



## CORRELATION BETWEEN PSYCHOLOGICAL WELL-BEING AND AEROBIC CAPACITY AMONG YOUNG ADULTS

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**ABSTRACT** **Background:** Psychological wellbeing and mental health are major health issues and they affect physical health. Physical activity is an important factor used in mental health to treat and prevent both physical and some mental disorders such as depression and anxiety. Increasing levels of physical activity have a positive impact on physical health and mental well-being. **Aims & objectives:** The objective of the study is to determine the state of Psychological Well-being, level of Aerobic capacity and assess the correlation between Psychological Well-being & Aerobic capacity. **Materials and methods:** It was an Observational study in which 196 young adults participated who were meeting inclusion criteria. All subjects were instructed to fill Ryff's psychological wellbeing scale. Then all those subjects were instructed to perform 20 meter shuttle run test and calculated the Vo2max. **Results:** Ryff's psychological well-being scale is correlated with aerobic capacity through VO2max with correlation value  $r = 0.622$  in general. Even gender specific correlation between Ryff's scale and VO2max in young males and females subjects is also positively correlated with  $r$  value 0.553 and 0.634 in males and females consequently. **Conclusion:** There is a significant correlation between psychological well-being and aerobic capacity among young adults.

**KEYWORDS :** Psychological well-being, Aerobic capacity, Ryff's (18 item) Psychological Well-being Scale, 20 meter shuttle run test, VO2max

### INTRODUCTION:

Psychological well-being is a component of mental health. According to WHO, Mental Health defined as "A state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community."<sup>[1]</sup> It includes six components of positive psychological function. A positive attitude toward oneself and one's past life (self-acceptance), high quality, fulfilling relation with others (positive relations with others), a sense of separation, independence, and freedom from norms (autonomy), having life goals and a confidence that one's life is meaningful (purpose in life), the ability to manage life and one's surroundings (environmental mastery), and being open to new experiences as well as having continued self-development (personal growth).<sup>[2]</sup>

Around 50 % of the people are suffer from a mental illness at some point at their lifetime. Mental health disorder may be present due to the job stress , social , occupational or any kind of stress.<sup>[3]</sup> Emotional wellbeing and mental health concerns are major health issues and they affect physical health.<sup>[4]</sup> Physical activity is an important factor used in mental health to treat and prevent both physical and some mental disorders such as depression and anxiety.<sup>[5]</sup>

Physical activity have been proved to improve psychological well-being. It will improve blood circulation in the brain. This physiologic influence is mediated by the communication of the hypothalamic pituitary adrenal axis with several region of the brain including limbic system, amygdala, hippocampus; collectively all are controlling stress, fear, memory, mood and motivation.<sup>[5]</sup>

Physically active people are healthier than those who do not take part in meaningful exercise, still most young adults do not perform enough physical activity to achieve health and wellbeing benefits especially psychological wellbeing.<sup>[6]</sup> Hardman (2001, p. 1195) said that "Physical inactivity is a waste of human potential for health and well-being".<sup>[7]</sup> Increasing levels of physical activity have a positive impact on physical health and mental well-being. So, it is necessary to address the psychological effects of Physical Activity as Physical activity reduces sedentary life style and also reduce the number of psychological issues.<sup>[6]</sup>

Psychological well-being has been increased with low and moderate amounts of physical activity. Psychotherapists mostly use this approach as basic instrument to specifically focus on measuring psychological wellbeing of individuals.<sup>[8]</sup> Even though physically fit people have a decline in psychological well-being due to lack of some physical activities so they should be individually involved in fitness along with their daily physical activities because it is required to have a perfect physical and mental well-being.<sup>[9]</sup> So, it is necessary to aware about physical fitness. Physical fitness is described as the ability to perform physical work.<sup>[10]</sup> And is directly related to the potential of an

individual to perform physical exertion or exercise.<sup>[11]</sup> Physical fitness is the capacity to adapt and respond favorably to physical effort. Physical fitness involve more than the ability to do a work without a large amount of effort.<sup>[12]</sup> Fitness levels can be described as a continuous sequence from poor to superior based on energy expenditure during a session of physical work. These ratings are based on direct or indirect measurement of the body's maximum oxygen consumption (VO2 max). Oxygen consumption is influenced by age, gender, heredity, inactivity, and disease.<sup>[10]</sup>

Ryff's 18 item scale of psychological well-being is a widely-used scale which is designed to measure six dimensions of psychological well-being. Carol Ryff has study on physiological wellbeing and psychological well-being.<sup>[13]</sup> It is a self-report scales in which respondents read the questions and select a response by themselves.<sup>[14]</sup> The scoring of this scale is from 1 to 7. Higher scores mean higher levels of psychological well-being.<sup>[15][16]</sup> Whereas the 20 meter shuttle run test also called the "Course Navette", "PACER", or "Multistage fitness test" is the most widely used field test for estimating cardiorespiratory fitness.<sup>[17]</sup> The 20 meter shuttle run test is simple and easy to administer without consuming much time. It consists of one-minute stages of continuous, incremental speed running. And the test ends when the individual fails to reach the end lines concurrent with the audio signals on two consecutive occasions.<sup>[18]</sup>

Ativie RN, et al., Correlate the Level of Physical Activity in Young Adult. In their study, they uses an International Physical Activity Questionnaire and Ryff's psychological well-being scale whereas Bog et al., studied the relationship between mental health and health-related physical fitness in University students. Here we are focusing on finding correlation of psychological well-being with physical fitness. Psychological well-being assessed by using Ryff's scale where as physical fitness is assessed in terms of aerobic capacity using 20 meter shuttle run test.

### Methodology

**Study design:** It was an Observational study design. performed at Sports ground of Parul University, Vadodara.

**Study population and setting:** Initially 200 young adults were screened out of them 196 Young adults were taken who were meeting inclusion criteria.

### Inclusion criteria:

- Both male and female individuals
- Age group 18-25 years College going students
- BMI between 18.5 to 24.9 Kg/m<sup>2</sup>

### Exclusion criteria:

- Girls having a Menstruation and other gynecological problems were excluded.

- Subjects having other disease like Asthma, Diabetes mellitus, Thyroid dysfunction, Hypertension, Lipid dysfunction etc.
- Subjects having Physical disability.

**Procedure:** Total 200 subjects were under assessed for initial screening, that was done for exclusion criteria and Body mass index. Out of 200 total 196 subject were participated in study. Who were assigned written consent and those who were fulfilling the inclusion criteria, explained about thRyff's (18 item) psychological well-being scale. They were instructed to fill the scale according to the scoring. 1 = strongly agree, 2 = somewhat agree, 3 = a little agree, 4 = neither agree or disagree, 5 = a little disagree, 6 = somewhat disagree, 7 = strongly disagree.

After filling the Ryff's scale; subjects were instructed to perform 20 meter shuttle run test and in the end VO<sub>2</sub>max is calculated.

**Statistical analysis**

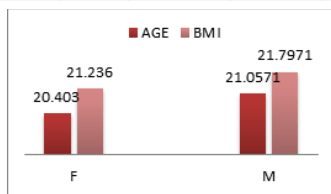
Statistical analysis was done by using IBM SPSS Version 20 and Microsoft Excel 2010. Outcome measures Ryff's (18 item) scale and VO<sub>2</sub>max correlated using spearman's correlation. Whereas mean, SD and graphical presentation was made by using Microsoft Excel2010.

**Results**

Results would be obtained by correlating the value of outcome measure (Ryff's (18 item) scale of psychological well-being score and VO<sub>2</sub>max) by using spearman's correlation, mean and SD as shown in tables and graphs below:

**Table no:1 demographic distribution**

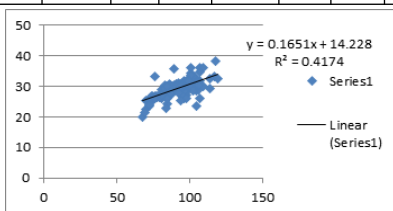
Variables	Female		Male		Total	
	Mean	SD	Mean	SD	Mean	SD
Age	20.403	1.625	21.0571	1.258	20.520	1.583
BMI	21.236	1.947	21.7971	2.257	21.336	2.011



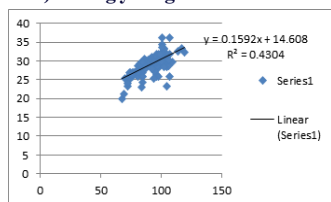
**Graph no:1 demographic distribution**

**Table no. 2 Correlation of Psychological well-being and Aerobic capacity (VO<sub>2</sub>max) among young adults**

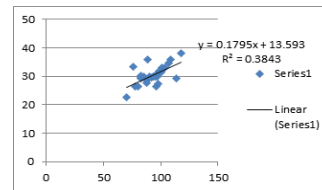
Outcome measures	Mean			SD			q-Value		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Ryff's scale	93.20	91.64	91.92	10.42	9.92	10.00	0.553	0.634	0.622
VO <sub>2</sub> max	30.32	29.2	29.40	3.01	2.40	2.55			



**Graph no: 2 Correlation of psychological well-being and aerobic capacity (VO<sub>2</sub>max) among young adults**



**Graph no: 3 Correlation of psychological well-being and aerobic capacity (VO<sub>2</sub>max) among female**



**Graph no: 4 Correlation of psychological well-being and aerobic capacity (VO<sub>2</sub>max) among male**

Table-2 shows average value and SD of Ryff's (18 item) scale of psychological well-being and 20 meter shuttle run test among young adults. In male, Ryff's scale's mean and SD is 93.20±10.42 and in 20 meter shuttle run test, mean and SD is 30.32±3.01 and Correlation value is 0.553 where In female, Ryff's scale's mean and SD is 91.64±9.92 and in 20 meter shuttle run test, mean and SD is 29.2±3.01 and Correlation value is 0.634. In general, mean and SD of Ryff's scale is 91.92±10.00 and in 20 meter shuttle run test, mean and SD is 29.40±2.55 and Correlation value is 0.622

**DISCUSSION**

This study was done to assess the relationship between psychological well-being and aerobic capacity among young adults. In this study, the physical fitness of subjects are assessed in form of aerobic capacity (VO<sub>2</sub>max) by using 20 meter shuttle run test and psychological well-being are assessed by Ryff's (18 items) scale of psychological well-being.

From results we found a positive correlation between physical fitness/aerobic capacity psychological well-being among young adults.

Guszkowska M. found that Aerobic exercise have been proved to reduce anxiety and depression because it will improve blood circulation in the brain. It influence the function of hypothalamic pituitary adrenal axis and that's why its indirectly affects the physiologic reactivity or stress.

Many studies have been conducted to see the correlation between mental health and physical fitness but there is limited literature which shows direct correlation of psychological well-being with aerobic capacity. So, this is an attempt to find the correlation between psychological well-being and aerobic capacity among young adults.

Mehrabi Saadat et al. found that aerobic exercises affects the mental well-being and its different aspects caused mental well-being of students and it relieves depression in a large number of cases.[19] Smith et al. reported that even modest engagement in physical activity may be neuro- protective against cognitive decline in later life.[38] Contradictorily, Ethan McQuirk et al. found non-significant relationship between physical activity and psychological wellbeing (r = .11).[21] Whereas Leonardo Machado et al. stated that increase subjective well-being in order to reduce symptoms of common mental disorders in medical students[20] Similarity with our results also showed that psychological well-being have impact on person's physical fitness in terms of aerobic capacity with correlation value( ) = .622 as showed in table no.3.

**CONCLUSION**

As our results clearly showed positive correlation between psychological well-being scale and Vo<sub>2</sub>max therefore it is concluded that those who is having higher psychological well-being scale having higher VO<sub>2</sub>max. So, psychological well-being and aerobic capacity positively correlated.

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