



# Effectiveness of Physical Workout on Psychological Wellbeing among Students in Selected University of Health Sciences Mangaluru

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## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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## ABSTRACT

**Background of Study:** Student period is the most memorable period of one's life time, it includes both happy moments and stressors to cope with, here researcher try to identify the stress level and psychological well being of student be and to identify the affect of physical workout on the psychological well being.

**Methods:** A quantitative research approach and quasi experimental pre test post test control group design was adopted for the study. Fifty subjects were selected by purposive sampling technique. The subjects were assigned either to experimental group (n=25) or control group (n=25). The psychological wellbeing was measured using Ryff's scale of psychological wellbeing.

**Results:** The study showed that the students have various stress and the physical workout is effective in improving psychological well being, This shows there is no association between psychological wellbeing and selected demographic variables of the students.

**Conclusion:** concluded that physical workout is effective in improving psychological wellbeing among students.

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## 1. INTRODUCTION

Student life is a most beautiful period in an individual's life but it is also a major stage of life in which the individual faces stressors like; home sickness, exam fear, stage fear, ragging, love failures, fights with friends, assignments, etc [1].

Physical exercise is an important aspect of human health because it is involved in several physiological processes and has been linked to significant benefits in reducing body fat, myocardial infarction, hypertension, and insulin resistance risk. Physical activity also contributes to psychological well-being, which is defined as a state of happiness and serenity with low levels of distress, overall good physical and mental health and outlook, and a high quality of life [2].

The six-factor model of psychological well-being is a theory developed by Carol Ryff which determines six factors in which contribute to an individual's psychological well-being, contentment, and happiness. Psychological well-being consists of positive relationships with others, personal mastery, autonomy, a feeling of purpose and meaning in life, and personal growth and development. Psychological well-being is attained by achieving a state of balance affected by both challenging and rewarding life events [3].

According to WHO health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity [4]. To have a complete health an individual's psychological well being also an important aspect. Any variation in an individual's psychological health leads to disturbance in daily activities. The psychological well being is the main factor which determines the individual's health and harmony of life.

Stress starts in an individual by birth and throughout the life it will be carried until the end of life. As an individual attains growth in each stage of the life that provides him various experiences and stress which leads to adjust with life situations. When an individual learn to cope with the stress, he is able to lead a happy life which he wishes for. Stress is one of the major psychological factors in an individual which leads to show physiological symptoms such as headache, fatigue, weakness etc. When an individual is psychologically unstable he won't be

able to do the given task perfectly even though he is able to do it. The anxiety level may vary from individual to individual. The source of stress among students may be the fear towards examinations, the fear to perform the task, the fear towards lecturers, fear towards seniors, inability to make appropriate decisions etc. There are various coping mechanisms to reduce stress and one of the healthiest coping mechanisms is a physical workout.

Physical exercise is defined as any bodily activity that enhances or maintains physical fitness, overall health and wellness. Physical exercise helps in preventing aging, strengthening muscles, weight loss and maintenance. It also helps in preventing cardiac complications, and it especially helps in preventing stress and depression, increasing quality of sleep and to maintaining a positive self esteem. The physical exercises include aerobic exercise, gym workouts, indoor and outdoor games, swimming, cycling etc [5].

Life is a mixture of happiness and sorrow, stress is a part of life which cannot be avoided [6].

Regular exercise helps healthcare professionals manage job-related stressors, use fewer sick days, and discuss fitness with patients at a higher rate. Despite being aware of the health benefits of exercise, resident physicians exercise at a much lower rate than medical trainees and practicing physicians. One of the most significant barriers to fitness, according to resident physicians, is a lack of time for traditional structured workouts. The purpose of this study was to improve the well-being of resident physicians by providing brief workouts through a motivational fitness curriculum [7].

Public square dancing was found to be an acceptable, viable, and valuable intervention for MCI residents with depressive symptoms that could be carried out in the community by nursing staff. Future research should look into the appropriate population, intensity, and frequency of public square dancing, as well as its effect on specific cognitive functions [8].

In the pharmacological treatment of many conditions, physicians typically start with a dose of a drug believed to be the minimum effective dose. If the patient does not respond, this initial dose may then be titrated upwards to a

maximum dose, beyond which the adverse effects of the drug are unacceptable for treatment [9].

Exercise is one of the most frequently prescribed therapies both in health and disease. There is irrefutable evidence showing the beneficial effects of exercise both to prevent and to treat several diseases. Researchers have shown that both men and women who report increased levels of physical activity and fitness have reductions in relative risk of death and Dosage is important in clinical medicine and all marketed drugs require data on their efficacy and safety. It is known that there is a minimum amount of physical activity for health benefits. These benefits increase with increasing the amount of exercise but harmful when it exceeds the physical capability of individuals [10].

The problems in life turn into stress and coping mechanism helps to cope with stress. It will be effective as well as more goal oriented if the individual is using a healthy stress coping mechanism to resolve the stress which he is under. It is not that easy to choose the coping mechanisms for the stress. There is positive mechanisms as well as the negative mechanisms to cope with stress, most will be choosing the negative mechanisms as such it will resolve the stress for time being but not permanently as it is under the effect of drug, alcohol, etc. It will affect the life style, health as well as the daily routine of life. Physical workout helps to improve quality of living. Initially it is difficult to make the exercise as a routine or habit, but once it become as a habit it helps to improve the psychological wellbeing as well as the daily living [11].

There is a significant relation between psychological wellbeing and physical workout among students, that too, not only adolescents, but all age groups. The physical workout helps in increasing the psychological well being. The proper workout will bring a significant change in life in aspects of health, coping with stress, self esteem, body image, self confidence, avoidance of bad habits such as smoking, alcoholism etc. Thus the workout will help in building a good psychological well being and there by standard in a healthy manner.

## 2. METHODS

**Objectives:** The objectives of the study were to assess the level of psychological wellbeing

among students, to find the effectiveness of workout on psychological wellbeing among students & to determine the association between psychological wellbeing and selected demographic variables.

The aim of the study was to assess the effectiveness of physical workout on psychological wellbeing among students in selected university of health sciences. A quantitative research approach and quasi experimental pre test post test control group design was adopted for the study. Fifty subjects were selected by purposive sampling technique. The subjects were assigned either to experimental group (n=25) or control group (n=25). The psychological wellbeing was measured using Ryff's scale of psychological wellbeing. Data was analyzed using descriptive and inferential statistics.

## 3. RESULTS

Among 50 subjects, most of the students 48 (96%) belonged to the age of 19-22 years and most of them belonged to 25 (50%) nursing and 25 (50%) BPT course. Majority 34 (68%) of them had 1<sup>st</sup> birth order and most of their family income was 31 (62%). Majority of them 33 (66%) had joint families and none of them 50 (100%) had a previous experience and exposure of gym. All of them 50 (100%) were staying in hostel and most of them 22 (44%) used to spend their leisure time by listening music. In pretest, the control group 3 (12%) of them had medium psychological wellbeing and 22 (88%) of them had high psychological wellbeing. In experimental group, 25 (100%) of them had high psychological wellbeing.

- In pre test, the control group 25 (100%) of them had high psychological wellbeing and in experimental group, 25 (100%) of them had high psychological wellbeing.
- In post-test, the control group 25 (100%) of them had high psychological wellbeing. In experimental group, 24 (96%) of them had high psychological wellbeing and 1 (4%) of them had very high psychological wellbeing.
- In the experimental group, the mean post test score of level of psychological wellbeing among students (164.64+16.07) was more than the control group (157.44+14.83). In experimental group the mean difference was 7.2 which indicated that between the groups there was a

difference in mean psychological wellbeing level and physical workout is effective in improving psychological wellbeing among students in selected university of health sciences. Therefore  $H_{01}$  was rejected and  $H_1$  was accepted.

- The obtained p values of chi-square test were  $>0.05$ . This shows there is no association between psychological wellbeing and selected demographic variables of the students. Hence  $H_2$  was rejected and  $H_{02}$  was accepted. The study interpreted that physical workout is effective in improving the psychological wellbeing of the students.

#### 4. DISCUSSION

The findings of the present study were supported by another study conducted by Renuka Manjunath and Praveen Kulkarni in the year 2013 in Mysore Karnataka to assess the health status and depression among medical students. Result revealed that poor mental health status and depression was found in 25.1% and 40.8% of subjects. There was statistically significant association between poor mental health status and depression with age group of 17-18 years. This study also shows that medical students have poor psychological well-being and indicated that age group between 17-22 years of students were more prevalent with stress [12].

Another study conducted by Nguyen-Michel ST, Unger JB, Hamilton J, Spruijt-Metz D in the year 2006 in French to rule out the relation between sports activity and stress, coping strategies and their academic failure & success among college students. Results indicated that students with intensive sport practice reported lower scores of general stress, academic stress, and emotion-focused coping strategies, and higher scores of self-efficacy than those with rare practice [13].

The findings of the present study is supported by another study conducted by Chang, P.-S., Knobf, T., Oh, B., & Funk, M. in the year 2019 in China to assess the physical and psychological health outcomes of Qigong Exercise in Older Adults. The findings suggest that the Qigong exercise is effective among older adults to improve physical ability, functional ability, to lessen depression, anxiety and balance. There was no significant association between physical health, psychological health and selected demographic variables [14].

#### 5. CONCLUSION

This study showed that stress is very common among students & concluded that physical workout is effective in improving psychological wellbeing among students.

##### 5.1 Comparison of Frequency and Percentage Test

Data presented in Table 2 shows that in pre test, the control group 25 (100%) of them had high psychological wellbeing. In experimental group, 25 (100%) of them had high psychological wellbeing.

In post test, the control group 25 (100%) of them had high psychological wellbeing. In experimental group, 24 (96%) of them had high psychological wellbeing and 1 (4%) of them had very high psychological wellbeing.

Independent "t" test was used to compare the level of psychological wellbeing between control and experimental group. As per the table 3, in the experimental group, the mean post test score of level of psychological wellbeing among students (164.64+16.07) was more than the control group (157.44+14.83). In experimental group the mean difference was 7.2 which indicated that between the groups there is a difference in mean psychological wellbeing level and physical workout is effective in improving psychological wellbeing among students.

Paired "t" test was used to assess effectiveness of physical workout on psychological wellbeing on pre test and post test level of each group. The above Table 4 shows, in the experimental group, the mean post test score of psychological wellbeing among students (164.64+16.07) was more than the control group (157.44+14.83). Therefore  $H_{01}$  was rejected and  $H_1$  was accepted, there is a significant difference in psychological wellbeing before and after workout.

The Table 5 shows, in the experimental group, there is a significant difference ( $p < 0.05$ ) among Environmental mastery ( $p = 0.015^*$ ), Personal growth ( $p = 0.001^*$ ), Positive relation ( $p = 0.019^*$ ) and Purpose of life ( $p = 0.001^*$ ) with psychological wellbeing. In the control group there were no significant difference ( $p > 0.05$ ) among variables with psychological wellbeing which indicated that between the groups there is a difference in mean psychological wellbeing level and physical workout is effective in improving psychological wellbeing among students.

**Table 1. Frequency and percentage distribution of sample characteristics n=25+25**

Sl. No.	Variables	Control group		Experimental group	
		Frequency	percentage	Frequency	Percentage
<b>1.</b>	<b>Age (in years)</b>				
a.	15-18	2	8	-	-
b.	19-22	23	92	25	100
c.	22 and above	-	-	-	-
<b>2.</b>	<b>Course of student</b>				
a.	B.Sc Nursing	-	-	25	100
b.	BPT	25	100	-	-
c.	Allied science	-	-	-	-
<b>3.</b>	<b>Order of child birth</b>				
a.	1	11	44	23	92
b.	2	9	36	2	8
c.	3	3	12	-	-
d.	4 and above	2	8	-	-
<b>4.</b>	<b>Family income (Per month)</b>				
a.	Below Rs. 20000	10	40	2	8
b.	Rs. 20000 - 40000	10	40	21	84
c.	Above Rs. 40000	5	20	2	8
<b>5.</b>	<b>Type of family</b>				
a.	Nuclear family	13	52	4	16
b.	Joint family	12	48	21	84
c.	Extended family	-	-	-	-
<b>6.</b>	<b>Previous exposure to gym</b>				
a.	Yes	-	-	-	-
b.	No	25	100	25	100
c.	If yes, when and how long	-	-	-	-
<b>7.</b>	<b>Where do you stay?</b>				
a.	Home	-	-	-	-
b.	Hostel	25	100	25	100
c.	Paying guest	-	-	-	-
d.	Any other specify	-	-	-	-
<b>8.</b>	<b>Leisure time</b>				
a.	Reading books	2	8	5	20
b.	Listening music	12	48	10	40
c.	Travelling	7	28	4	16
d.	Physical workout	4	16	4	16

**Table 2. Comparison of pre test and post test scores of psychological wellbeing in terms of frequency and percentage**

Level of psychological wellbeing	Experimental group		Control group	
	Pre test f (%)	Post test f (%)	Pre test f (%)	Post test f (%)
Low psychological wellbeing(0-63)	-	-	-	-
Medium psychological wellbeing (64-126)	-	-	-	-
High psychological wellbeing(127-189)	25 (100%)	24 (96%)	25 (100%)	25 (100%)
Very high psychological wellbeing (190-252)	-	1 (4%)	-	-

**Section III: Effectiveness of physical workout on psychological wellbeing among study groups**  
**Table 3. Overall effect of physical workout on psychological well being between study groups n=25+25**

Groups	Mean	SD	t value	p value
Control group	157.44	14.83	1.64	0.72
Experimental group	164.64	16.07		

*p<0.05 [\*significant] df= 48 Independent t test*

**Table 4. Overall effect of physical workout on psychological well being within study groups n=25+25**

Groups		Mean	SD	t value	p value
Experimental group	Pre test	148.52	9.15	-4.92	0.001*
	Post test	164.64	16.07		
Control group	Pre test	152.80	10.36	-1.41	0.169
	Post test	157.44	14.83		

*p <0.05 [\*significant]df= 24 Paired t test*

**Table 5. Area wise effect of physical workout on psychological wellbeing among study groups n=25+25**

AREA	OBSERVATION	EXPERIMENTAL			CONTROL		
		Mean± SD	t value	p value	Mean± SD	t value	p value
Autonomy	Pre test	25.8±3.16	-1.813	0.081	24.5±4.08	-0.795	0.435
	Post test	27.8±4.39			25.3±4.05		
Environmental mastery	Pre test	24.4±3.01	-2.630	0.015*	25.2±3.29	-1.878	0.073
	Post test	26.7±3.37			26.9±2.71		
Personal growth	Pre test	21.7±2.73	-3.709	0.001*	24.1±3.82	-0.572	0.573
	Post test	25.1±3.50			23.6±2.41		
Positive relation	Pre test	27.0±2.70	-2.514	0.019*	25.3±2.98	-1.941	0.064
	Post test	29.8±4.89			27.9±5.55		
Purpose of life	Pre test	23.4±3.01	-4.772	0.001*	25.8±3.15	-0.396	0.696
	Post test	28.1±4.08			26.3±5.05		
Self acceptance	Pre test	26.1±3.70	-0.928	0.363	27.6±3.58	-0.424	0.675
	Post test	26.9±2.18			27.2±3.43		

*Area wise paired t test*

**Section IV: Association between pre test scores of psychological wellbeing and selected demographic variables**

**Table 6. Association between the pre test scores of psychological wellbeing in experimental group and selected demographic variables n=25**

Sl. no	Demographic variables	Median n<149	Median n>149	χ <sup>2</sup>	p value
1.	<b>Age in years</b>	(f)	(f)		
	15-18	2	-		
	19-22	11	12	18.20	0.31
	22 and above	-	-		
2.	<b>Course of student</b>				
	B.Sc Nursing	-	-	-	-
	BPT	13	12		
	Allied science	-	-		

Sl. no	Demographic variables	Median n<149	Median n>149	$\chi^2$	p value
3.	<b>Order of child birth</b>				
	1	6	5		
	2	5	4		
	3	1	2	45.79	0.56
	4 and above	1	1		
4.	<b>Family income</b>				
	Below Rs. 20000	6	4		
	Rs. 20000- 40000	5	5	34.16	0.36
	Above Rs. 40000	2	3		
5.	<b>Type of family</b>				
	Nuclear family	8	5		
	Joint family	5	7	17.65	0.34
	Extended family	-	-		
6.	<b>Previous exposure to gym</b>				
	Yes	-	-		
	No	13	12	-	-
	If yes, when and how long	-	-		
7.	<b>Where do you stay?</b>				
	Home	-	-		
	Hostel	13	12	-	-
	Paying guest	-	-		
	Any other specify	-	-		
8.	<b>Leisure time</b>				
	Reading books	1	1		
	Listening music	8	4		
	Travelling	4	3	45.88	0.56
	Physical workout	1	2		

*p>0.05 NS [not significant], \*Significant p<0.05 Chi-square test*

The likelihood ratio and chi-square test was used to find the association pre test scores of level of psychological wellbeing and selected demographic variables.

Data presented in Table 6 shows that there was no significant association between pre test level of experimental group psychological wellbeing and demographic variables such as age, course, order of birth, family income, type of family,

previous exposure to gym, place of stay and leisure time of the students. The obtained p values of chi-square and likelihood ratio test were >0.05. This shows there is no association between psychological wellbeing and selected demographic variable hence H<sub>2</sub> was rejected and H<sub>02</sub> was accepted. The study interpreted that physical workout is effective in improving the psychological wellbeing of the students.

**Table 7. Association between the pre test scores of psychological wellbeing in control group and selected demographic variables n=25**

S.I no	Demographic variables	Median n<151	Median n>151	$\chi^2$	p value
1.	<b>Age in years</b>	(f)	(f)		
	15-18	2	-		
	19-22	10	13	11.41	0.83
	22 and above	-	-		
2.	<b>Course of student</b>				
	B.Sc Nursing	-	-	-	-
	BPT	12	13		
	Allied science	-	-		

S.I no	Demographic variables	Median n<151	Median n>151	$\chi^2$	p value
3.	<b>Order of child birth</b>				
	1	5	6		
	2	4	5		
	3	1	2	56.16	0.28
	4 and above	2	-		
4.	<b>Family income</b>				
	Below Rs. 20000	6	4		
	Rs. 20000- 40000	4	6	27.08	0.79
	Above Rs. 40000	2	3		
5.	<b>Type of family</b>				
	Nuclear family	7	6		
	Joint family	5	7	16.31	0.50
	Extended family	-	-		
6.	<b>Previous exposure gym</b>				
	Yes	-	-		
	No	12	13	-	-
	If yes, when and how long	-	-		
7.	<b>Where do you stay?</b>				
	Home	-	-		
	Hostel	12	13	-	-
	Paying guest	-	-		
	Any other specify	-	-		
8.	<b>Leisure time</b>				
	Reading books	-	2		
	Listening music	5	7		
	Travelling	5	2	52.62	0.41
	Physical workout	3	1		

*p>0.05 NS [not significant], \*Significant p<0.05 Chi-square test*

Data presented in Table 7 shows that there was no significant association between pre test level of experimental group psychological wellbeing and demographic variables such as age, course, order of birth, family income, type of family, previous exposure to gym, place of stay and leisure time of the students. The obtained p values of chi-square and likelihood ratio test were >0.05. This shows there is no association between psychological wellbeing and selected demographic variable hence  $H_2$  was rejected and  $H_{02}$  was accepted. The study interpreted that physical workout is effective in improving the psychological wellbeing of the students.

### CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.\

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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