

Assessment of physical and psychosocial health status of people attending Gym

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ABSTRACT

Background: Regular physical activity is known for its cardiovascular advantages, yet strenuous exertion can elevate the risk of cardiovascular incidents, including sudden cardiac arrest. Recent cases of young, seemingly healthy individuals experiencing heart attacks during gym workouts highlight this contradiction. This study is to assess the physical and psychosocial health profiles of gym-goers. **Methodology:** A cross-sectional study was conducted over one year involving 201 gym-goers aged 15-65yrs from the catchment area of tertiary care hospital. Physical and Psychosocial health was evaluated using the Psychological General wellbeing scale (PGWBI-S) short version. **Results:** The majority of participants (45.2%) were young adults in the age group of 18-30 years and predominantly male (76.1%). Most had normal blood pressure (88.07%) and a BMI in the range of 25-30 (52.2%). Psychological well-being was assessed using (PGWBI-S) short version scale The mean score in the domains like anxiety, vitality1(energy), depressed mood, self-control, positive wellbeing and vitality2(tiredness) were 3.84, 3.51, 3.77, 3.07, 3.21 and 3.36 respectively and majority people attending gym (89%) had total mean score of 20.78 on the scale 0-30. **Conclusion:** Most of the gym attendees had good physical and psychological health. Most of them maintain normal blood pressure and BMI and follow balanced diets with an emphasis on protein intake. The mean Psychological well-being score is high (20.78) among gym-goers on scale 0-30.

Key words: Physical activity, People attending Gym, Physical and Psychosocial Health Status, Psychological General Well-Being Index (PGWBI-S) short version.

Introduction

Regular physical activity has beneficial effects on cardiovascular health and reduces cardiovascular mortality both in primary and secondary prevention. However, an increased risk of cardiovascular events, such as acute myocardial infarction and sudden cardiac death (SCD), has been noted during and immediately after intense physical exertion. Sudden cardiac arrest (SCA) is a potentially reversible event of arrhythmia causing collapse of the cardio-vascular system. In recent years many famous celebrities had lost their lives due to heart attacks while working in their gym. People often have the assumption of gym -goers as healthy people with fit and good-looking bodies. But this may not be true because many Indian celebrities who looked young and fit passed away due to cardiac arrest.¹ Sudden death (SD) is in 80–85% of cases of cardiovascular origin. Exercise performed regularly and continuously can protect against the risk of SD, but it can increase the risk if there is an occult pathology that is unmasked during the effort.²⁻³

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Lacks of physical activity along with smoking and poor diet are main risk factors for premature death.⁴⁻⁶ It is good for people to engage in moderate physical activity daily without over exerting themselves. It is recommended that young adults engage in at least an average of 60 minutes per day of moderate physical activity or minimum of 150 min of vigorous physical activity per week.⁵

Hence the present study was done to study physical and psychosocial health status of people attending the Gym.

Objectives:

1. To study socio-demographic factors and exercise, dietary pattern among people attending the Gym.
2. To study physical status & morbidity pattern of people attending the Gym by using International Physical Activity Questionnaire (IPAQ).
3. To study psychological health status of people attending the Gym by using “Psychological General wellbeing Index” short version (PGWBI-S).

Methodology

Study Design: A cross sectional study.

Duration of study: 1 year (Jan 2023- Jan 2024)

Study population: People residing at in the catchments area of tertiary care hospital, Navi Mumbai.

Sampling Technique: Convenience Sampling

Selection of Study Subjects: There are 12 Gym and fitness point centres are located in the surrounding of tertiary care hospital. In all the Gyms, approximately 50 to 60 people come for exercise daily. People in the age group of 15 to 65 years are selected for the present study. 30% of people from all 12 gyms are selected randomly. Thus, a total 201 people in the age group of 15 to 65 years coming to the Gym regularly are selected for the present study. After informed consent of the study participants, the people attending the Gym were interviewed by the research investigator with the help of pre-designed, pre-structured validated questionnaire.

Sample size: 201 people attending the Gym.

Inclusion & exclusion Criteria

Inclusion criteria:

- The people attending the Gym in the age group of 15-65 yrs of age
- Person who were regularly attending the Gym since 6 months.

Exclusion criteria:

- Person below 14 years and above 65 years.
- Person who is having existing cardiac ailments.

Method of collection of data- Interview Method.

Instrument of Study:

1. A pre designed and pre structured questionnaire were used to evaluate socio-demographic and dietary pattern among people attending the Gym.
2. Physical activity of people attending Gym were assessed with the use of International Physical Activity questionnaire (IPAQ) August 2002 short version.^{7,8} The purpose of the questionnaires was to provide common

instruments that can be used to obtain internationally comparable data on health-related physical activity. Extensive reliability and validity testing undertaken across 12 countries (14 sites) during 2000.

3. Psychosocial status of people attending the Gym were assessed with the questionnaire tool “Psychological General well being Index” (PGWBI-S) Short version.^{9,10} The original PGWBI is a 22-item health-related Quality of Life (HRQOL) questionnaire developed in US which produces a self-perceived evaluation of psychological well-being expressed in six domains: anxiety, vitality 1 (energy), depressed mood, positive well-being, self-control, vitality 2 (tiredness, general health) by a summary score. In this study we had used Psychological General wellbeing Index Short version (PGWBI-S) and six item questionnaire were administered to study subjects and graded score from zero to five ranging from low to high.¹⁰

Data Analysis:

Data thus entered in excel sheet and analysed with SPSS26 and appropriate tests were used. The data obtained was used research purpose only and confidentiality was maintained.

Results

Socio-demographic profile of people attending Gym: According to the collected data, 45.2% of people who were going to the gym were between the age groups of 18-30 years and were males (76.1%).The maximum number of people were professionals (40.29%). 88.07% of people who attended the gym had a normal blood pressure 120/80 mmHg, with no substance use or addiction (77.1%). Majority (52.2%) had BMI (Body Mass Index) within the range 25-30, followed by 45.8% of people were having BMI in the range of 18.5 to 24.99 (Table-1).

Table-1: Socio-demographic profile of people attending Gym

Socio- demographic profile of people attending		No.	%
Age in years	18-25	68	33.8
	26-30	23	11.4
	31-40	20	10.0
	41-50	19	9.4
	51-60	59	29.4
	61-75	12	6
	Total	201	100
Sex	Female	48	23.9
	Male	153	76.1
	Total	201	100
Occupation	Student	49	24.39
	Businessman	33	16.43
	Job	26	12.9
	Trainer	9	4.49
	Professionals	84	41.79
	Total	201	100
Blood Pressure	Below 120/90	7	3.48
	At 120/90	177	88.07
	Above 120/90	17	8.45
	Total	201	100
Substance use	Drinking	25	12.4
	Smoking	6	3
	Both	8	4
	None	155	77.1
	Other	7	3.5
	Total	201	100
BMI	lowest -18	4	2
	18.50-24.99	92	45.8
	25- 30	105	52.2
	Total	201	100

Exercise Pattern of people attending the Gym.

The 45.3% of the people joined the gym since six months whereas only 32.9% people were consistently going to the gym since more than three years. Most of the people (69.6%) had attended the gym more than four to five times a week. Very few people had experienced chest pain (4.5%) while doing work out while most of them do not (95.5%). Majority did not feel pain in the chest while doing any sort of physical activity (88.05%). Almost everyone knew the benefits of warm up and cool down and do so before exercising (86.6%). Most of them did not have a trainer to supervise their routine or technique (57.2%). Majority (49.3%) socialized with their friends and relatives once a week while on the other hand most (56.7%) prefer exercising alone (Table-2).

Assessment of physical activity of the attendees according to International Physical Activity Questionnaire: 108 (53.7%) people engaged in vigorous physical activities. This included high intensity like aerobics, fast cycling. 27 (13.5%) people also engaged in moderate physical activities excluding walking. This showed majority had some amount of physical activity. 66 (32.8%) people engaged in very low physical activity like walking.

Table-2 : Exercise pattern of people attending the Gym.

Exercise Pattern	No.	%	
When did you join the gym?	6 months	91	45.3
	1 year	30	14.8
	2 years	14	7.0
	3 years	10	5.0
	>5 years	56	27.9
	Total	201	100
How many days a week do you attend the gym?	Less than four days	61	30.4
	Four and more days	140	69.6
	Total	201	100
Do you feel chest pain during exercise?	No	192	95.5
	Yes	9	4.5
	Total	201	100
In the past month, have you had chest pain when you were doing physical activity?	No	177	28.1
	Yes	24	11.9
	Total	201	100
Do you warm up and cool down before and after exercising?	No	27	13.4
	Yes	174	86.6
	Total	201	100
Do you have a trainer to supervise you and is your technique correct?	No	115	57.2
	Yes	86	42.8
	Total	201	100
How frequently do you meet with your friends and relatives? (Social gathering)	Never	8	4
	Occasionally	65	32.3
	Once 3-4 month	16	8.0
	Once a month	13	6.4
	Once a week	99	49.3
	Total	201	100
Do you prefer exercising with a friend or alone?	Alone	114	56.7
	With a friend	87	43.3
	Total	201	100

This showed that most people (67.2%) liked to engage in high intensity workouts while least people did not engage in any activity and preferred walking.

Dietary pattern of people attending the Gym

Most of the people consumed a mixed diet (55.2%) with high protein (38.4%). Majority of the people attending the Gym were aware that their protein intake in grams should be same as their body weight in kilograms (51.2%). Most people consumed fast food once in a week (89.6%). Most of the people consumed eggs daily. Rice was a part of their once a day meal (52.2%) and sugar being one spoon a day (37.8%) while 22.9% were aware of the ill effects and did not consume sugar (Table- 3).

Table-3 : Dietary pattern of people attending the Gym.

Dietary Pattern		No.	%
What type of diet do you consume?	Mixed	111	55.2
	Non-vegetarian	37	18.4
	Vegetarian	49	24.4
	Others	4	2
	Total	201	100
Are you following a certain dietary pattern?	Vegan	2	1
	High carbohydrate	10	4.9
	High protein	77	38.4
	Keto diet	6	2.9
	Low carbohydrate	2	1
	Other	104	51.8
	Total	201	100
Are you aware that your protein intake is the same as that of your weight? (gm=kg)	No	98	48.8
	Yes	103	51.2
	Total	201	100
Do you eat fast food?	2-3 times a week	1	0.5
	Everyday	12	6.0
	Once in a month	1	0.5
	Once in a week	180	89.6
	Don't eat	7	3.4
	Total	201	100
How many eggs do you consume a day?	1	49	24.4
	2	43	21.3
	More than 2	49	24.4
	No eggs	60	29.9
	Total	201	100
How frequently do you consume rice?	Occasionally	44	21.9
	Once a day	105	52.2
	Twice a day	40	19.9
	Once weekly	12	6.0
	Total	201	100
How frequently do you consume sugar in your diet?	1 spoon a day	76	37.8
	2-3 spoons a day	64	31.9
	More than 4 spoons	2	1
	Don't consume	46	22.9
	Once in a while	13	6.4
	Total	201	100

Health status and morbidity pattern of people attending the Gym

Only 5.5% of gym goers were having history of hypertension followed by 3% Gym goers had history of diabetes mellitus and 7.5% had history of high cholesterol.

Most of them did not have a past history of any diseases (65%) and didn't take any drugs for blood pressure stabilization or heart conditions (60.7%)

Majority (92.5%) people did not lose their balance because of dizziness and don't have a bone or joint problem (72.6%) (Table-4).

Table-4: Health status and morbidity pattern of people attending the Gym

	Health Status and Morbidity Pattern	No.	%
Past history of diseases	Hypertension	13	6.5
	High cholesterol	15	7.5
	Chronic pain	12	6
	Diabetes	6	3
	Other	23	12
	None	132	65
	Total	201	100
Is your doctor prescribing drugs for your blood pressure or heart condition?	No	122	60.7
	Yes	30	14.9
	Not Applicable	49	24.4
	Total	201	100
Do you have a bone or joint problem (e.g., Back, knee, hip) that could worsen by physical activity?	No	146	72.6
	Yes	55	27.4
	Total	201	100
Do you lose balance because of dizziness or do you ever lose consciousness?	No	186	92.5
	Yes	15	7.5
	Total	201	100

Assessment of Psychological wellbeing of people attending Gym by PGWBI-S: The psychological General well-being of people attending the gym was evaluated using Psychological general wellbeing short version (PGWBI-S) scale for attributes like anxiety, vitality, depressed mood, self-control, positive wellbeing and vitality (tiredness). There are six domains which are scaled on six points Likert scale ranging from 0 to 5, with 0= most negative response and 5= most positive response, thus total score ranges from 0- 30 score, there is no cut off score according to PGWB-s version, higher the score will suggest good psychological wellbeing of an individual and vice versa.

The mean score in the domains like anxiety, vitality 1 (energy), depressed mood, self-control, positive wellbeing and vitality 2 (tiredness) were 3.84, 3.51, 3.77, 3.07, 3.21 and 3.36 respectively. Result revealed that the mean scores in the domain anxiety, depressed mood and vitality 1(energy) were higher as compared to other domain like positive wellbeing, self-control and vitality 2 (tiredness).

The mean total score in all domains was 20.78. 89% of the people who were going gym had total score in the range of 16-30 score. (Table 5.1, 5.2).

Table-5.1: Assessment of Psychological wellbeing of people attending the Gym by PGWBI-s

Attributes of Psychological general well being	No.	Mean ± SD Score	Median
Total Score in all domain	201	20.78 ± 4.525	21.0
Anxiety	201	3.84 ± 1.340	4
Vitality 1(Energy)	201	3.51 ± 1.054	4
Depressed Mood	201	3.78 ± 1.164	4
Self-Control	201	3.07 ± 1.456	4
Positive Well being	201	3.21 ± 1.122	3
Vitality 2 (tiredness)	201	3.36 ± 1.064	3

Table-5.2 : Assessment of Psychological wellbeing of people attending Gym by PGWBI-S

Mean scores of PGWBI-S version	No. of People	%
0-5	0	0
6-10	6	3
11-15	16	8
16-20	67	33.3
21-25	84	41.8
26-30	28	13.9

Association of sociodemographic factors with Psychological wellbeing Scores:

On comparison of the mean scores of Psychological wellbeing with age and sex of gym attendees, 68% of Gym attendees in the age group of 15-25 years had mean scores of psychological wellbeing in the range of 6-15 out of 30, whereas the mean score was above 26 to 30 in the age group above 36 to 65 years. 72.7% of males had low psychological scores (6-15) as compared to females (27.2%). Overall males had higher mean psychological scores (mean score above 16 to 30) as compared to females. The difference was statistically significant at 95% level ($p < 0.05$) (Table- 6).

Table -6: Association of socio-demographic factors with Psychological wellbeing Scores

Socio-demographic variables		The mean scores of Psychological wellbeing scale								P value
		6-15		16-20		21-25		26-30		
		No.	%	No.	%	No.	%	No.	%	
Age group (yrs)	15-25	15	68.2	23	34.3	37	44.1	2	7.2	P< 0.05
	26-35	2	9.1	21	31.4	13	15.5	3	10.7	
	36-65	5	22.7	23	34.3	34	40.4	23	82.1	
	Total	22	100	67	100	84	100	28	100	
Sex	Female	6	27.3	28	41.7	12	14.3	2	7.2	P< 0.05
	Male	16	72.7	39	58.3	72	85.7	26	92.8	
	Total	22	100	67	100	84	100	28	100	

The results show that adolescents in the age groups between 15-25 years have a lower psychological well-being compared to older ages. The reason to this can be young age, stress, study pressure, insecurities. On the other hand, the people over 35 years have a good psychological well-being (>20-30).

On comparing the males with females, the males had a low psychological well-being in younger age group (15-25 years) whereas in the older age groups (>26 to 65 years) males had a better psychological well-being scores (>20 to 30). This difference was statistically significant ($p < 0.05$) (Table- 6).

Discussion

Assessing the health profiles of individuals attending gyms involves considering a spectrum of factors beyond physical fitness alone. Socio-demographic characteristics, exercise patterns, dietary habits, and health status collectively contribute to a holistic understanding of their health and well-being. By addressing these multifaceted dimensions, stakeholders can better promote and support optimal health outcomes among Gym attendees. This discussion synthesizes the varied aspects of health profiles in gym settings, emphasizing the need for comprehensive assessments and targeted interventions to optimize health and well-being, reducing the number of fatal accidents.

1. Socio-demographic Profile of Gym attendee: The socio-demographic characteristics of individuals attending gyms provide important context for understanding their health profiles. According to the collected data, significant proportions (45.2%) of gym-goers are young adults aged 18-30 years, predominantly males (76.1%). This demographic trend aligns with studies showing higher gym participation rates among young adults seeking

fitness and aesthetic goals. A comparative study by Johnson et al.¹¹ found similar trends in gym demographics, with a high representation of young males prioritizing fitness. Professionally, large portions (40.29%) of gym attendees are professionals, reflecting a demographic that likely values health and fitness amidst demanding work schedules.¹²

2. Physical Health Status & psychological health status of Gym attendee: Assessment of physical health parameters reveals positive trends among gym attendees. According to our study majority maintain normal blood pressure levels (88.07%) and have a normal BMI (45.8%), this coincides with another study^{13, 14} indicating a baseline of good cardiovascular health and weight management. A comparative analysis with data from a study by Black et al.¹⁵ corroborates these findings, showing similar rates of normal BMI and blood pressure among regular gym attendees. Exercise patterns also indicate proactive health behaviors, with most individuals joining the gym recently and engaging in regular sessions per week.¹⁶ Smith and colleagues (2020) observed comparable exercise patterns in their study, highlighting consistent trends in gym attendance and exercise frequency among diverse populations.

Psychosocially, gym attendees demonstrate a mixed pattern of social interaction and exercise preferences. According to our study, 49.3% of individuals socialize infrequently (once a week), a majority of them (56.7%) prefer exercising alone, highlighting personal preferences and motivations in fitness activities, same findings revealed by Johnson et al.¹¹ This preference for solitary exercise aligns with findings by Green et al.¹⁴ who noted similar social interaction patterns among gym-goers.

3. Dietary Patterns & morbidity pattern among Gym attendee: Dietary habits among gym-goers indicate a balanced approach, with a majority consuming a mixed diet (55.2%) and emphasizing protein intake (38.4%). This helps to support muscle recovery and growth.¹⁵ Awareness of nutritional principles, such as matching protein intake to body weight (51.2%), suggests a commitment to optimizing dietary habits alongside fitness routines.¹²

The overall health status of gym attendees appears robust, with a minority experiencing issues like dizziness (7.5%) or bone/joint problems (27.4%) that could impact physical activity. Similar findings by (White et al., 2019;¹³ Johnson et al., 2019).¹¹ A significant proportion (65%) report no past medical history, indicating a relatively healthy cohort engaged in proactive health management through exercise. These findings are consistent with those of Brown et al. (2021),¹² who similarly reported low rates of medical issues among regular gym attendees.

4. Psychological wellbeing of people attending Gym by PGWBI-S: The mean total score of psychological wellbeing of people attending Gym by PGWBI- s version in all domains was 20.78, suggesting a positive psychological well-being among gym attendees. The highest mean scores were observed in the domains of anxiety (3.84), vitality (3.51), and depressed mood (3.77), indicating relatively high levels of energy and lower levels of anxiety and depressive symptoms among the participants. The findings align with previous research indicating that regular physical activity, such as gym attendance, can enhance psychological well-being. Physical exercise has been shown to reduce symptoms of anxiety and depression, improve mood, and increase energy levels (Penedo & Dahn, 2005).¹⁷ The higher psychological wellbeing scores in anxiety and depressed mood domains could be attributed to the mood-enhancing effects of exercise, which are well-documented in the literature (Dishman et al., 2006).¹⁸

5. Association of Socio-demographic Factors with Psychological Well-being Scores among Gym Attendees: Our study revealed significant differences in psychological well-being across various sociodemographic variables, underscoring the complex interplay between age, sex, and psychological health. The data indicate that adolescents and youth (15-30 years age group) exhibit lower psychological well-being scores (6-15) compared to older age groups. This finding aligns with existing literature suggesting that younger individuals often face considerable stressors, including academic pressures, social insecurities, and developmental challenges, which

can negatively impact their psychological well-being (Patton et al., 2016).¹⁹ In contrast, individuals over the age of 35 report higher psychological well-being, likely due to increased maturity, better coping mechanisms, and more stable life circumstances, such as secure employment and supportive family environments. These factors contribute significantly to their enhanced psychological resilience and overall well-being.²⁰

The study also found notable differences in psychological well-being between males and females. Males generally exhibited lower psychological well-being scores compared to females, particularly in younger age groups. However, older males demonstrated better psychological well-being. These findings suggest that males may experience greater psychological strain during their formative years, possibly due to societal expectations and pressures related to academic and career achievements.²¹ As they age, males may benefit from increased life stability and the acquisition of effective stress management strategies, leading to improved psychological well-being in later years.

Conversely, females, although exhibiting higher psychological well-being in younger age groups, may face unique stressors as they age, including balancing career and family responsibilities. However, the overall trend suggests that males maintain relatively higher psychological well-being across age groups compared to females.

The results suggest that gym attendance is associated with improved physical and psychological well-being, particularly in reducing anxiety and depressive symptoms and enhancing vitality. Gym programs could consider incorporating psychological support and interventions aimed at improving self-control and positive well-being to further enhance the mental health benefits for attendees. Future multi-centric research should delve deeper into longitudinal studies to explore how these profiles evolve over time and identify effective interventions to address specific health needs within diverse gym-going populations.

Limitations and Future Directions: This study is not without limitations. Firstly, the cross-sectional nature limits the ability to establish causal relationships between gym attendance and health outcomes. Secondly, the study's reliance on self-reported data may introduce bias, particularly in assessing dietary habits and exercise frequency. Future studies could incorporate objective measures, such as biomarkers and physical assessments, to validate self-reported data.

Conclusion

This research provides valuable insights into the health profiles of individuals attending gyms, emphasizing the interconnectedness of physical and psychosocial health outcomes. The study underscores the role of regular exercise and social engagement in gym settings as pivotal factors in enhancing overall physical and psychological well-being.

Ethical Committee Clearance Date: 26/04/2024

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