



**To Assess The Effect Of Encouragement On Physical Activity Level, Stress Level And Cognitive Functions**

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**Abstract**

Stress and physical activity along with cognitive functions have many divergent and overlapping effects on different systems of the body. Encouragement of people will have a positive impact on humans and have better cognitive and perform more physical activity with improved cognitive functions. In the present study encouraging talks showed the better improvement in physical activity and decreased stress and improved cognitive functions. Encouraging and positive talks improves the physio-cognitive functions of individuals.

**Introduction**

Physical activity is defined as ‘bodily movement produced by the contraction of skeletal muscle and that substantially increases energy expenditure’ [1]. Physical activity broadly encompasses exercise, sports, and physical activities done as part of daily living, occupation, leisure, and active transportation” [2]. The association between physical

activity, exercise, and health outcomes is well-established [3, 4]. Intervention studies suggested that increased physical activity results in profound reductions in physical ailments [5,6]. There is a similar picture of exercise on mental health outcomes. Those who exercise suffer less from depression, anxiety, fatigue, and cognitive impairments [7-12]. Stress may be defined as a state of threatened homeostasis, which is counteracted by adaptive processes involving affective, physiological, biochemical, and cognitive-behavioural responses in an attempt to regain homeostasis [13, 14]. Cognitive functions are brain activities which include: memory, attention, visual-spatial, and executive functions, while complex cognitive processes include: thinking (abstract, cause and effect, creative thinking, and planning) and language functions [15]. A brief period of stress can potentiate memory formation, and

recent work has uncovered some of the likely underlying mechanisms.

In contrast, more severe or prolonged stressors can have a deleterious effect upon broad aspects of cognition. Some evidence suggests that some of these effects can probably be attributed to the reversible changes in the morphology of neurons within the hippocampus, a central to learning and memory[16]. So the present study aimed to assess the effect of encouragement on physical activity level, stress level and cognitive functions.

### Materials and Methods

The present longitudinal observational study conducted in the department of Physiology K.D Medical College, Mathura. The data was collected from the 50

healthy young adults of 18-25 age group (voluntary participation) after getting consent and institutional ethical clearance. Those are physically inactive selected using GPAQ. [17] The data was collected four times. And at every sitting of data collection, they were discussing the importance of physical activities (i.e. exercise/ sports/ leisure/ active transportation or any other activity of their choice) on our lives. Data of stress was collected by using Cohen Perceived Stress Scale [18], physical activity by using GPAQ and cognitive functions by using MMSE. [17,19] Statistical analysis was carried out using SPSS version 16.0. Analysis of variance (ANOVA) was used for comparison of data.

### Results

Parameter	Baseline	After 1 month	After 2 months	After 3 months	f- value	P value
Age (year)	22.07 ±1.70	22.16 ±1.68	22.23 ±1.81	22.3 ±1.9	<b>0.153</b>	<b>0.927</b>
Height	172.33 ±8.87	172.32 ±8.82	172.6 ±8.79	172.7 ±8.69	<b>0.024</b>	0.995
Weight	67.43 ±11.64	67.29 ±10.98	66.73 ±9.82	66.13 ±8.91	<b>0.163</b>	0.921
BMI	22.7 ±4.56	22.7 ±5.35	22.4 ±6.14	22.2 ±5.9	<b>0.098</b>	0.961
GPAQ	831 ±462.32	1326.33 ±623.77	1530.2 ±510.72	1724.2 ±677.68	22.293	0.000
PSS	16.23 ±4.1	14.5 ±4.47	12.85 ±4.08	12.06 ±5.18	8.535	0.000
MMSE	20.57 ±2.86	24.96 ±2.09	26.6 ±2.4	26.8 ±2.75	64.786	0.000

Significance (p<0.05)

### Discussion

The present study was designed to observe the effect of encouragement on physical activity level, stress and cognitive functions. Stress is a growing phenomenon of modern society. [20] Sedentary behaviour, can contribute

to serious physiological and psychological problems such as the increased risk for obesity, metabolic syndrome, cancer, cardiovascular issues, and worse body satisfaction and self-esteem. [21] Physical activity can be seen as an effortful activity, less self-regulatory resources, time constraints, or low motivation during

stressful times might account for this effect. [22] In accordance, a lack of time and exhaustion – potential side effects of stress – have been major contributors to physical inactivity. [23] Many shreds of evidence demonstrated that physical exercise (PE) affects brain plasticity, influencing cognition and wellbeing. [24, 25] The psychological hypothesis proposed to explain how PE enhances wellbeing, it has been underlined feeling of control [24], competency and self-efficacy [26], improved self-concept and self-esteem [27], positive social interactions and opportunities for fun and enjoyment. [28] The present study result showed that at the time of collection of baseline data, the adults were in moderate stress level, physically active and mild cognitive impairment. As according to methodology, the subjects were suggested to involve in physical activities and not to take the stress. Improvement in physical activity was seen over the time period, and also the decrement was seen in stress level. And betterment was seen in cognitive functions over the time period. This improvement can be due to motivation changes the lifestyle of subjects as the betterment was seen in the physical activity level. Coelho et al., 2013 suggested that there was an improvement in depressed mood post-exercise PE was identified in the modulation of peripheral levels of BDNF. [29] Conversely Brunoni et al., 2008 suggested that physical inactivity correlated to worse depressive symptoms and, then, to lower peripheral levels of BDNF. [30] In the present study, the changes in the parameters were significant ( $p < 0.05$ ).

### Conclusion

Based on the present study results, we can conclude that encouraging talks with peoples help change their lifestyle. So encouragement to people to adhere in physical activities is useful as the initiation of

physical activity. Positive talks and encouragement of people leads to a happy life and positive attitude.

Conflicts of interest: There are no conflicts of interest.

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