THE EFFECT OF MUSIC RELAXATION VIDEO ON COLLEGE STUDENTS' ANXIETY AND PHYSICAL VITAL SIGNS

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BACKGROUND

- ANXIETY AFFECTS 40 MILLION ADULTS IN THE UNITED STATES AGE 18 AND OLDER.

- TREATMENT MODALITIES COST MORE THAN 42 BILLION, ALMOST ONE-THIRD OF THE NATION'S TOTAL MENTAL HEALTH BILL, A YEAR.

- IN THOSE COSTS, MORE THAN 22.84 BILLION ARE RELATED TO REPEATED USE OF HEALTH CARE SERVICES.

REFERENCE: ANXIETY AND DEPRESSION ASSOCIATION OF AMERICA. (2017). *ABOUT ADAA: FACTS & STATISTICS*. RETRIEVED FROM HTTPS://WWW.ADAA.ORG/ABOUT-ADAA/PRESS-ROOM/FACTS-STATISTICS

BACKGROUND

- ANXIETY IS THE MOST PREDOMINANT CLASS OF MENTAL ILLNESS.

- ANXIETY IS A REACTION TO THE STRESS.

- STRESS IS A STATE OF EMOTION AND MENTAL STRAINING THAT IS OFTEN AN INEVITABLE PART OF PEOPLE'S DAILY LIVES. WHILE IT CAN BE AN EXCELLENT BOOSTER IN ONE'S CONCENTRATION AND MOTIVATION, IT IS ONLY BENEFICIAL FOR A SHORT TERM.

- LONG-TERM MENTAL STRESS PUTS THE HUMAN BODY IN CONTINUOUS TENSION AND MAY DRASTICALLY INFLUENCE AN INDIVIDUAL'S DAILY LIFE NEGATIVELY ALONG WITH THE POTENTIAL OF DEVELOPING PSYCHOLOGICAL PROBLEMS SUCH AS ANXIETY AND DEPRESSION AND PHYSICAL HEALTH PROBLEMS SUCH AS HYPERTENSION AND CARDIOVASCULAR DISEASES

BACKGROUND

- COLLEGE STUDENTS DEAL WITH ASSORTMENT OF STRESSES FROM ACADEMIC, FINANCIAL, INDIVIDUAL, AND SOCIAL PRESSURES

- AMERICAN COLLEGE HEALTH ASSOCIATION INDICATED

---ABOUT 21.8% OF STUDENTS REPORTED ANXIETY

---ABOUT 14.3% OF STUDENTS WITHIN LAST 12 MONTHS OF THE 2014 SURVEY WERE DIAGNOSED AND TREATED BY A PROFESSIONAL.

BACKGROUND

- NATIONAL LIBRARY OF MEDICINE INDICATED

---LONG-TERM MENTAL STRESS PUTS THE HUMAN BODY CONSTANTLY ON EDGE AND IN THE FIGHT-OR-FLIGHT MODE

---IMPLICATED AS A RISK FACTOR FOR A VARIETY OF HEALTH COMPLICATIONS

---SUCH AS HYPERTENSION AND OTHER CARDIOVASCULAR ISSUES, DIABETES MELLITUS, OBESITY, DEPRESSION, ANXIETY AND MORE

BENEFITS OF MUSIC

- RESISTING FEELINGS OF SEPARATION, LONELINESS, AND DISCOURAGEMENT

- NURTURING FEELINGS OF UNITY, BELONGING, COURAGE, AND HOPE

TYPES OF MUSIC

- CALM AND SOOTHING MUSIC APPEARS TO REDUCE APPREHENSION AND DECREASE ANXIETY

- BEATS OF 60-80 PER MINUTES, THE SAME AS THE ADULT HUMAN HEART RATE, ARE CONSIDERED SOOTHING

TYPES OF MUSIC

- SLOW STABLE RHYTHM, LOW-FREQUENCY TONES, ORCHESTRAL EFFECTS AND RELAXING MELODIES

- LISTENING TO MUSIC FOR 20-30 MINUTES INTERVAL WITHOUT INTERRUPTIONS ARE SUGGESTED

BENEFITS OF VISUAL IMAGES

- HEALING EFFECTS MAY BE ACHIEVED BY A VARIETY OF ART ACTIVITIES OTHER THAN LISTENING TO MUSIC

- THE VISUAL IMAGE SUCH AS BEAUTIFUL SOOTHING, AND PEACEFUL PICTURES AND IMAGES MAY ALERTS PARASYMPATHETIC AROUSAL, WHICH MAY CHANGE THE PHYSIOLOGICAL AND EMOTIONAL STATUS FROM HIGHLY STRESSFUL TO DEEPLY RELAXED BY SLOWING THE HEART BEAT, DROPPING THE BLOOD PRESSURE AND DECREASING THE RESPIRATORY RATE.

BENEFITS OF COMBINING MUSIC AND VISUAL EFFECTS

- **ART: PEACEFUL SCENE**
- HEALING EFFECTS
- RELAXATION
- DECREASING ANXIETY
- **MUSIC & ART**
- STRONG MOOD EFFECTS
- REDUCE SEDATIVE MEDICATION

RATIONALE FOR STUDY

- MUSIC & ART: NONPHARMACOLOGICAL

- SAFE

- LOW COST

- MINIMAL RISK OF HARMFUL SIDE EFFECTS

RESEARCH DESIGN

- A RANDOMIZED, TWO GROUPS DESIGN
- **COLLEGE STUDENTS WERE RANDOMIZED TO EXPERIMENTAL OR CONTROL GROUP FOR 30 MINUTES TRIAL**
- INDEPENDENT VARIABLE:
- **30 MINUTES MUSIC RELAXATION VIDEO (MRV)**
- DEPENDENT VARIABLE:
- **PULSE RATE**
- **RESPIRATION RATE**
- **BLOOD PRESSURE**
- **ANXIETY SCORES**

SETTING

- A EXERCISE PHYSIOLOGY LAB IN AN UNIVERSITY IN SOUTHWESTERN OF THE UNITED STATES

SAMPLE

- 70 PARTICIPANTS IN EACH GROUP WITH A TOTAL OF 140 PARTICIPANTS WAS EXPECTED.

INCLUSION

- (A) CURRENTLY ENROLLED IN LOCAL COLLEGE AND TAKEN A MINIMUM OF 12 CREDITS HOURS,

- (B) MINIMUM AGE OF 18 YEARS OLD;

- (C) ABILITY TO READ, COMPREHEND AND FOLLOW ORAL AND WRITTEN INSTRUCTIONS IN ENGLISH;

- (D) ABILITY TO VIEW AND LISTEN TO A 30-MINUTE MRV,

- (E) NO DOCUMENTED EVIDENCE OF ANY HEARING OR UNCORRECTED VISION DEFICIT.

METHODOLOGY

- A RANDOMIZED CONTROLLED TRIAL WAS USED TO PLACE PARTICIPANTS IN TWO GROUPS. THE INDEPENDENT VARIABLE IS THE MRV. THE DEPENDENT VARIABLES ARE THE BP, P, R AND ANXIETY.

HYPOTHESES

- THE HYPOTHESIS WAS THAT COLLEGE STUDENTS AGED 18 AND OLDER WHO WERE RANDOMIZED TO PARTICIPATE IN VIEWING A 30-MINUTE MUSIC RELAXATION VIDEO WILL HAVE (A) LOWER BP, PULSES, RESPIRATION RATES AND (B) LOWER ANXIETY SCORES THAN STUDENTS WHO DID NOT RECEIVE MRV.

INSTRUMENTS

- THE MRV WAS PREVIOUSLY SELECTED BY A CERTIFIED MUSIC THERAPIST FOR ANOTHER RESEARCH STUDY THAT DEMONSTRATED EFFECT OF REDUCING ANXIETY (CHI, 2009).

- A DINAMAP™ PROCARE MONITOR WAS USED TO MEASURE BLOOD PRESSURE AND PULSES

- STATE ANXIETY INVENTORY (SAI)
  - SELF-RATING LIKERT SCALE
  - (20 STATE ITEMS)

PROTECTION OF HUMAN SUBJECTS

- INSTITUTIONAL REVIEW BOARD APPROVAL WAS OBTAINED FROM THE UNIVERSITY.

DATA COLLECTION

- PARTICIPANTS WERE RECRUITED FROM THE LOCAL COMMUNITY VIA FLIERS, POSTER AND WORD OF MOUTH.

- AFTER THE INFORMED CONSENT, DEMOGRAPHIC DATA WAS OBTAINED, THE PARTICIPANTS RANDOMLY SELECTED AN ENVELOPE WITH A NUMBER INSIDE.

- THE ODD NUMBER WAS IN THE CONTROL AND THE EVEN NUMBER WAS IN THE EXPERIMENTAL GROUP. PARTICIPANTS IN EXPERIMENTAL GROUP SELECTED A MRV.

DATA COLLECTION

- ON THE DAY OF TESTING, PARTICIPANTS REPORTED TO THE EXERCISE PHYSIOLOGY LAB BETWEEN 0800 AND 1200 FOR MEASUREMENTS.

- BASELINE INFORMATION SUCH AS BP, P, R, ANXIETY WERE COLLECTED PRIOR TO TESTING. BP, P, R WERE MEASURED EVERY 10 MINUTES FOR A TOTAL OF FOUR TIMES DURING THE 30 MINUTES PROCEDURE. ANXIETY WAS MEASURED AFTER 30 MINUTES PROCEDURE.

- ALL PARTICIPANTS RECEIVED THE SAME MEASUREMENTS, EXCEPT A 30-MINUTE MRV PROVIDING TO THE PARTICIPANTS IN THE EXPERIMENTAL GROUP.

DATA ANALYSIS

- MEASUREMENTS OF BP, P, R, ANXIETY WERE ANALYZED BY USING THE STATISTICAL PACKAGE FOR SOCIAL SCIENCES (SPSS), VERSION 23.

- T TESTS WERE USED TO TEST THE EFFECT DIFFERENCES BETWEEN GROUPS.

- DEMOGRAPHIC DATA WERE DISPLAYED IN FREQUENCIES.

DEMOGRAPHIC INFORMATION

- 140 PARTICIPANTS

- 10 DATA WERE DROPPED DUE TO INCOMPLETE INFORMATION OR REFUSAL

- 130 DATA FOR ANALYSIS

DEMOGRAPHIC INFORMATION

- 102 (78.5%) WHITE

- 12 (9.2%) HISPANIC

- 8 (6.2%) ASIAN
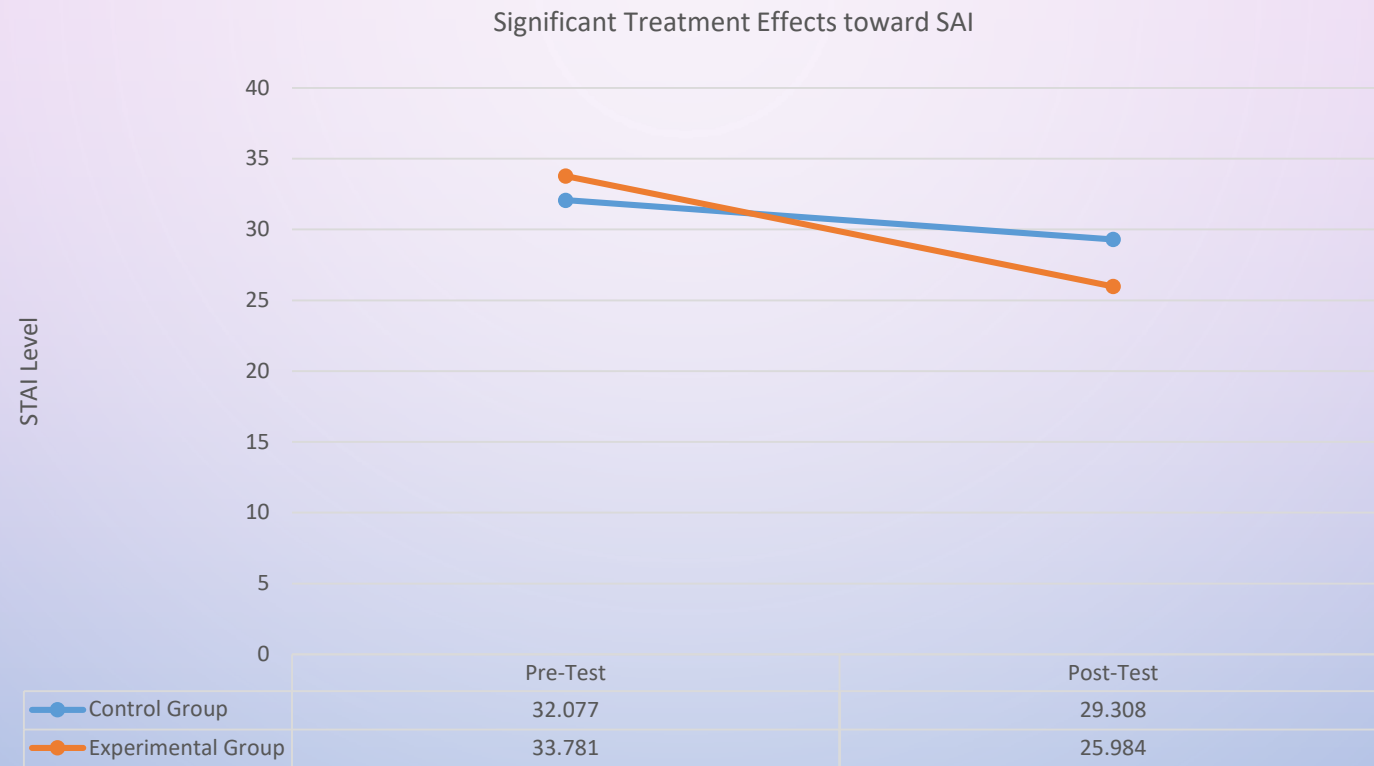
- 5 (3.8%) BLACK

- 3 (2.3%) OTHER

DEMOGRAPHIC INFORMATION

- GENDER: 15 MALE (11.5%) AND 115 FEMALE (88.5%).

- COLLEGE LEVEL: 5 (3.8%) FRESHMAN, 8 (6.2%) SOPHOMORE, 76 (58.5%) JUNIOR, 40 (30.7%) SENIOR AND 1 (0.8%) NOT REPORTED.

- THE MEAN AGE FOR THE CONTROL GROUP IS 23.2 AND THE MEAN AGE FOR THE EXPERIMENTAL GROUP IS 22.8.

DEMOGRAPHIC INFORMATION

- THERE WERE NO SIGNIFICANT DIFFERENCES BETWEEN TWO GROUPS IN AGE, GENDER, ETHNICITY, COLLEGE LEVEL AND MARITAL STATUS.

- ALTHOUGH THERE WAS NO SIGNIFICANCE DIFFERENCE IN EXERCISE LEVEL, THERE WAS A DIFFERENCE IN WEIGHT (P=0.024). THE CONTROL GROUP IS 146.5 LB AND THE EXPERIMENTAL GROUP IS 139.7 LB.

ANXIETY

Significant Treatment Effects toward SAI

	Pre-Test	Post-Test
Control Group	32.077	29.308
Experimental Group	33.781	25.984

The figure showed that the mean of experimental group through randomized control (X=33.78) was higher than the mean of control group (X=32.08). The mean of experimental group (X=25.98) after treatment effect statistically and significantly dropped below the control group (X=29.30) at α .05 level (p=0.000).

DATA ANALYSIS (ANXIETY)

	Experimental (n=64)		Control (n=65)		F Value (1, 127)	P Value	D
	M	SD	M	SD			
Diff PreSAI-PostSAI	-7.80	6.89	-2.8	3.89	26.10	.000	5.00

Table showed the results of univariate analysis that SAI level in the experimental group was reduced 7.8 points after the treatment effects, which is significantly much better than the SAI level in the control group only reducing 2.8 points (p= .000). When taking Pretest-posttest differences of experimental group, -7.80 minus Pretest-posttest differences of control group, -2.8, the difference, 5.00 is attributed to the treatment effect.

PULSES

	Group	N	Mean	Std. Deviation
Pre-Pulse	Control Group	64	78.484	12.9602
	Experimental Group	60	76.933	13.0953
Pulse-10min	Control Group	64	73.078	11.9381
	Experimental Group	60	66.617	9.5316
Pulse-20 min	Control Group	64	72.328	11.1228
	Experimental Group	60	66.000	10.0169
Pulse-30min	Control Group	64	70.922	11.8727
	Experimental Group	60	66.333	10.2356

PULSES

Source	Dependent Variable	Type III Sum of Squares	Adjusted R Squared	Mean Square	F	Sig.
Group	Pre-Pulse	641.403	.022	641.403	3.780	.054
	Pulse-10min	1292.917	.075	1292.917	11.001	.001
	Pulse-20 min	1240.108	.075	1240.108	11.032	.001
	Pulse-30min	652.017	.034	652.017	5.281	.023
Overall Model	Wilks' Lambda Value .894				3.536	.000

Pre-Test & Post-Test for Pulse Rate

|	Pre-Pulse	Pulse-10min	Pulse-20min	Pulse-30min
Control Group	78.484	73.078	72.328	70.922
Experimental Group	76.933	66.617	66	66.333

The Multivariate analysis was adopted to deal with time order and progression of the treatment effects for Pulse Rate. In the beginning of Pre-Pulse stage through randomized selection, the means of both experimental (=76.93) and control group (=78.48) are not significantly different from each other. As the treatment effects were developed after 10 minutes, the pulse rate of experimental group dropped more sharply (=66.62) than the one of control group (=73.08). As time elapsed, the treatment effect make the mean of experimental group dropped further (=66) and remained till the end of 30 minute time period (=66.33). The Wilks' Lambda Value .894 for entire multivariate analysis model remained statistically significant in all four time spans (F=3.536; p=.000). The results demonstrated the valid and significant results with treatment effect intervention.

RESPIRATION RATE

	Group	N	Mean	Std. Deviation
Pre-RR	Control Group	65	16.138	3.4860
	Experimental Group	64	16.266	3.1484
RR-10 min	Control Group	65	15.185	2.8056
	Experimental Group	64	15.469	3.7837
RR-20 min	Control Group	65	14.908	2.7141
	Experimental Group	64	15.344	2.9879
RR-30 min	Control Group	65	14.985	3.2234
	Experimental Group	64	15.109	2.6554

RESPIRATION RATE

Source	Dependent Variable	Type III Sum of Squares	Adjusted R Squared	Mean Square	F	Sig.
Group	Pre-RR	.521	-.007	.521	.047	.828(NS)
	RR-10 min	2.603	-.006	2.603	.235	.629(NS)
	RR-20 min	6.132	-.002	6.132	.753	.387(NS)
	RR-30 min	.502	-.007	.502	.057	.811(NS)
Overall Model	Wilks' Lambda Value .988				.378	.824 (NS)

Pre-Test & Post-Test for RR
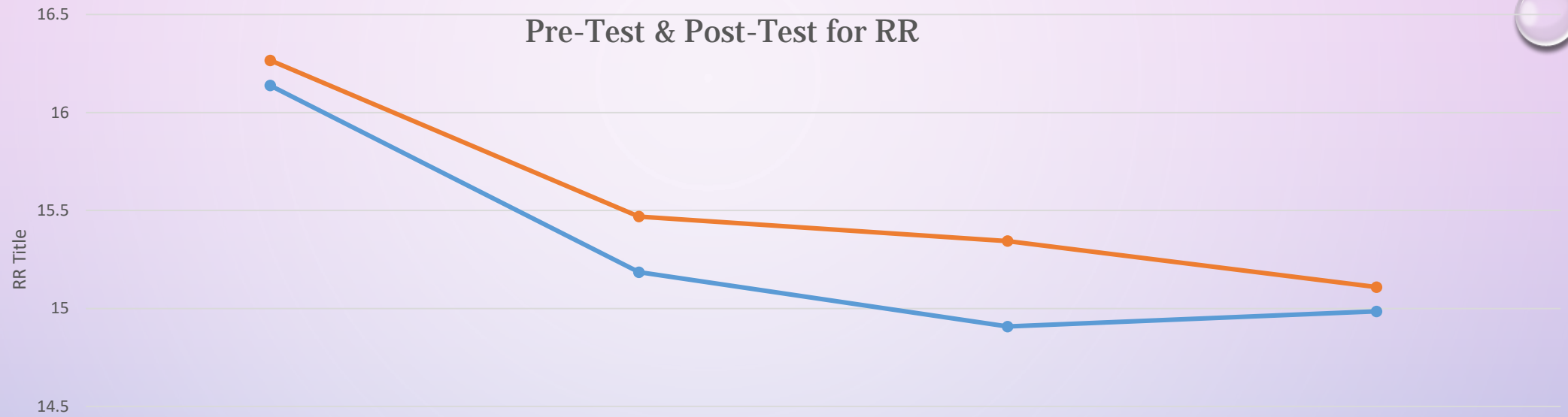
	Pre-RR	RR-10min	RR-20min	RR-30min
Control Group	16.138	15.185	14.908	14.985
Experimental Group	16.266	15.469	15.344	15.109

The Multivariate analysis was adopted to deal with time order and progression of the treatment effects for the RR.   In the beginning of Pre-RR stage through randomized selection, the means of both experimental (=16.14) and control group (=16.27) are not significantly different from each other. As the treatment effects were developed after 10 minutes, the mean of RR of experimental group (=15.46) still remain close to the mean of the control group (=15.16). As time elapsed to 20-minute span, the mean of control group (=14.91) dropped lightly but still remained statistically insignificant from the mean of experimental group (=15.34).   Till the very end at 30-minute span, the mean of RR of experimental group (=15.10) is still staying close to the control group (=14.99).

The Wilks' Lambda Value .988 for entire multivariate analysis model remained statistically non-significant in all four time spans (F=.378; p=.824). The results demonstrated the invalid and insignificant results with treatment effect intervention.

BLOOD PRESSURE-SYSTOLIC

Multivariate Analysis- Time Series Progression for BPS

	Group	N	Mean	Std. Deviation
Pre-BPS	Control Group	65	123.138	12.6650
	Experimental Group	64	121.797	12.5359
BPS-10 min	Control Group	65	115.985	10.2568
	Experimental Group	64	112.687	9.7637
BPS-20 min	Control Group	65	114.723	11.5400
	Experimental Group	64	113.188	10.3753
BPS-30 min	Control Group	65	115.462	13.1863
	Experimental Group	64	113.125	10.8547

BLOOD PRESSURE-SYSTOLIC

Multivariate Analysis on Pre-Test Post-Test for BPS

Source	Dependent Variable	Type III Sum of Squares	Adjusted R Squared	Mean Square	F	Sig.
Group	Pre-BPS	58.042	-0.005	58.042	.366	.547(NS)
	BPS-10 min	350.568	.019	350.568	3.495	.064(NS)
	BPS-20 min	76.041	-.003	76.041	.631	.428(NS)
	BPS-30 min	176.055	.002	176.055	1.205	.274(NS)
Overall Model	Wilks' Lambda .953				1.534	.196 (NS)

The Multivariate analysis was adopted to deal with time order and progression of the treatment effects for the BPS.   In the beginning of Pre-BPS stage through randomized selection, the means of both experimental (=123.13) and control group (=121.80) are not significantly different from each other. As the treatment effects were developed after 10 minutes, the mean of BPS of experimental group (=115.99) still remain close to the mean of the control group (=112.69). As time elapsed to 20-minute span, the mean of control group (=114.72) dropped lightly but still remained statistically insignificant from the mean of experimental group (=113.18).   Till the very end at 30-minute span, the mean of BPS of experimental group (=113.46) still remain stable and stay close to the mean of control group (=115.46)   .

The Wilks' Lambda Value .953 for entire multivariate analysis model remained statistically non-significant in all four time spans (F=1.534; p=.194). The results demonstrated the invalid and insignificant results with treatment effect intervention.

BLOOD PRESSURE-SYSTOLIC

Pre-Test Post-Test for BPS
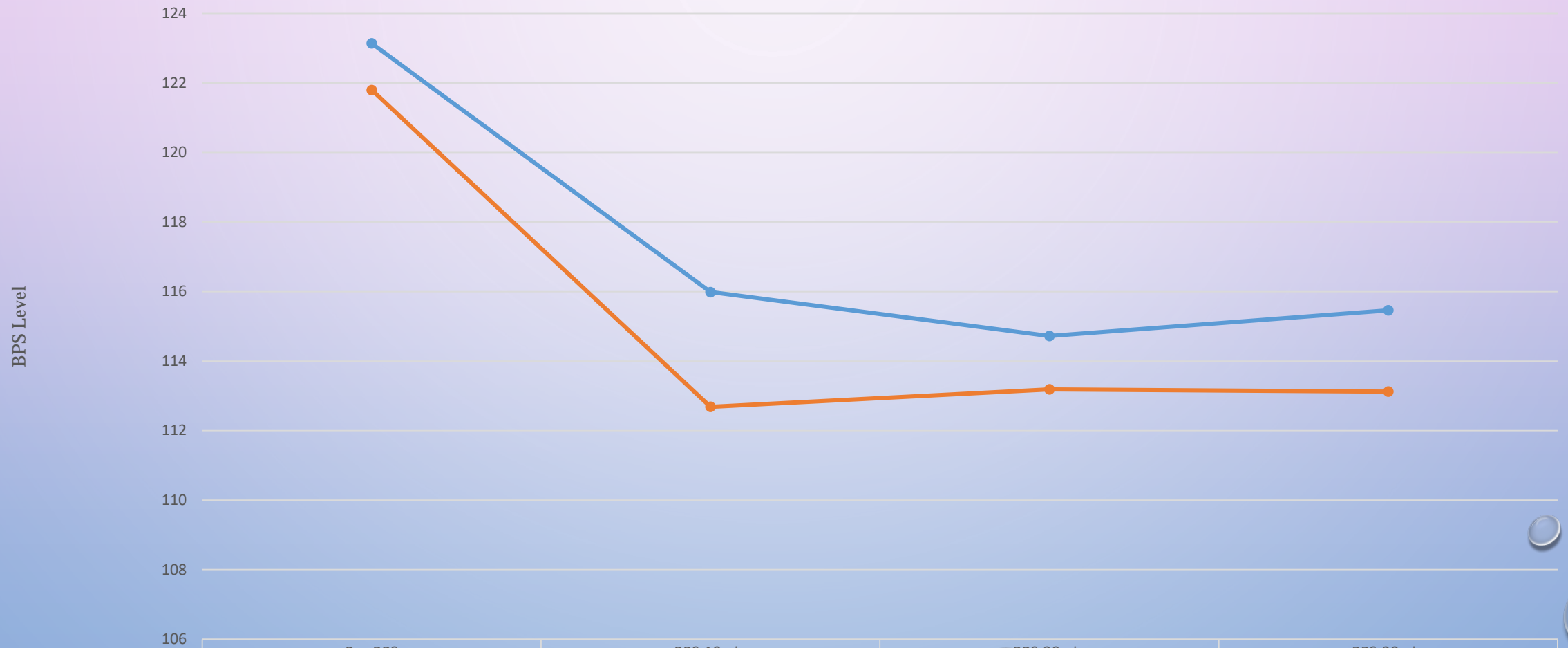
	Pre-BPS	BPS-10min	BPS-20min	BPS-30min
Control Group	123.138	115.985	114.723	115.462
Experimental Group	121.797	112.687	113.188	113.125

BLOOD PRESSURE-DIASTOLIC

	Group	N	Mean	Std. Deviation
Pre-BPD	Control Group	65	72.892	10.4300
	Experimental Group	64	71.609	7.4207
BPD-10 min	Control Group	65	70.738	9.4758
	Experimental Group	64	67.000	6.8406
BPD-20 min	Control Group	65	70.000	9.7275
	Experimental Group	64	66.750	6.8267
BPD-30 min	Control Group	65	70.385	10.3708
	Experimental Group	64	67.828	8.4469

BLOOD PRESSURE-DIASTOLIC

Source	Dependent Variable	Type III Sum of Squares	Adjusted R Squared	Mean Square	F	Sig.
Group	Pre-BPD	53.078	-.003	53.078	.646	.423 (NS)
	BPD-10 min	450.702	.042	450.702	6.583	.011
	BPD-20 min	340.620	.029	340.620	4.811	.030
	BPD-30 min	210.762	.010	210.762	2.352	.128 (NS)
Overall Model	Wilks' Lambda Value .942				1.905	.114 (NS)

The Multivariate analysis was adopted to deal with time order and progression of the treatment effects for BPD. In the beginning of BPD stage through randomized selection, the means of both experimental (=71,61) and control group (=72.9) are not significantly different from each other. As the treatment effects were developed after 10 minutes, the BPD of experimental group dropped more sharply and significantly (=67.00; p=0.011) than the one of control group (=70.74). As time elapsed, the treatment effect make the mean of experimental group dropped slightly further (=66.75; p=0.030) statistically lower than the control group (=70). The treatment effects only last for first 20 minutes for BPD significantly.

The Wilks' Lambda Value .942 for entire multivariate analysis model is statistically insignificant when involved BPD-30 minute data (F=1.905; p=.114). The results demonstrated the valid and significant results with treatment effect intervention for the first 10 minutes and 20 minutes.

BLOOD PRESSURE-DIASTOLIC

Pre-Test & Post-Test for BPD
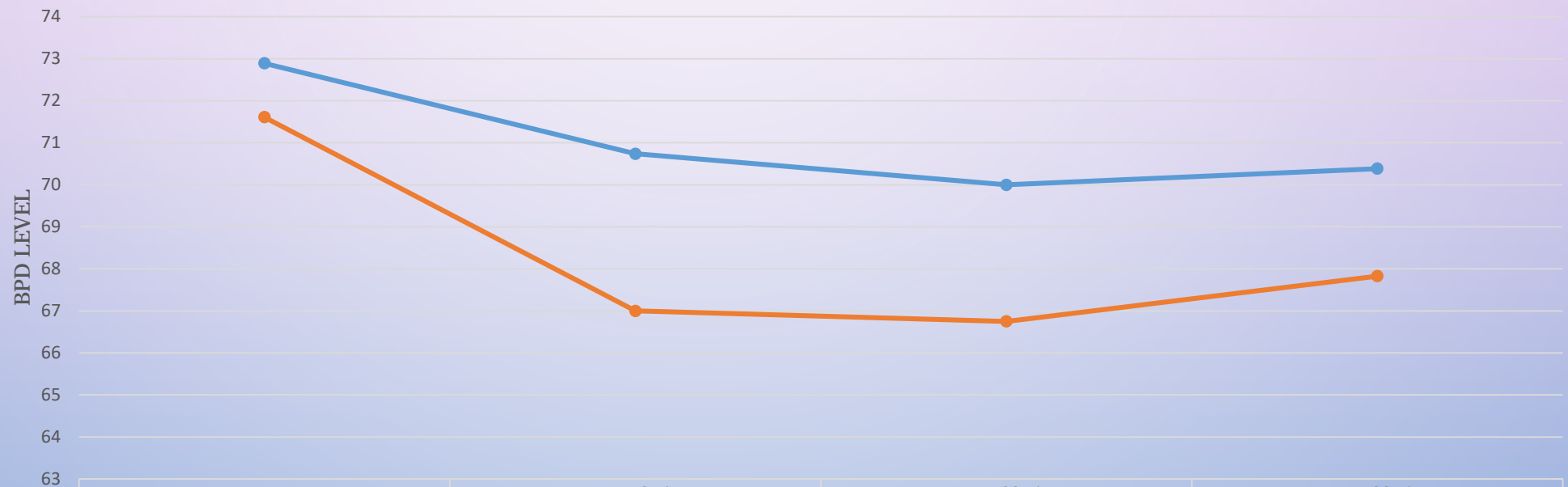
	Pre-BPD	BPD-10min	BPD-20min	BPD-30min
Control Group	72.892	70.738	70	70.385
Experimental Group	71.609	67	66.75	67.828

CONCLUSION

- VIEWING A 30-MINUTE MUSIC RELAXATION VIDEO REDUCED ANXIETY LEVEL FOR COLLEGE STUDENTS.

- VIEWING A 30-MINUTE MUSIC RELAXATION VIDEO REDUCED PULSE RATE FOR COLLEGE STUDENTS.

- VIEWING A 30-MINUTE MUSIC RELAXATION VIDEO REDUCED DIASTOLIC BLOOD PRESSURE FOR THE FIRST 20 MINUTES.

- VIEWING A 30-MINUTE MUSIC RELAXATION VIDEO DID NOT INFLUENCE RESPIRATION RATE AND SYSTOLIC BLOOD PRESSURE.

- A MUSIC RELAXATION VIDEO HAS THE POTENTIAL TO REDUCE ANXIETY LEVEL AND PULSES. IT WAS ALSO REDUCE DIASTOLIC PRESSURE FOR THE FIRST 20 MINUTES.

RECOMMENDATIONS

- THE MUSIC RELAXATION VIDEO WAS A SAFE AND INEXPENSIVE TECHNIQUE THAT COULD BE USED FOR COLLEGE STUDENTS WITH ANXIETY. IT ALSO DEMONSTRATED BENEFICIAL EFFECTS ON DECREASING PULSES AND DIASTOLIC BLOOD PRESSURE. THE FINDINGS COULD IMPROVE HEALTH AMONG COLLEGE STUDENTS AND COULD BE EASILY UTILIZED IN EDUCATIONAL INSTITUTIONS.

- QUALITATIVE RESEARCH COULD BE CONDUCTED TO INVESTIGATE THE PERCEPTIONS OF PARTICIPANTS ABOUT THE EFFECTS OF MUSIC RELAXATION VIDEO IN DEALING WITH STRESSFUL SITUATIONS FOR THE FUTURE STUDY.

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