

## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

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### ABSTRACT

The aim of the study is to identify impact of physical activities on psychological wellbeing and stress. It tries to investigate the effect of physical exercise on stress and psychological wellbeing depending on its duration and frequency as well as the correlation between stress and psychological wellbeing. **Methods and Materials:** A quantitative research design was adopted to achieve the objectives of the present study, sample of 125 samples were selected from Nepalese community in Kathmandu district, Nepal through convenience sampling method. The standardized tools used for the study were Perceived Stress Scale (Cohen, 1983) to collect the data related to stress and Ryff's Psychological wellbeing (Ryff, 1989) for psychological assessment. Ryff's Psychological wellbeing scale having six dimensions of well-being, Autonomy, Environmental mastery, personal growth, positive relations with others, and purpose of life and self- acceptance. The samples are collected using online platform, which are later divided into three groups: who (1) don't workout at all, (2) workout for 4-6 hours in a week and (3) workout for more than 6 hours a week. The statistical measures used to analyze the data are correlation and ANOVA. **Results:** The findings of present study clearly indicate duration of Physical exercise have no significant difference in the mean stress scores of three groups ( $F=1.188, p<.308$ ) and mean psychological wellbeing scores of three groups ( $F.671, p<.513$ ). The results of present study supports that there is significant relation between stress and psychological wellbeing at the level of 0.01. **Conclusion:** The analysis of data provides the evidence that there is no significant difference among participants performing physical activities on a frequency of time, there was no significant difference between three categorical divisions of respondent. Additionally, there is a significant correlation between total stress experience and total psychological wellbeing experience by individuals.

**Keywords:** Stress, Psychological Wellbeing

**S**tress is a Latin word which is common language since 17th century. It is a state where environmental demands exceed the capacity for effective responses by individual and potentially have physical and physiological consequences. (Barrak, 2008) viewed stress as a dynamic transaction between individuals and their environment. However, it has been regarded as a psychological threat, in which the individual perceives a

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## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

situation as a potential threat. (Akande, 2014) concluded that stress threat the total equilibrium of a person's due to physiological and psychological tension. (Shealy, 1986) stated (60 to 90) % symptoms are psychosomatic and are consequence of unbalanced reaction to stress.

Globally, studies have reported levels of stress among medical students range anywhere from 25% to 75%. Similar studies conducted on medical students in the United States, Malaysia and Saudi Arabia have reported stress levels of 26%, 29.6% and 57% respectively and were related to their academic environment. Other studies have documented that this distress has further contributed to marital discord, poor physical health/self-care and in some cases suicide thoughts were present. Stress can be a motivator toward change and growth or cause of impairment. The dynamic relationship between the person and environment in stress perception and reaction is especially magnified among individuals who are not physically active. The problems and situations encountered by each individual may differ to everyone.

Psychological wellness refers to the positive mental state. It generally focuses on understanding the structure of psychological wellbeing or the dynamic. Carol Ryff's models are widely accepted theories of the Structure of psychological wellbeing. (Gladstone, Parker and Mitchell, 2004) analyzed that stressful experience can predispose people to subsequent mood and anxiety disorders, whereas individual exposure to extremely traumatic events can help to develop resilience and actually protect psychological wellbeing. (Mohan, 2006), evaluated that the last century has seen the immense change in the increment of anxiety into stress and burnout. Mental problems, stress and anxiety are considered as major problems of life. Mental problems are increased and become leading cause of hospitalization.

Survey conducted by Ministry of Health and Population (MoHP) and World Health Organization (WHO) in collaboration, concluded mental illness is increased highly. Around 76% to 85% of people with severe mental disorder, in low- and middle-income countries, receive no treatment for their mental health conditions. This Survey was conducted from date 2017 November to January 2021. According to WHO, it is clearly stated that those individuals who are actively involved in physical activity, at least 150- 300 minutes of moderate intensity exercise or 70-150 minutes Vigorous intensity exercise, throughout the week then they have high chances of reducing symptoms of depression and anxiety. Moreover, it will also help to reduced physiological health problems such as heart attack, strokes, diabetes and help to maintain quality of life and well-being. Likewise, survey conducted from England found that South Asians were 60% less likely than naïve Caucasians to meet government recommendation for physical activity.

Furthermore, the data shared by Anxiety and Depression Association of America, 18.1% of adults in United stated have experienced anxiety disorder in the past year. As well as, the National Institute of Mental Health notes that 7.1 % of United States adults have had major depressive episodes. Mentalhealth.Org, UK survey found out that those participants, who are involved in regular physical activity, can increase self-esteem and reduce stress and anxiety. There is approximately 20-30 % lower risk of depression and dementia for adults participating in daily physical activity. Adequate physical activities enhance mental wellness.

Three STEPS survey has been conducted in Nepal. In 2003, Sample was collected from capital city (n=2030) and later survey was done on both urban and rural districts in

## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

2004(n=7792) and 2007 (n= 4328). As a result, 2003 overall inactivity of 82.9% (males 74.6%, female 91.2%) in the urban residents was present. On the contrary, the 2007 National survey conducted in 15 out of 75 districts reported the overall inactivity status present was only 5.5% (males 3.5%, females 5.9%).

### *Objective of the study*

- To evaluate the effect of physical exercise on psychological well-being with regards to the frequency of physical exercise performed.
- To find out relation between stress experienced and psychological wellbeing experienced by individuals.

### *Hypothesis of the study*

H1: There will be a significant difference among the groups of individuals who (1) don't workout at all, (2) workout for 4-6 hours in a week and (3) workout for more than 6 hours a week with regards to the amount of stress they experience.

H2: There will be a significant difference among the groups of individuals who (1) don't workout at all), (2) workout for 4-6 hours in a week and (3) workout for more than 6 hours a week with regards to the amount of psychological wellbeing which they experience

H3: There will be a significant correlation between stress experienced and psychological wellbeing experienced by individuals.

## **METHOD AND MATERIALS**

The research was conducted using Quantitative research approach, using descriptive correlation research design. It is an inferential study which uses data to know about the overall population. The population of the study was selected from Nepalese community with sample of 125(male-74, female-51) living in a Kathmandu city.

### *Sample and Sampling method*

In the present study, sample was collected from Nepalese community where one hundred and twenty-five (N=125) Nepalese were selected as participants. These respondents were further categorized into three groups: who (first) People who do not work out, (second) people who work out 4-6 hours and (third) people who work out more than 6 hours a week. First, group consist of (n=51), Second group involves individuals who perform exercise about 4-6 hours in a week. These groups have altogether (n=51). Lastly, the third group consists of samples who work out more than 6 hours a week (n=25) involved in any kind of physical activities. The technique applied for selecting the subjects was Convenience sampling method.

### *Data Collection Tools*

Research instrument is a tool which is used to collect measure and analyze data. Questionnaire method was found most appropriate tool for data collection. Data collection was done through online mode, it is also practical way of collecting highest response rate in the present study. Firstly, socio-demographical information were collected in the beginning of data collection involving respondent's age, gender, educational status, occupation, whether they indulge in regular physical activity, type of physical exercise performed and number of hours spend for physical activities. Secondly, Standardized tool available in the field of study was used. They are: -

## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

- **Perceived stress scale by Sheldon Cohen:** It was developed by Sheldon Cohen in 1983. It measures the perception of stress. The questions in the Perceived stress scale. It asks about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way.
- **Psychological well-being Scale by Psychologist Carol D. Ryff:** It was developed by Psychologist Carol D. Ryff, in 1989. It consists of six areas of psychological wellbeing: autonomy, environmental mastery, personal growth, positive relations with others, and purpose in life, and self-acceptance. Higher total score indicates higher psychological wellbeing.

### *Data collection Procedure and Timeline*

Data was collected from the Nepalese community participants by using Standardized tool: Perceived Stress Scale with 10 items and Ryff's Psychological wellbeing Scale with 42 items. These items were converted into survey monkey and online data collection was done. Offline data could not be collected due to Pandemic. The researcher has made personal phone calls and text message to receive permission from the respondents and assurance for maintaining confidentiality was given. Respondents were shared the message that this research is for study purpose only and identity of the subject will not be disclosed.

Data collection was done through online mode using various social media platform such as WhatsApp, Gmail, Messenger and Viber. The questionnaire was formed in the Google form named Survey monkey, this application is used for surveying for various research queries. Sample was selected through convenience method of sample collection. Only respondent's from Kathmandu city is taken as Sample. Data collection was started from 31<sup>st</sup> January 2021 and continued up till 21<sup>st</sup> February. Total 3 weeks' time was taken for data collection.

### *Statistical tool*

The collected responses data are transformed to numeric scores and analyzed by using SPSS software. The tool of analysis is Pearson's correlation coefficient to provide the information whether the independent variables and dependent variables correlate with each other and to measure degree of relationship between variables. ANOVA (Analysis of Variance) is used to determine whether there is a significant mean difference between individual performing physical activities and individual do not perform any activities.

## **RESULTS**

*Table 1 : Descriptive Statistics of Variable (N=125)*

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Total Stress	125	3	37	18.81	5.799
Total Psychological wellbeing	125	132	217	170.79	18.211
Valid N (list wise)	125				

In the given table, the mean and standard deviation of different variable are displayed. Total stress experienced was in the range of 3-37 as the minimum and maximum obtained scores. The obtained mean of the sample is 18.81 and SD is 5.799. Similarly, the minimum and

## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

maximum value of total Psychological wellbeing ranges from 132-217. Whereas, the mean of Total Psychological wellbeing is 170.79 and SD is 18.21.

**Table 2: ANOVA of Stress**

Total Stress					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	79.660	2	39.830	1.188	.308
Within Groups	4089.732	122	33.522		
Total	4169.392	124			

The one-way ANOVA of stress is shown in Table 2 above. The F value was 1.188, with a significance of .308, showing that there is no significant difference between the three groups' means stress levels. As a result, the hypothesis is rejected. There will be no substantial difference in stress levels between people who (1) don't workout at all, (2) workout for 4-6 hours in a week and (3) workout for more than 6 hours a week.

**Table 3: ANOVA of Psychological Wellbeing**

Total Psychological wellbeing					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	447.248	2	223.624	.671	.513
Within Groups	40675.344	122	333.404		
Total	41122.592	124			

The above Table 3 displays the F value and significance using one way ANOVA of psychological wellbeing. F value found out to be .671 with significance at .513, which is more than 0.05 level, indicating that there is no significant difference in the mean psychological wellbeing scores, i.e There will not be a significant difference in psychological wellbeing between the groups of individuals on basic of the who (1) don't workout at all, (2) workout for 4-6 hours in a week and (3) workout for more than 6 hours a week with regards to the amount of psychological wellbeing which they experience.

**Table 4: Correlations**

		Total Stress	Total Psychological wellbeing
Total Stress	Pearson Correlation Sig. (2-tailed)	1	-.601** .000
	N	125	123
Total Psychological Wellbeing	Pearson Correlation Sig. (2-tailed)	-.601** .000	1
	N	125	125

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

In the given table, stress and psychological wellbeing correlation were measured by using statistical method Pearson correlation method. The present study monitors the stress and psychological wellbeing of the total sample size. It was found that there is a significant

## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

correlation at 0.01 levels between stress and psychological wellbeing. Hence, accepting the hypothesis given by the researcher that there is negative relationship between stress and the psychological wellbeing of an individual.

### DISCUSSION

The present study is based on the sample collected from the Nepalese community living in the Kathmandu city and these populations involve individuals who perform regular physical exercise. The statistical measure used to analyze the data is Co-relation and ANOVA. The findings of present study clearly represent the significant correlation between stress and psychological wellbeing including all samples at 0.01 level presented on the table 4.

The first hypothesis tries to examine the significant difference between the groups depending in the time and the frequency with regards to the amount of stress they experience. The results of present study do not accept the hypothesis. Thus, it shows no significant difference among the groups depending upon the amount of time spent for physical activity with regards to the amount of stress they experienced. This is the contradiction of previous studies, There was a study that show there is a significant negative relationship between physical activity and stress (Nguyen-Michel, Unger, Hamilton & Spruijt,2006).

The result of present study is contradiction to previous studies; this may be because of current pandemic status where participants are dealing with various life existence needs and survival techniques. Samples are not able to give continuity in their physical exercise as they perform in non-pandemic status.

The second hypothesis discussed the significant difference between the groups of individuals who (1) don't workout at all, (2) workout for 4-6 hours in a week and (3) workout for more than 6 hours a week with regards to the amount of psychological wellbeing which they experience. The existing research doesn't provide support to the hypothesis formulated. It is found that there is no significant difference between the groups of individuals depending upon frequency of exercise they perform a week with regard to the amount of psychological wellbeing. (Sagatun, Sogaard, Biertness, Selmer, Heyerdahl, 2007) stated the number of hours spent on physical activity per week was negatively associated with emotional symptoms at the age of 15-16, and there was no significant difference in strength and difficulties questionnaire subscales at the age of 18-19 based on weekly hours of physical activity. The hypothesis of present study doesn't support the current result of the study, which may be influenced by number of the sample. Other factors may include participants dealing with other stress factors of life sustainability including present status of world and country.

Lastly, third hypothesis it was examined the correlation between stress experienced and psychological wellbeing experienced by individuals. A significant and negative correlation was found between stress and the psychological wellbeing experienced by individuals. This means that as stress level rises, psychological wellbeing decrease, and when stress decreases, psychological wellbeing increases. This result support the previous study by (Strizhitskaya, Petrash, Savenysheva, Murtazina, Golovey & others, 2019) reported that associations between perceived stress and psychological wellbeing can be moderated by emotional stability. High levels of emotional stability can prevent or delay the effect of stress in psychological wellbeing.

## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

Hence, there is a significant correlation between stress experienced and psychological wellbeing experienced by individuals. The achieved results have been interpreted and discussed in light of existing evidence and observation. The findings of the present study bear significance in adding consistency and stability to some of the findings of previous studies but some issues still remain unresolved. Therefore, more replicable studies are necessitated to have a deeper probe in the area. Researcher is unable to identify significant difference between the three different category of sample with stress and psychological wellbeing, this may be affected by various external factors such as the number of sample size which is less, and the chance may be higher if the researcher has taken larger sample size. The other possible cause may include the pandemic; in the middle of pandemic there may be various other elements who are affecting the stress level of the sample which directly and indirectly affected the result.

### CONCLUSION

Active living style of individuals is highly beneficial whereas potential cost of inactive living may end with severe consequences. Many individuals in the world have understood the benefits of performing physical activity in their health and psychological wellbeing so do Nepalese population but the ratio of individual involvement in active participation can be increased if more awareness activities are conducted in a systematic way. Basically, numbers of people are involved in physical activity and exercises just to avoid potential health risks, nevertheless, this number can be significantly raised if individuals understand the need of physical activity in basic maintenance of health. Therefore, government and various policies making agencies, school and universities can involve this topic as the part of their curriculum development.

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## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

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## Effect of Physical Exercise on Stress and Psychological Wellbeing of Nepalese Population

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### **Conflict of Interest**

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