



## ONLINE FITNESS TRAINING: A CROSS-SECTIONAL STUDY OF MOTIVATION, HEALTH BENEFITS, AND BEHAVIORS OF INDIAN WOMEN

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### ABSTRACT

To assess the perceived impact of online fitness training on health, lifestyle-related behaviors, and well-being in Indian women. A cross-sectional online survey was distributed through an Indian-based online fitness training organization. A questionnaire (google form) was designed to investigate the perceived impact of online fitness training on lifestyle-related behaviors, stress, and well-being. The majority of the 246 women (18–52 years, M=38.7) who participated in the online fitness training program and answered the survey were housewives (47.7%), married (88.6%), and postgraduate students (51.62%). Participants reported significantly higher rates of positive impact of online fitness training on health behaviors. 96.34% of women reported that the motivational factor for joining online fitness training was to lose weight. In addition, other reasons reported by the study population were general wellness (72.35%), and stress management (81.70%). Only 22.76% of participants reported that they started online fitness training as a hobby and as a time pass. The majority of them reported the positive impact of online fitness training on body shape (68.29%), weight management (76.82%) gastrointestinal issues (71.54%), mental issues (49.86%), and sleep issues (43.02%). The findings of the present study were consistent with surveys in Western countries. Online fitness training was perceived to have a positive impact on physical and mental health conditions and was linked with a positive impact on overall well-being and health.

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### Introduction

Several experimental as well as clinical studies provide preliminary support for the effectiveness of physical activities and fitness training as an adjunct treatment for a range of chronic conditions and in the improvement of mental and physical health [1-3]. Physical activity is also considered one of the major modifiable factors for decreasing the disease burden of non-communicable diseases (NCDs) such as cardiovascular illnesses, diabetes, and cancer [4-6].

Despite evidence showing clear benefits of physical activity, 1 in 4 adults do not meet the global recommended levels of physical activity [7]. The Centers for Disease Control in the United States estimates that only 24.2% of adults meet exercise guidelines [8]. Concurring to the later National Noncommunicable Disease Monitoring Survey (NNMS) report (2017–2018), 54.5% of Indians did not engage within the suggested sum of physical activity [9]. For the most part, physical inertia in urban settings is more when compared to provincial regions (40.6%) and in urban areas (63.3%). In urban India, more than half of women (60.2%) were found to be insulant physically dynamic, compared to (44.2%) of men [10].

Access to suitable fitness facilities, time constraints, and some cultural norms have limited many Indian adult women's ability to prioritize their health and fitness [11-13]. Recognizing these challenges, online fitness training programs emerged as a convenient and effective solution, catering specifically to unique needs and preferences, especially for women [14-16].

The awareness regarding online fitness training programs has rapidly increased at the beginning of COVID-19 [17-19]. Nowadays, these programs have a range of fitness routines, guidance, and support tailored to individual goals and lifestyles [20-23].

Online fitness training programs have several advantages over traditional gyms, as they are more economical, facilitate continuous self-monitoring, and are easily reachable, thus reducing the barriers of transportation and time [21-26].

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By embracing online fitness training, today's women can break down barriers and prioritize their health and well-being, leading to a healthier and more empowered lifestyle. Several studies demonstrate that online fitness training has positive health-related effects, such as helping people lose weight and participate in more physical activities [27-29].

Studies have explored motivational factors underlying online fitness practice; most commonly cited are general wellness, health and fitness, a specific health condition, and improved immune function and energy [28, 29].

But little is known about online fitness training in India. Therefore, to gain a better understanding of online fitness practices, the present study determined the significance of online fitness training for Indian women and the benefits it provides by investigating:

1. The characteristics, lifestyle, and well-being of those practicing online fitness regime;
2. Motivations underlying online fitness training.
3. Perceived impact of online fitness on health outcomes;

## Materials and Methods

The study was a cross-sectional survey using an online questionnaire (google form) to enquire about the Perceived impact of online fitness practice on lifestyle-related behaviors, stress, and well-being.

Adult Women were invited to participate if they met the inclusion criteria: Indian resident, practiced online fitness within the past 3 months, and were over 18 years old. All participants gave informed consent. Data was collected over six months (June–December 2022).

At the pilot stage, 12 women (8 women housewives and 5 working women, aged 25–49 years) who were practicing online fitness programs were consulted regarding the aims of the content and acceptability of the questionnaire, their feedback was incorporated into the final survey.

The final questionnaire was well-versed by consultations with experts and other online trainers and feedback from the pilot study. The questionnaire used in the present study consists of four parts namely,

1. Socio-demographic variables: In this section age, education, marital and employment status were collected.
2. Health, nutrition, and lifestyle

Health variables included self-reported height and weight (calculate body mass index (BMI)),

Lifestyle variables such as dietary choices (vegetarian, non-vegetarian, or ova vegetarian), food frequency questionnaire, and weekly frequency of online fitness training and brisk walking apart from online fitness training were assessed. Perceived general health status was also evaluated on a 5-point Likert scale [30].

3. Warwick-Edinburgh Mental Well-being Scale (WEMWBS) and Perceived Stress Scale (PSS)

To assess subjective well-being and psychological functioning Warwick-Edinburgh Mental Well-being Scale was used. WEMWBS is a 14-item scale in which items address some aspects of positive mental health. The scale score is calculated by summing the response to each item answered on a 1 to 5 Likert scale and higher scores indicate higher well-being [31].

The Perceived Stress Scale, a stress assessment instrument was used to assess life stress. The 4-item Perceived Stress Scale with higher scores indicated higher levels of perceived stress.

4. Perceived health impact

Participants were asked perceived helpfulness of online fitness training in managing different conditions such as musculoskeletal problems, mental health issues, women's health issues, cardiovascular issues, Gastrointestinal issues, neurological (migraine/head ace, etc), and Allergies [32].

### Data Analysis

Data were cleaned and Missing cases were erased listwise. Descriptive measurements were calculated for socio-demographic characteristics, online fitness practice variables, well-being, and lifestyle variables. Percentages were calculated concurring with total reactions to the item (valid percent). Data were analyzed utilizing t-tests and  $\chi^2$  tests.

## Results and Discussion

To the best of our knowledge, this is the first comprehensive study that examined the perceived benefits of online fitness practices for Indian women. In recent years, the use of online fitness training has increased in popularity because of its convenience and more economical way than regular gym sessions. After COVID-19, online fitness training emerges as the alternative to regular exercise engagements, gym and outdoor physical activities.

### Socio-Demographic Characteristics

Sociodemographic characteristics are presented in **Table 1**. 246 Indian adult women responded to the survey with a wide age range (18–52 years, M=38.7). The majority of respondents were well educated (postgraduate degree 51.62%) and only 5.3% were senior secondary school passed. 86.6% percent of the sample were married and 47.7% were housewives whereas, 26.5 % were full-time workers.

**Table 1.** Socio-demographic characteristics of the sample

Variable	Frequency (f)	Percentage (%)
<b>Age</b>		
<18	3	1.2
19-25	14	5.7
26-31	41	16.67
32-45	173	70.6
>46	15	6.1
<b>Marital status</b>		
Single	19	7.8
In a relationship	7	2.84
Married/cohabiting	217	88.6
Divorced/separated	3	1.2
<b>Employment</b>		
Employed full-time	65	26.5
Employed part-time	10	4.1
Housewife	117	47.70
Self-employed	28	11.7
Unemployed	7	2.9
Student	6	2.4
Retired	13	5.28
<b>Education</b>		
Secondary school	13	5.3
College/A level	41	16.66
University graduate	65	26.42
University postgraduate	127	51.62

Note. f = Frequency, %= Percentage

*Lifestyle and Health Characteristics*

Further exploration of the age group differential is shown in **Table 2**. It was found that 26.01% of the study population were normal weight whereas, 43.08% were overweight and 30.89% were obese. Height, weight, and body mass index (BMI) have been used extensively as indicators of weight-related health problems [33]. These anthropometric characteristics reflect the nutritional status of society as well as its individuals.

Most of them were vegetarian (58.94%), although 31.30% were nonvegetarian, and 9.75% considered themselves as only ova vegetarian. This finding was also consistent with the findings of other Indian studies [34]. However, the consumption of fruits and vegetables, milk, and milk products was more in the present study because the study population was a group of health-conscious women who were following some health tips by the instructors.

Self-rated health (SRH) is a simple, easy-to-administer measure of general health. It is a valid and reliable measure among those without cognitive impairment [35]. In pre 46.74% rated their general health as good and 39.54% as very good.

The majority of the study population reported that they brisk walking at least 3 days per week (44.30%) and engaged in online fitness training 4 to 5 times in week (49.59%). However, these findings are also consistent with other studies [19, 20].

**Table 2.** Health, lifestyle, and fitness practice variables in different age groups

Variables	Total (n (%))	Age groups				
		<18 (n=3)	19-25 (n=14)	26-31 (n=41)	32-45 (n=173)	>46 (n=15)
<b>Weight status</b>						
Normal	64(26.01)	00(00)	4(6.25)	13(20.31)	45(70.31)	2(3.1)
Overweight	106(43.08)	1(0.09)	4(3.77)	22(20.75)	72(67.092)	7(6.60)
Obese	76(30.89)	2(2.7)	6(1.31)	6(1.31)	56(75.67)	6(1.31)
<b>Dietary habits</b>						
Non-vegetarian	77(31.30)		4(5.19)	15(19.48)	56(72.72)	2(2.5)

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Vegetarian	145(58.94)	2(1.37)	8(5.51)	22(15.17)	101(69.67)	12(8.27)
Ova vegetarian	24(9.75)	1(4.1)	2(8.33)	4(16.66)	16(66.66)	1(4.16)
<b>Food frequency questionnaire</b>						
<b>Fruits</b>						
Never	2(0.81)	00	1(50)	00	00	1(50)
<2 in a week	2(0.81)	00	00	00	2(100)	00
3-4 in a week	6(2.43)	00	00	1(16.66)	4(66.66)	1(16.16)
>5 in a week	39(15.85)	00	00	16(41.02)	20(51.28)	37.69(0)
Daily	197(80.08)	3(1.52)	13(6.59)	24(12.18)	147(74.61)	10(5.07)
<b>Vegetable</b>						
Never						0(0)
<2 in a week	7(2.84)				7(100)	
3-4 in a week	8(3.25)			1(14.28)	6(75.00)	1(14.28)
>5 in a week	45(18.29)			16(35.55)	25(55.55)	4(8.88)
Daily	186(76.82)	3(1.61)	14(7.52)	24(12.90)	135(72.58)	10(5.37)
<b>Milk and milk products</b>						
Never	2(0.81)	1(50)			1(50)	
<2 in a week	3(1.21)				3(100)	
3-4 in a week	5(2.03)	1(20)			3(60)	1(20)
>5 in a week	35(14.22)		3(8.57)	8(22.85)	24(68.57)	
Daily	201(88.70)	1(0.49)	11(5.47)	33(16.41)	142(70.64)	14(6.9)
<b>Perceived General health status</b>						
Excellent	14(5.69)		2(14.28)	8(57.14)	4(28.57)	
Very good	97(39.43)		4(4.23)	2(2.06)	86(88.65)	5(5.15)
Good	115(46.74)	2(1.73)	7(6.08)	28(24.34)	72(62.60)	6(5.21)
Fair poor	20(8.13)	1(5.0)	1(5.0)	3(15)	12(60.00)	4(20.00)
<b>Online fitness training (days per week)</b>						
>3	46(18.69)		6(13.04)		37(80.43)	3(6.52)
4-5	122(49.59)*	2(1.63)*	5(4.09)*	24(19.67)*	82(67.21)*	9(7.377)*
6-7	78(31.70)	1(1.28)	3(3.8)	17(21.79)	54(69.23)	3(3.84)
<b>Brisk Walking/running (days per week)</b>						
>3	109(44.30)		7(6.42)	15(13.76)	81(74.31)	6(5.55)
4-5	78(31.70)	1(1.28)	4(51)	15(19.23)	57(73.07)	1(1.28)
6-7	59(23.98)	2(3.38)	3(5.08)	11(18.64)	35(59.32)	8(12.55)
<b>Mean (± SD)</b>						
Well being (WEMWBS)	53.90 (± 7.78)**	56.02 (± 2.79)**	52.50 (± 2.80)**	52.03 (± 2.86)**	54.90 (± 2.50)**	53.90 (± 2.78)**
Stress(PSS)	4.59 (± 2.80)**	3.90 (± 2.28)**	5.03 (± 2.78)**	5.30 (± 2.86)**	4.50 (± 3.80)**	3.90 (± 3.70)**

\*P<0.05; \*\*p<0.0005

Significantly different from available norms using  $\chi^2$  and 1-sample t-tests.

BMI, body mass index; PSS, Perceived Stress Scale; WEMWBS, Warwick-Edinburgh Mental Well-being Scale.

**Perceived Health Impact**

Participants assessed perceived helpfulness for a range of health conditions/issues (**Table 3**). The majority of them reported the positive impact of online fitness training on body shape (68.29%), weight management (76.82%) gastrointestinal issues (71.54%), mental issues (49.86%), and sleep issues (43.02%).

Few study populations reported that online fitness training did not help improve flexibility (15.31%), fertility issues (14.22%) cardiovascular issues (11.78%), and allergy (15.85%). Only 3.65% of participants reported that they got some activity-related injury during online fitness training.

The majority of participants reported that online fitness training has improved their physical as well as mental health and this finding is consistent with previous studies, respondents strongly believed that online fitness training has a positive impact on their physical and mental health [15, 16].

Importantly, the present study found that participants perceived online fitness training as helpful in managing a wide range of health conditions, most notably musculoskeletal conditions, and mental health, consistent with the findings of other research [14-16].

Indeed, 32.11% of the study population found online fitness training helpful for Improvement in Neurological issues and this outcome is consistent with reports in other studies that healthier lifestyles, lower levels of stress, and higher levels of well-being [1, 2]. Two-thirds attribute improvement in their body shape to online fitness training. This finding is also consistent with other study findings and demonstrates the potential of online fitness activity in maintaining body shape [15, 16, 33]

This research has provided new insights into the role of online fitness activity and its impact on well-being. Nearly half of the study population reported social interaction as a reason for joining online fitness activities. This finding is also consistent with other study findings and demonstrates the potential of online fitness activity in generating social bonds with others [17-19].

**Table 3.** Perceived impact of online fitness training on different health issues and conditions

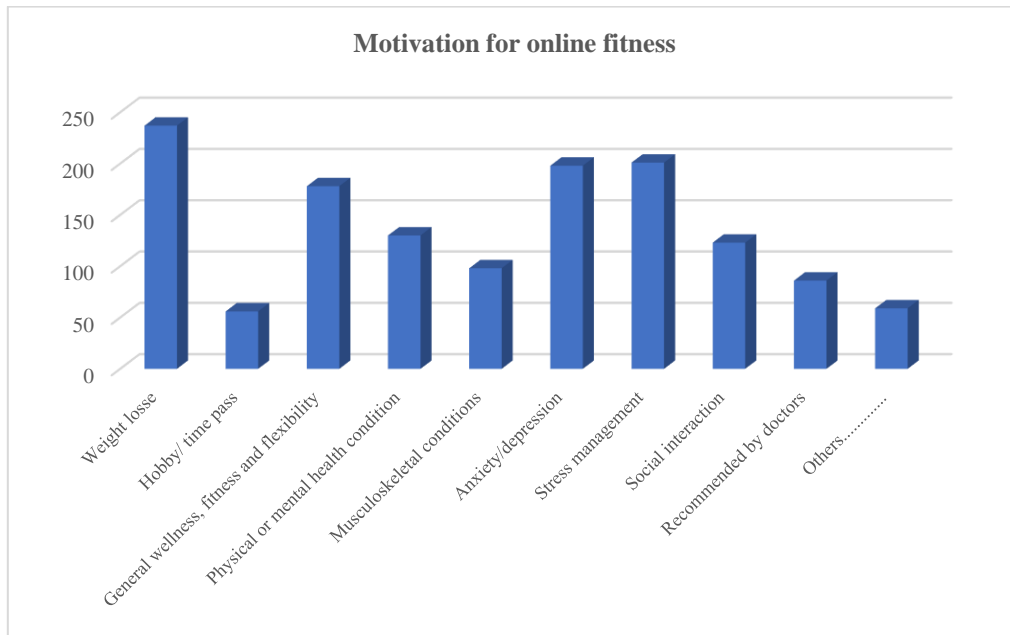
Condition	Yes	No	Not sure
<b>Increase muscle strength</b>	90(35.58)	21(8.53)	135(54.87)
<b>Improve flexibility</b>	39(15.87)	18(7.31)	189(76.82)
<b>Improve body shape</b>	168(68.29)	35(14.22)	43(17.47)
<b>Weight loss</b>	186(76.82)	44(17.88)	16(06.50)
<b>Improve work quality</b>	76(30.89)	34(13.82)	136(55.28)
<b>Improve mental health</b>	121(49.86)	16(6.5)	109(44.30)
<b>Improvement in Sleep issues</b>	108(43.02)	39(15.85)	99(40.24)
<b>Improvement of mental /Fertility issues</b>	72(26.26)	35(14.22)	139(56.50)
<b>Increase stigma</b>	69(28.04)	39(11.27)	138(56.09)
<b>Improve cardiovascular system</b>	35(14.22)	29(11.78)	182(73.98)
<b>Improvement in Gastrointestinal issue</b>	176(71.54)	34(13.82)	36(14.63)
<b>Improvement in Neurological (migraine/head ace</b>	79(32.11)	16(6.50)	151(61.38)
<b>Improvement in Allergy etc</b>	69(28.04)	39(15.85)	138(56.09)
<b>Physical activity-related injuries</b>	09(3.65)	186(75.09)	51(20.73)
<b>Others</b>	34(13.82)	02(0.81)	210(85.36)

*Motivations*

Initial and current principal reasons for practicing online fitness training are shown in **Figure 1**. The principal initial reason for practicing online fitness training was weight loss (96.34%). In addition, other reasons reported by the study population were general wellness, fitness, flexibility (72.35%), and stress management (81.70%). Whereas, social interaction was the reason for half of the participants and only 22.76% of participants reported that they started online fitness training as a hobby. Various studies have explored motivation and yet almost half of our participants stated that they were regular in their online fitness training. This may also reflect their commitment to online fitness training as a lifestyle practice and underlying behavioral shifts towards a healthier lifestyle.

Many studies have examined barriers to physical activity among women. Lack of time, motivation, and knowledge; health conditions; family responsibilities; cost; and neighborhood safety have been frequently mentioned as barriers [11-13]. Online fitness training could help Indian women overcome these barriers and achieve their weight as well as health goals.

Like any other physical activity, online fitness training also has some potential adverse effects. In our study, 3.65 % of study participants reported online fitness training-related injuries and this outcome was consistent with a systematic review that concluded that prevalence was the most reported variable and ranged from 2.4 to 60.6% [36]. Our study did not assess the severity of injury but other studies also reported that adverse effects were predominately minor [36, 37].



**Figure 1.** Initial and current principal reasons for practicing online fitness training

In addition, understanding the factors underlying online fitness training is important. Results of the present study suggest that online fitness training could be used to manage health conditions and support well-being and has further potential to support self-care of debilitating and costly health disorders. Isolating the specific causal effects of online fitness training on behavioral outcomes is challenging but warrants further testing in controlled studies with long-term follow-up. More clinical research is required on the effectiveness of online fitness training which demonstrates health benefits in naturalistic settings. Nevertheless, future research could also investigate the attitudes toward online fitness training in specific age groups, with some specific health conditions such as diabetes, cardiovascular disease, cancer, etc to understand the impact and usefulness of online fitness activities [38].

### Conclusion

Non-communicable diseases are a major public health problem. Reduced physical activity is an important risk factor for NCDs. Online fitness training is a great opportunity for increasing the level of physical activity in Indian women and thus it can reduce the health burden associated with them.

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