A Pratibha Spandan's Journal

SWAR SINDHU
(National Peer-Reviewed/Refereed Journal of Music)
A UGC CARE listed Journal
ISSN 2320–7175 (O) | Volume 13, Issue 01, January-June, 2025
http://swarsindhu.pratibha-spandan.org

EFFECTS OF MUSIC THERAPY, YOGIC PRACTICES AND PHYSICAL ACTIVITY INTERVENTIONS ON IMPULSIVENESS AMONG UNIVERSITY STUDENTS

Rajvir Kaur[1], Dr. Baljinder Singh Bal[2], Prof. Gurpreet Kaur[3], Prof. Neelam Paul[4]

[1]Research Scholar, Department of Music, Guru Nanak Dev University, Amritsar, Punjab, India
[2]Associate Professor, Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India
[3]Dean Faculty of Visual and Performing Arts. Executive Director Sufi and Folk Music Heritage Chair Guru Kashi University Talwandi Sabo Bhatinda, Punjab, India
[4]Professor, Department of Music, Panjab University, Chandigarh, UT, India

ABSTRACT

This study examined how music therapy, yogic practices, and physical activity affect impulsiveness in university students. The study was delimited to Thirty-three (N=33) university male students, between the ages of 17 and 25. The study was delimited to the following psychological variables variable: Impulsiveness. We used paired (dependent) t-test statistics in this investigation. SPSS 20.0 will be used for all analyses. Hypotheses will be tested at 0.05 significance. Group-A: MT: The estimated t surpasses the threshold value (3.3726>2.447); hence the means deviate substantially. Group-B: YP: The estimated t surpasses the threshold value (4.3658>2.201); hence the means deviate substantially. Group-C: The estimated t surpasses the threshold value (4.3528>2.262); hence the means deviate substantially. Group-D: The estimated t value is below the crucial limit (0.603<3.182), indicating no significant difference in means.

Keywords: *Music Therapy, Yogic Practices, Physical Activity Interventions, Impulsiveness.*

Abbreviations:

Music Therapy: MT	Yogic Practice: YP
Physical Acticity: PA	Control One: CO

INTRODUCTION

Music affects the body, mind, and society [1, 2, 3, 4]. Yoga uses physical postures, breathing techniques, and meditation to improve body and mind self-regulation [5]. Yoga may help increase vagal tone in adults [6]. Exercise, which improves health and fitness, has been suggested as a therapy for many mental illnesses, including those with impulsive decision [7, 8, 9].

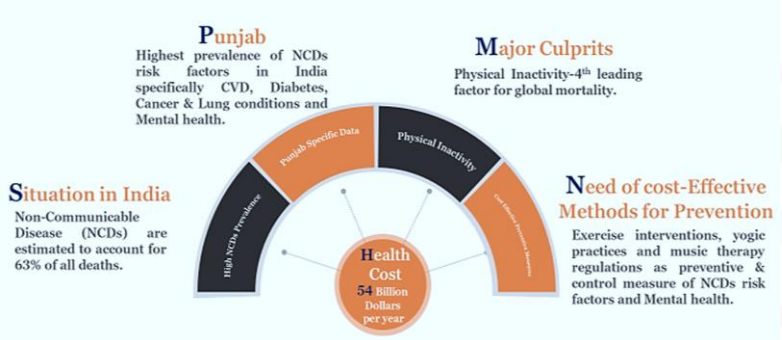


Figure-1: Situation in India, Punjab, Major Culprits and Need of cost-effective methods for prevention.

AIM OF THE STUDY

This study sought to determine the main impacts of music therapy, yogic practices and physical activity interventions on impulsiveness among university students.

OBJECTIVES OF THE STUDY

- (Research Objectives) RQ-1: To find out the significant effects of music therapy on impulsiveness among university students.
- (Research Objectives) RQ-2: To find out the significant effects of yogic practices on impulsiveness among university students.

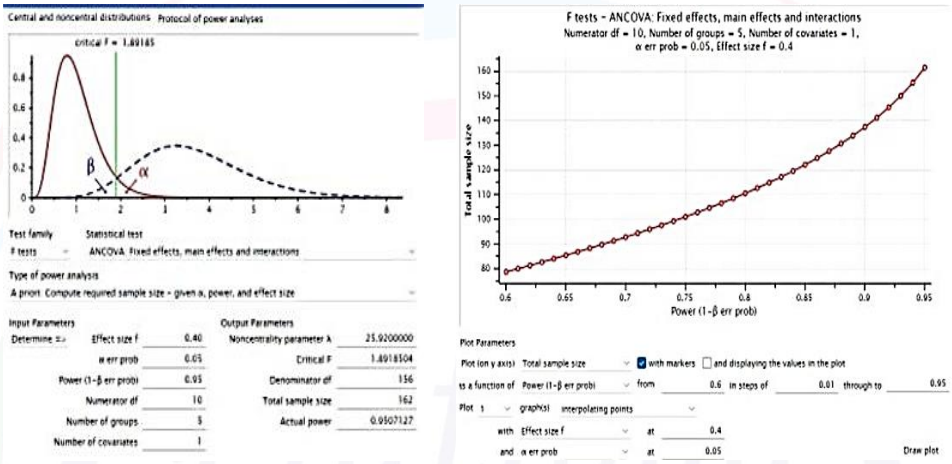
SWAR SINDHU
(National Peer-Reviewed/Refereed Journal of Music)
A UGC CARE listed Journal
ISSN 2320–7175 (O) | Volume 13, Issue 01, January-June, 2025
http://swarsindhu.pratibha-spandan.org © The Author(s) 2025

- (Research Objectives) RQ-3: To find out the significant effects of physical activity interventions on impulsiveness among university students.

CRITERIA OF TESTING THE HYPOTHESES

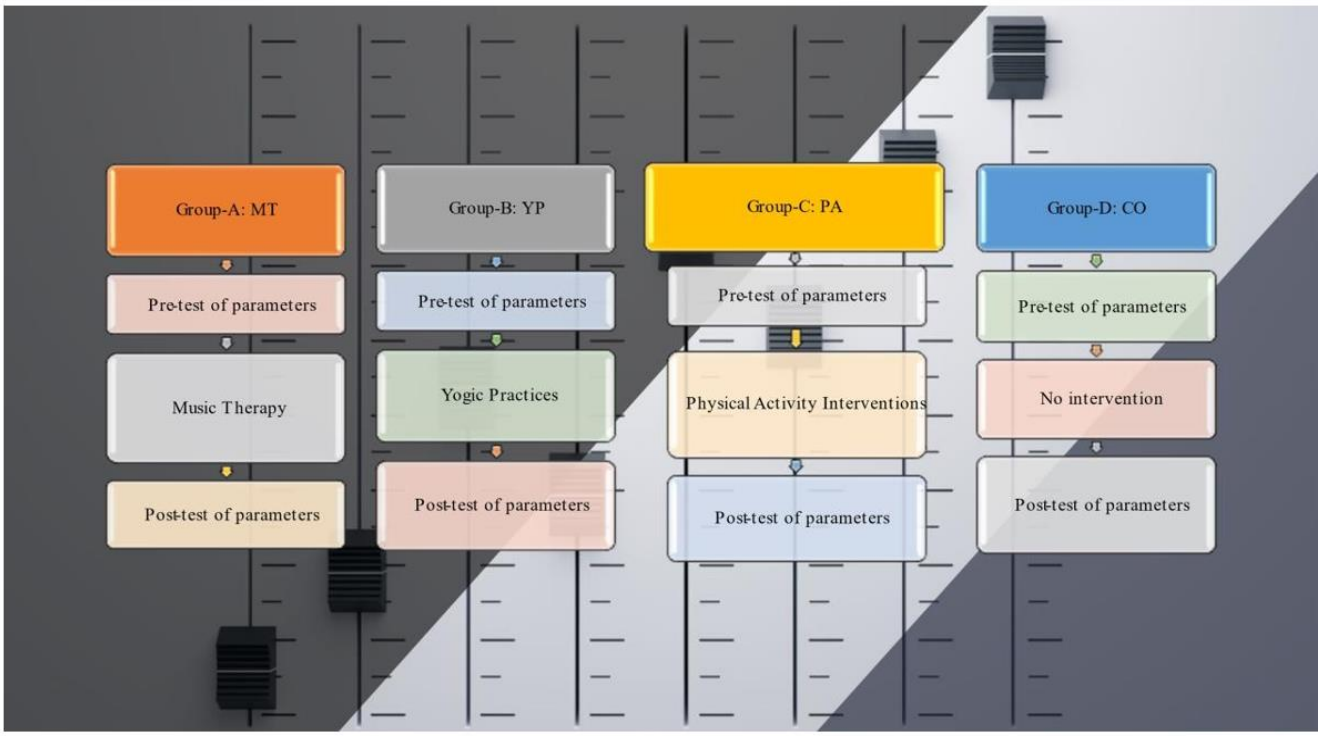
If the p-output (sig. 2 tailed) is lower than 0.05, the null hypotheses (H0) is rejected, and alternative hypotheses (Ha) is accepted.	If the p-output (sig. 2 tailed) is higher than 0.05, the null hypotheses (H0) is accepted, and alternative hypotheses (Ha) is rejected.

SUBJECTS



- G*Power 3.1.9.4 and a repeatedintra and intergroup measure model were used.
- The study was delimited to Thirty-three (N=33) university male students, between the ages of 17 and 25.
- The study was delimited to the following psychological variables variable:
- Impulsiveness

TRAINING PROTOCOL



SWAR SINDHU
(National Peer-Reviewed/Refereed Journal of Music)
A UGC CARE listed Journal
ISSN 2320–7175 (O) | Volume 13, Issue 01, January-June, 2025
http://swarsindhu.pratibha-spandan.org

STATISTICAL TECHNIQUES

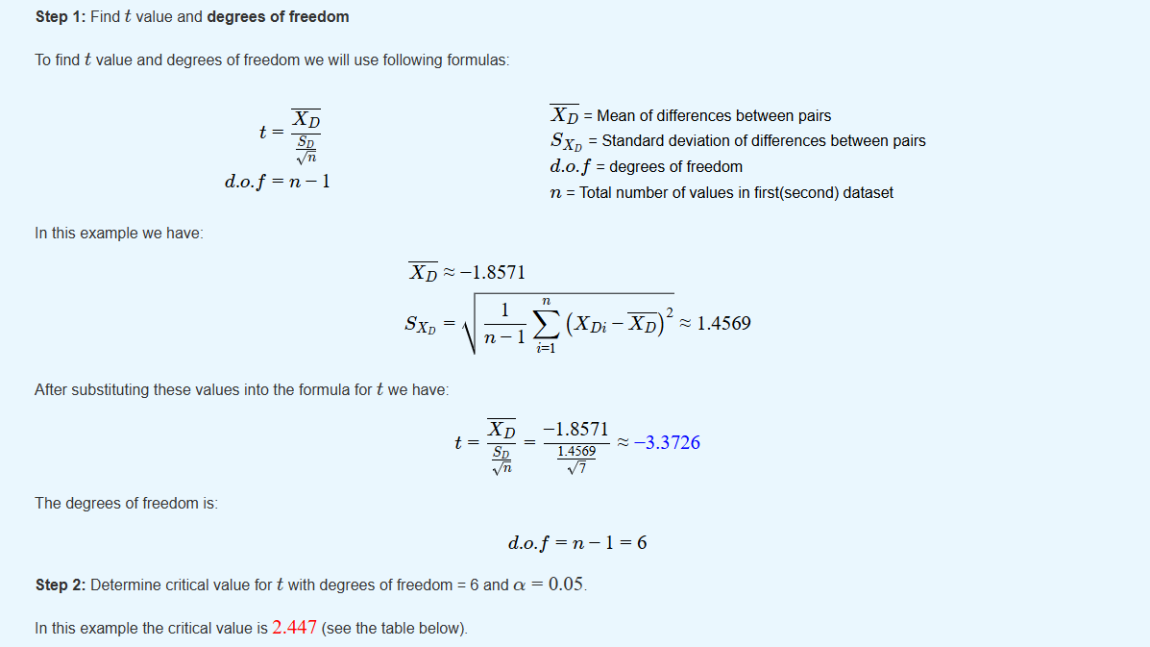
We used paired (dependent) t-test statistics in this investigation. SPSS 20.0 will be used for all analyses. Hypotheses will be tested at 0.05 significance.

RESULTS

Table-1. Paired (Dependent) T Test statistics of Impulsiveness (Group-A: MT) of Pre-Test and Post-Test for males.

Impulsiveness		
	Pre-Test	**Post-Test**
Mean	20	21.8571
Stand. Dev.	3.505	3.136
n	7	7
t	3.3726	
critical value	2.447	
since | t | > critical value		there is sig. diff.

Estimated t surpasses the threshold value (3.3726>2.447), hence the means deviate substantially.



Step 1: Find t value and **degrees of freedom**

To find t value and degrees of freedom we will use following formulas:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}}$$
$$d.o.f = n - 1$$

$\overline{X_D}$ = Mean of differences between pairs
S_{X_D} = Standard deviation of differences between pairs
$d.o.f$ = degrees of freedom
n = Total number of values in first(second) dataset

In this example we have:

$$\overline{X_D} \approx -1.8571$$
$$S_{X_D} = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}\left(X_{Di} - \overline{X_D}\right)^2} \approx 1.4569$$

After substituting these values into the formula for t we have:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}} = \frac{-1.8571}{\frac{1.4569}{\sqrt{7}}} \approx -3.3726$$

The degrees of freedom is:

$$d.o.f = n - 1 = 6$$

Step 2: Determine critical value for t with degrees of freedom = 6 and $\alpha = 0.05$.

In this example the critical value is 2.447 (see the table below).

Table-2. Paired (Dependent) T Test statistics of Impulsiveness (Group-B: YP) of Pre-Test and Post-Test for males.

Impulsiveness		
	Pre-Test	**Post-Test**
Mean	20.25	21.75
Stand. Dev.	4.455	3.722
n	12	12
t	4.3658	
critical value	2.201	
since | t | >critical value		there is sig. diff.

Estimated t surpasses the threshold value (4.3658>2.201), hence the means deviate substantially.

SWAR SINDHU
(National Peer-Reviewed/Refereed Journal of Music)
A UGC CARE listed Journal
ISSN 2320–7175 (O) | Volume 13, Issue 01, January-June, 2025
http://swarsindhu.pratibha-spandan.org © The Author(s) 2025

Step 1: Find t value and **degrees of freedom**

To find t value and degrees of freedom we will use following formulas:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}}$$
$$d.o.f = n - 1$$

$\overline{X_D}$ = Mean of differences between pairs
S_{X_D} = Standard deviation of differences between pairs
$d.o.f$ = degrees of freedom
n = Total number of values in first(second) dataset

In this example we have:

$$\overline{X_D} \approx -1.5$$
$$S_{X_D} = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}\left(X_{Di} - \overline{X_D}\right)^2} \approx 1.1902$$

After substituting these values into the formula for t we have:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}} = \frac{-1.5}{\frac{1.1902}{\sqrt{12}}} \approx -4.3658$$

The degrees of freedom is:

$$d.o.f = n - 1 = 11$$

Step 2: Determine critical value for t with degrees of freedom = 11 and $\alpha = 0.05$.

In this example the critical value is 2.201 (see the table below).

The absolute value of the calculated t exceeds the critical value (4.3658 > 2.201)**, so the means are significantly different.**

Table-3. Paired (Dependent) T Test statistics of Impulsiveness (Group-C:PA) of Pre-Test and Post-Test for males.

Impulsiveness		
	Pre-Test	**Post-Test**
Mean	22.5	23.7
Stand. Dev.	3.879	3.689
n	10	10
t	4.352	
critical value	2.262	
since | t | > critical value		there is sig. diff.

Estimated t surpasses the threshold value (4.3528>2.262), hence the means deviate substantially.

Step 1: Find t value and **degrees of freedom**

To find t value and degrees of freedom we will use following formulas:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}}$$
$$d.o.f = n - 1$$

$\overline{X_D}$ = Mean of differences between pairs
S_{X_D} = Standard deviation of differences between pairs
$d.o.f$ = degrees of freedom
n = Total number of values in first(second) dataset

In this example we have:

$$\overline{X_D} \approx -1.2$$
$$S_{X_D} = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}\left(X_{Di} - \overline{X_D}\right)^2} \approx 0.8718$$

After substituting these values into the formula for t we have:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}} = \frac{-1.2}{\frac{0.8718}{\sqrt{10}}} \approx -4.3528$$

The degrees of freedom is:

$$d.o.f = n - 1 = 9$$

Step 2: Determine critical value for t with degrees of freedom = 9 and $\alpha = 0.05$.

In this example the critical value is 2.262 (see the table below).

The absolute value of the calculated t exceeds the critical value (4.3528 > 2.262)**, so the means are significantly different.**

SWAR SINDHU
(National Peer-Reviewed/Refereed Journal of Music)
A UGC CARE listed Journal
ISSN 2320–7175 (O) | Volume 13, Issue 01, January-June, 2025
http://swarsindhu.pratibha-spandan.org © The Author(s) 2025

Table-4. Paired (Dependent) T Test statistics of Impulsiveness (Group-D:CO) of Pre-Test and Post-Test for males.

Impulsiveness		
	Pre-Test	**Post-Test**
Mean	17.25	17.5
Stand. Dev.	3.960	3.640
n	4	4
t	0.603	
critical value	3.182	
since | t | < critical value		no sig. diff.

The estimated t value is below the crucial limit (0.603<3.182), indicating no significant difference in means.

Step 1: Find t value and **degrees of freedom**

To find t value and degrees of freedom we will use following formulas:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}}$$
$$d.o.f = n - 1$$

$\overline{X_D}$ = Mean of differences between pairs
S_{X_D} = Standard deviation of differences between pairs
$d.o.f$ = degrees of freedom
n = Total number of values in first(second) dataset

In this example we have:

$$\overline{X_D} \approx -0.25$$
$$S_{X_D} = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}\left(X_{Di} - \overline{X_D}\right)^2} \approx 0.8292$$

After substituting these values into the formula for t we have:

$$t = \frac{\overline{X_D}}{\frac{S_D}{\sqrt{n}}} = \frac{-0.25}{\frac{0.8292}{\sqrt{4}}} \approx -0.603$$

The degrees of freedom is:

$$d.o.f = n - 1 = 3$$

Step 2: Determine critical value for t with degrees of freedom = 3 and $\alpha = 0.05$.

In this example the critical value is 3.182 (see the table below).

The absolute value of the calculated t is smaller than critical value ($0.603 < 3.182$), so the means are not significantly different.

DISCUSSION

This study found that music therapy, yogic practices, and physical exercise therapies dramatically reduced impulsiveness among university students, but the control group showed no significant improvement. Existing research supports these findings, which show that non-pharmacological techniques can improve emotional regulation and self-control. Music therapy's favourable effect is consistent with the findings of Gold et al. (2009), who discovered that structured musical activities assist reduce impulsive behaviours by improving emotional expressiveness and cognitive engagement. Similarly, the reduction in impulsiveness associated with yogic activities confirms Sahni and Kumar's (2016) observation of enhanced self-regulation in yoga students. Yoga's breathing and meditation components are likely to help with behavioural control. Physical activity also had a substantial influence, replicating Chang et al.'s (2012) finding that aerobic exercise improves executive function and inhibitory control by raising levels of dopamine and norepinephrine, neurotransmitters related with attention and self-regulation. Overall, the study found that music therapy, yoga, and physical exercise are effective,

SWAR SINDHU
(National Peer-Reviewed/Refereed Journal of Music)
A UGC CARE listed Journal
ISSN 2320–7175 (O) | Volume 13, Issue 01, January-June, 2025
http://swarsindhu.pratibha-spandan.org © The Author(s) 2025

low-cost interventions for reducing impulsive behaviour in university students that might be included into student health programs.

References

[1]. Hodges, D. A. (1996). *Handbook of music psychology* (2nd ed.). IMR Press.
[2]. Davis, W. B., Gfeller, K. E., & Thaut, M. H. (2008). *An introduction to music therapy: Theory and practice*. American Music Therapy Association.
[3]. Thaut, M. H., & Hoemberg, V. (Eds.). (2014). *Handbook of neurologic music therapy*. Oxford University Press.
[4]. Wheeler, B. L. (Ed.). (2015). *Music therapy handbook*. Guilford Publications.
[5]. Gard, T., Noggle, J. J., & Park, C. L. (2014). Potential self-regulatory mechanisms of yoga for psychological health. *Frontiers in Human Neuroscience*, 8, 770.
[6]. Balasubramaniam, M., Telles, S., & Doraiswamy, P. M. (2012). Yoga on our minds: A systematic review of yoga for neuropsychiatric disorders. *Frontiers in Psychiatry*, 3, 117.
[7]. Smith, M. A., & Lynch, W. J. (2012). Exercise as a potential treatment for drug abuse: Evidence from preclinical studies. *Frontiers in Psychiatry*, 2, 82.
[8]. Vancampfort, D., Vanderlinden, J., De Hert, M., Adamkova, M., Skjaerven, L. H., Catalan-Matamoros, D., Lundvik-Gyllensten, A., Gomez-Conesa, A., Ijntema, R., & Probst, M. (2013). A systematic review on physical therapy interventions for patients with binge eating disorder. *Disability and Rehabilitation*, 35(26), 2191–2196.
[9]. Wigal, S. B., Emmerson, N., Gehricke, J. G., & Galassetti, P. (2013). Exercise: Applications to childhood ADHD. *Journal of Attention Disorders*, 17(4), 279–290.