the threats. A structured interaction (usually verbal) between a trained professional and a client with a problem, that trains clients to cope with worry, anxiety and stress situations by learning more functional patterns of self-talk. It is a self-talk or the things that people tell themselves about anxious situations which can be habitual.

The purpose of psychological inoculation is to prepare client (student nurses) for future anxieties by first teaching them about the nature of anxiety, then training them to cope with it and then exposing them to it so as to try and help the cause of anxiety. Psychological inoculation works on the basis of turning the students nurses own thought patterns into a “vaccine” against stress – induced anxiety. The student nurses develop more realistic views of stress, anxiety and worry- producing situations in their lives and then are able to relax away tension by effectively thinking useful coping thoughts rather than negative interpretations of situations.

### **Steps in Inoculation Therapy**

**First Step:** To develop a list of anxiety-situations in order of priority. Once anxiety-producing situations are identified, the client is taught to curb the anxiety-provoking thoughts and replace them with more positive coping thoughts.

**Second Step:** Once these new thoughts are learned, they can be tried out in real situations. The time it takes to replace old habitual thoughts with new thoughts can vary depending on the amount of practice and commitment to make this change (Huffman, 2002).

### **Types of Psychological Inoculation**

The followings are a group of psychological inoculation therapies specifically for the anxious undergraduate nurses;

- i. Relaxation or progressive relaxation
- ii. Visualization and imagery
- iii. Diaphragmatic breathing
- iv. Meditation

**Relaxation or Progressive Relaxation:** This anxiety reduction technique is based on the premise that anxiety, worry and stress are associated with muscular tension, when one achieves deep muscle relaxation, muscular tension is reduced and this relaxed state is incompatible with anxiety.

Relaxation has been used to help women during child birth and people with chronic pain. Relaxation has also been used to treat muscular tension, muscular spasms, neck and back pain, and to decrease respiration rate and perspiration. Furthermore, relaxation can help with fatigue, depression, insomnia, increase bowel motility, hypertension, stuttering and mild phobias.

Engaging in progressive relaxation helps to improve the person’s energy level, depression and anxiety, as well as a person’s ability to retrieve information from memory. In progressive relaxation, the students were instructed to tighten and then relax various muscles. The students either lied down or sat in chairs with their heads supported. Each muscle group (such as facial muscles, arm muscles, leg muscles, etc) were tensed for five to seven seconds and then relaxed for twenty to thirty seconds. This helped the students recognized the feeling of tensed and relaxed muscles. The entire procedure was repeated two to five times, and usually started with the facial muscles and more downward to the foot muscles.

The relaxation technique could also be used with chronic pain and techniques focus the client’s attention on breathing and relaxing muscles as a distraction from the pain. For mastery, relaxation exercises are typically practiced everyday for one to two weeks. A person may engage in these exercises anywhere from fifteen minutes to an hour per session. Sometimes, the client may record and replay instructions on tightening and relaxing various muscle groups until the person becomes familiar with the muscle groups and establishes a routine in which he or she is (Davis, Mckay & Eshelman, 2000).

**Visualization and Imagery:** Visualization and imagery techniques aided the students in making a mental image of what they wanted to accomplish. For example, a person might wish to release anxiety or create a relaxing image to escape momentarily from a stressful event. These techniques have been helpful in treating general or specific anxiety, headaches, muscular tension and spasms, reducing or eliminating pain, in the recovery from illnesses and injuries. Visualization and imagery techniques have also been used by athletes to help them achieve peak performance in the track and field events.

The fundamental reason behind visualization and imagery is that one's thoughts become reality. For example, if one thinks anxiously, then he or she will become tense. The principles behind visualization and imagery maintain that the respondent can use his or her imagination to be persuaded to feel a certain way or do anything that is physically to do. There are three basic types of visualization;

- programmed visualization,
- receptive visualization, and
- guided visualization.

In programmed visualization, the students created a vivid image including, sight, smell, sound, and taste. The student then imagined a goal he or she wanted to attain or some type of healing that was desired. In the visualization, the goal is achieved, or the healing occurred. The idea underlying receptive and guided visualization was that the student were seeking for answers to life questions or resolutions is within them, but is quiet, unconscious or inaccessible to them because of fear, stress, anxiety or doubt. These techniques are similar to dream interpretation and free association techniques in psychoanalysis or psychodynamic therapy. For example, an individual wonders whether he should remain in his current position. T

The goal of these techniques is to enable the person to relax and focus enough to receive that message, so that she can do what needs to be done. In receptive visualization, the person creates a peaceful scene in his or her mind. For example, the client might imagine being at the beach. After the image is formed, the person asks a question and waits for the answer. To continue the example above, the client imagines a beach and he asks himself the question "should I have my job?" He continues to relax and remain in the scene, and he may "hear" an answer blowing in the breeze of "see" a boat sailing away, which may be symbolic of his wish to leave his job.

In guided visualization the client creates a very vivid image, as in programmed visualization but omits some important elements. The client then waits for the sub-conscious to supply the missing pieces. For example, a computer programmer may wonder if he should stay in his present job or return to school for an advanced degree. In guided visualization, she may visualize her cubicle at work, the picture on her desk, the feel of her desk chair, the sounds of people outside the cubicle typing and talking, but she will omit an element from the scene. In this case, she may omit her computer. She will then wait her sub-conscious uses to replace her computer. This woman may find in her visualization that her computer has been replaced by books, which may represent her desire to go back to school.

Visualization and imagery exercises work best when a person is relaxed. These techniques are typically practiced two or three times a day for ten to twenty minutes at a time. How quickly a person sees results can vary. Most times people report immediate symptom relief. However, the goals a person sets to himself or herself, the power of the person's imagination, and the willingness to practice can all influence how rapidly benefits can be obtained. Some people find it helpful to tape record and replay detailed descriptions of what they want to visualize or imagine.

**Diaphragmatic Breathing:** This technique involves teaching the person to breathe deeply and inhale sufficient amount of air to help the person's blood be oxygenated properly. In this technique the diaphragm which is located low in the chest, and at the boundary of the abdomen is involved. Diaphragmatic breathing

has been found to help people reduce anxiety, depression, irritability, muscular tension, circulation, fatigue, labour pain, and post operative chest complication.

Diaphragmatic breathing can typically be learned in minutes: however, the benefits may not be recognized until after several weeks of persistent practice. This deep breathing exercise is done often with the client lying down on a rug or blanket, with his legs slightly apart, arms at the sides, not touching the body and the eyes closed. Attention is brought to the client's breathing by placing one hand on the chest and the other hand on the abdomen. The client is then instructed to inhale through the nose and exhale through the mouth.

Each time the client breathes in, he or she should try to breathe deeper. This should be practiced for a minimum of five minutes once or twice a day. Over a few weeks of practice, the time or period engaged in diaphragmatic breathing should be increased to twenty minutes and the activity can be performed while lying down, sitting or standing.

Sufficient amount of air reach the lungs, which purifies and oxygenates the blood, removes waste products from the blood and nourishes the organs and tissues (Huffman, 2002).

**Meditation:** In this technique the client is trained to focus his or her attention on one thing at a time. Meditation has been used to high level anxiety, hypertension, heart diseases, stroke, migraine headache, immunizable diseases, obsessive thinking, attention problems, stress, depression, irritability and aggression.

### Forms of Mediation

There are various forms of meditation. Depending on the type used, the person focuses his or her attention in slightly different ways. For example, *Zen meditation* focuses on breathing, whereas in *transcendental meditation*, the person makes a sound or says a mantra selected to keep all other images and problems from intruding on his or her thoughts. With practice, a person can reach a meditative state and obtain its benefits within a few minutes.

As clients learn to meditate, they discover often that **they** have some control over the thoughts that come to their minds, as opposed to feeling as though thoughts pop into their minds. Many people begin to recognize dysfunctional patterns of thoughts and perceptions that have influenced their lives. Additionally, many report a greater sense of stability. When a person meditates he or she often suppresses the activity of the sympathetic nervous system, that part of the nervous system that activates the body for emergencies. Meditation also reduces person's metabolic rate, heart and breathing rates.

### Statement of Problem

Excessive anxiety among nursing students makes them panic, fidget, and becomes nervous at the sight of blood, syringe and needles. This condition makes most of the nurses not to be committed to their profession as they are dreadful in participating in most of their practical exercise that goes on in the laboratories. Moreover, excessive anxiety may result to a dropout of an undergraduate student nurse from the programme.

In the process of their gaining clinical experiences some of them develop fear and excessive anxiety for the diseases witnessed on the wards, while others complained of the dreadful massive and bleeding wounds (sometimes with multiple fractures) at the emergency wards of the hospital. These they pointed out affect their health and academic performances significantly. Some of them have adjustment problems with their roommates in the hostels, who make noise and play music leisurely, but to the detriment of the student nurses whose programmes need intensive concentration with little or no leisure.

These students complained that they suffer from excessive anxiety due to psychological instability as a result of detects and demands of their profession. The researcher was bothered whether psychological inoculation has effect on excessive anxiety reduction among undergraduate nursing students in the Department of Nursing in University of Port Harcourt.

## **Aim and Objectives**

The aim of the study was to determine the effect of psychological inoculation on excessive anxiety reduction among undergraduate nursing students in the Department of Nursing, University of Port Harcourt. Specifically, the paper sought to:

- i. Examine the levels of excessive anxiety among the undergraduate nursing students in the Department of Nursing, University of Port Harcourt.
- ii. Determine the effect of psychological inoculation on excessive anxiety reduction among undergraduate nursing students in the Department of Nursing, University of Port Harcourt compared to their control.

## **Research Questions**

- i. What are the levels of excessive anxiety among undergraduate nursing students of the Dept. of Nursing, University of Port Harcourt?
- ii. What is the effect of psychological inoculation on excessive anxiety reduction among undergraduate Nursing Students of University of Port Harcourt compared to the control?

## **Hypotheses**

- i. There is no significant level of excessive anxiety among the undergraduate nursing students of the Dept. of Nursing, University of Port Harcourt.
- ii. There is no significant effect of psychological inoculation on excessive anxiety reduction among undergraduate nursing students of University of Port Harcourt compared to the control.

## **Methodology**

This study used the experimental design to examine the effect of psychological inoculation on anxiety among undergraduate nursing students in University of Port Harcourt. The population of the study included all students of the Department of Nursing Sciences (from 100 to 500 levels) at the time of carrying out this study, this includes the following:

U2016	100 level	50	
U2015	200 level	58	
U2014	300 level	65	
U2013	400 level	35	
U2012	500B level	49	
U2011	500A level	62	
<b>Sum of total students</b>		<b>=</b>	<b>319</b>

The sources of the information were obtained from the Head of Department and the lists from course representatives. As at the time of study there were 319 undergraduate student nurses in the Department of Nursing, Faculty of Clinical Sciences, University of Port Harcourt. The total population of 319 undergraduate student nurses was used for this study, representing 100% of the population, in order to exclude bias and intervening variables or factors that may arise from selection of sample (subjects) at period of experimentation. The entire 319 undergraduate nursing students were administered with the Student Nurses Anxiety Inventory and 228 respondents indicated positive out of which 96 of 100/ 200 levels of student nurses formed for the control group, 80 of 300/400 levels of students nurses formed experimental group 1 (for treatment with psychological inoculation)

The instrument used for data collection were modifications of Beck Anxiety Inventory (BAI) by Beck, Epstein, Brown and Steer (1988) and Mind Over Mood Anxiety Inventory (MOMAI) by Greenberger and Padesky (1995).

Beck Anxiety Inventory (BAI) is a scale of self-report measure of anxiety, while Mind Over Mood Anxiety Inventory (MOMAI) describes and measures how much the subjects experienced each symptom



over the period of experimentation. Both instruments are of the likert type that ranged from NA = 1, S = 2, F = 3 and MT = 4 for negatively skewed statements while positively skewed statement were scored in the reversed order. Section A contains the socio-demographic characteristics of respondents, and section B consists of the instrument for the filling or responding to the items and 42 items on Student Nurses Anxiety Inventory (spelling out symptoms and signs/manifestations of anxiety). Face and content validities of the instrument were ensured. The reliability of the instrument 0.75. Descriptive statistics of mean and standard deviation were used to answer the research questions while one way (ANOVA) Analysis of Variance and ANCOVA (Analysis of Covariance) with the help of SPSS (Special Package for Social Sciences) were used to test the null hypotheses at 0.05 level of significance.

## Results

**Research Question One:** What are the levels of anxiety among undergraduate nursing students of the Dept. of Nursing, University of Port Harcourt?

**Table 1a: Descriptive statistics of mean and standard deviation on the levels of anxiety among the three groups**

		<i>Exp group 2</i>		<i>Exp group 1</i>		<b>Control group</b>	
		$\bar{x}$	sd	$\bar{x}$	sd	$\bar{x}$	sd
1	Restlessness	2.94	0.80	3.10	0.59	3.30	0.77
2	Difficulty concentrating	2.96	0.82	3.06	0.79	3.29	0.65
3	Frequent or unnecessary worrying	2.87	0.95	3.03	0.95	3.16	0.86
4	Fretfulness (quick to startle)	3.21	0.75	3.18	0.85	3.41	0.79
5	Numbness or tingling sensation	3.40	0.85	3.25	0.80	3.75	0.46
6	Tension, aches, soreness of muscles	3.12	0.89	3.08	0.84	3.42	0.76
7	Scared of seeing blood	3.46	0.67	3.39	0.79	3.74	0.53
8	Dry mouth	3.33	0.76	3.30	0.72	3.77	0.47
9	Frequent urination	3.35	0.81	3.20	0.89	3.52	0.81
10	Nausea, diarrhea or stomach problem	3.31	0.73	3.06	0.89	3.67	0.59
11	Heart burn	3.52	0.67	3.28	0.87	3.66	0.61
12	Perspiration (Hot/cold sweats) not due to heat	3.31	0.81	3.26	0.83	3.60	0.66
13	Feeling faint	3.42	0.85	3.10	1.00	3.78	0.42
14	Feeling of choking	3.46	0.76	3.36	0.94	3.85	0.35
15	Terrified or afraid to go for ward work(s)	3.48	0.61	3.29	0.92	3.79	0.41
16	Unsteady/shaky	3.31	0.73	3.26	0.82	3.68	0.53
17	Palpitation (Pounding heart beat)	3.00	0.91	2.99	0.88	3.24	0.78
18	Dizziness or light headedness	3.23	0.81	2.86	0.92	3.45	0.66
19	Dysphagia (difficulty in swallowing)	3.69	0.61	3.54	0.84	3.89	0.35
20	Wobbling in legs (loss of balance)	3.44	0.73	3.26	0.85	3.77	0.49
21	Insomnia (trouble falling asleep or staying asleep)	3.54	0.61	2.14	0.82	3.51	0.73
22	Tachycardia (rapid breath)	3.62	0.72	3.23	0.83	3.80	0.61
23	Tachpnoea (shortness of breath)	3.48	0.75	3.25	1.04	3.84	0.44
24	Tremors ( hands trembling)	3.54	0.75	3.10	1.01	3.63	0.74
25	Dyspnoea (difficulty in breathing)	3.33	0.83	3.21	1.04	3.86	0.43
26	Facial acnes	3.59	0.53	3.33	0.91	3.42	0.78
27	Indigestion	3.25	0.93	3.36	0.75	3.65	0.58
28	Frequent thoughts of danger	3.25	0.93	3.16	0.72	3.28	0.85
29	Seeing myself unable to cope	3.29	0.75	3.16	0.79	3.47	0.75
30	Irritability	3.29	0.75	3.15	0.89	3.42	0.64
31	Easily tired to carry out assignments	3.38	0.57	3.01	0.88	3.54	0.65
32	Afraid to face examination(s)	3.33	0.81	2.84	0.93	3.48	0.71
33	Fear of uncertainty	2.87	0.82	2.78	0.89	3.25	0.81
34	Soliloquizing (self verbalization)	3.12	0.94	3.05	0.88	3.42	0.75
35	Unable to adjust	3.54	0.67	3.34	0.97	3.73	0.71
36	Having low back pain	3.09	0.91	3.00	0.93	3.53	0.77
37	Feeling worn out by increased academic work load.	2.69	0.94	2.46	0.89	2.95	0.89
38	Worried of being carrier of some of the diseases on the hospital wards.	2.87	0.89	2.79	0.89	3.21	0.97
39	Scared of night duties	3.13	0.93	2.98	0.99	3.56	0.79
40	Feeling keyed up or on edge	3.21	0.89	3.15	0.92	3.61	0.67
41	Flushes (hot flushes) or chills	3.54	0.69	3.06	0.99	3.86	0.37
42	Avoiding places I might be anxious	3.09	0.91	2.76	0.96	3.39	0.86
		3.28	0.78	3.09	0.87	3.55	0.65

Table 1a shows that the experimental group two, experimental group one and control group have aggregate mean values of 3.28, 3.09 and 3.56. The mean values are above the criterion mean value of 2.50 and there, the three groups possess a high level of anxiety.

### Hypothesis One

There is no significant level of anxiety among the undergraduate nursing students of the Dept. of Nursing, University of Port Harcourt.

**Table 1b: One Way Analysis of Variance on the Level of Anxiety Among Undergraduate Nursing Students in the Department of Nursing**

	Sum of Squares	Df	Mean Square	F	Sig.	Remarks
Between Groups	145636.699	4	36409.175	380.183	.000	Statistically significant
Within Groups	21356.178	223	95.768			
Total	166992.877	227				

Table 1b shows that the sum of square for between group and within groups are 145636.699 and 21356.178. The mean square for between and within groups are given as 36409.175 and 95.768 respectively. The degrees of freedom are given as 4 and 223. The calculated probability value of 0.000 is less than the critical probability value of 0.05.  $F_{4,223}$ ,  $P_{cal.} < P_{crit.}$  Therefore, the null hypothesis is rejected. By implication, there is a significant level of anxiety among the undergraduate nursing students of the Dept. of Nursing, University of Port Harcourt.

### Research Question Two

What is the effect of psychological inoculation on excessive anxiety reduction among undergraduate Nursing Students of University of Port Harcourt compared to the control?

**Table 2a: Mean Reduction on the Effect of Psychological Inoculation on Groups of Undergraduate Nursing Students of University of Port Harcourt With Anxiety**

Groups	N	Pre-test mean	SD	Post-test mean	SD	Mean reduction	Cohen's D	Effect size
Psychological inoculation	80	140.538	10.995	75.975	12.996	-64.563	5.36	0.94
Control group	96	142.750	13.920	144.906	12.996	2.156		

Above table 2a shows that there is reduction of mean gain in the psychological inoculation score by -64.563 when compared by the control group with an increased mean of 2.156. The result indicates that the psychological inoculation reduced the anxiety level of nursing student in the University of Port Harcourt from 140.538 to 75.975.

### Hypothesis Two

There is no significant effect of psychological inoculation among undergraduate nursing students with excessive anxiety of University of Port Harcourt compared to the control.

**Table 2b: Summary of Mean, Standard Deviation and Paired T-Test Calculations on Effect of Psychological Inoculation on the Groups of Undergraduate Nursing Students of University of Port Harcourt with Anxiety**

Test	N	Df	X	Sd	t-cal.	t-crit.	P-cal.	P-crit.	decision
Pre-test	80		140.538	10.995					Significant Positive effective
		158			33.92	1.96	.000	.05	
Post test	80		75.975	12.996					

Table 2b shows that the pretest has mean and standard deviation scores of 140.538 and 10.995 while the post test have mean and standard deviation scores of 75.975 and 12.996. There is a significant positive effect of

psychological inoculation on (among) the groups of undergraduate nursing students of University of Port Harcourt with anxiety.

### **Discussion of Findings**

#### **The level of anxiety among undergraduate nursing students of the Dept. of Nursing, University of Port Harcourt**

Based on the result of the information presented and analyzed on table 4.1 above, it is found out that year one students with highest mean value of 136.355 have the highest level of anxiety followed by year two students, year three students, and year four students. By implication, there is a significant level of severe anxiety among the undergraduate nursing students of the Dept. of Nursing, University of Port Harcourt. This result is simply on the assumption that new entrants into any profession must show a anxiety to a certain level that will call for attention of older ones or the help of their teachers. The researcher is not surprised on the finding of the study because the excessive anxiety of these students was according to the number of years they have spent in the school. This is in agreement with Smith (2014) who asserts that students (first year) who did not participate in the stimulation experience had more perceived anxiety and less confidence compared to students who did not participate.

#### **The effect of psychological inoculation on groups of undergraduate Nursing Students of University of Port Harcourt with anxiety**

From table 2a above, it shows that there is reduction of mean in the psychological inoculation score by - 64.563 when compared by the control group with an increased mean of 2.156. By implication, the psychological inoculation reduced the anxiety level of nursing student in the University of Port Harcourt from 140.538 to 75.975. This is in conformity with Hoffman (2002) who found that psychological inoculation is therapeutical to tension reduction. Structured interaction (usually verbal) between a trained professional and a client with a problem of excessive anxiety helps the clients to cope with worry, anxiety and stress situations. This is possible owing to fact that mere interaction with professionals with their profession advices is enough to encourage students with excessive anxiety to do away with such anomaly.

### **Conclusion**

Based on the findings of this study, it was concluded that psychological inoculation was able to reduce excessive anxiety among the undergraduate nursing students of the University of Port Harcourt.

### **Recommendations**

Based on the finding of the study, the following recommendations were made:

- i. Psychological guidance advice could contain the most helpful and relevant information for new students desiring to become trained and practicing nurses.
- ii. There is the need to educate student nurses on the realities of professional nursing, therefore if knowledge is power, then knowing their future life style at the initial period prepares them for the future without doubts.

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