



# TO COMPARE THE EFFECT OF YOGIC BREATHING EXERCISES AND MINDFULNESS YOGA ON QUALITY OF LIFE IN SMARTPHONE ADDICTED MIDDLE-AGED ADULTS USING WHOQOL- BREF SCALE.

<sup>1</sup>Dr.Ankita Aradhya, <sup>2</sup>Dr.Bhagyashri Badve

<sup>1</sup> Intern, <sup>2</sup>Assistant Professor of Community Department Physiotherapy,  
LSFPEF'S College of Physiotherapy, Nigdi, Pune, India.

## Abstract

**Aim:** To compare the effect of yogic breathing exercises and mindfulness yoga on quality of life in smartphone addicted middle-aged adults.

**Objective:** To compare the effect of yogic breathing exercises and mindfulness yoga on quality of life in smartphone addicted middle-aged adults using WHOQOL-BREF Scale and Smartphone Addiction Scale (SAS).

**Methodology:** By using purposive method 164 smartphone addicted middle-aged adults between age group of 30-40 years were selected and screened according to inclusion and exclusion criteria. They were divided into two groups: Group 1 (Yogic breathing exercises) and Group 2 (Mindfulness yoga). The smartphone addiction in middle-aged adults was assessed using Smartphone Addiction Scale. The study was explained to the participants and consent was obtained. Yogic breathing exercises and mindfulness yoga was performed 3days/week for 4 weeks. The Smartphone Addiction Scale and WHOQOL-BREF Scale was taken before and after the intervention and results were analysed.

**Outcome measure:** Smartphone Addiction Scale (SAS) was used for measuring the smartphone addiction and WHOQOL-BREF Scale was used to measure the quality of life of the participants.

**Result:** The result showed that the comparison of pre to post intervention score of WHOQOL-BREF Scale and Smartphone Addiction Scale (SAS) in Group 1 was significant and the comparison of pre to post intervention score of WHOQOL-BREF Scale and Smartphone Addiction Scale (SAS) in Group 2 was also significant.

**Conclusion:** The present study compares the effects of both yogic breathing exercises and mindfulness yoga on quality of life and it concludes that both these interventions are similarly effective in improving the quality of life in smartphone addicted middle-aged adults. There is no significant difference in

improvement with respect to yogic breathing exercises and mindfulness yoga according to WHOQOL-BREF Scale. This study also suggest that the mindfulness yoga has shown more effect on reducing smartphone addiction as compared to yogic breathing exercises.

**Keywords:** Yogic breathing exercises, Mindfulness yoga, Quality of life (QOL), Smartphone addicted middle-aged adults, WHOQOL-BREF Scale, Smartphone Addiction Scale (SAS).

## INTRODUCTION

Addiction can be explained in two ways to produce pleasure and to provide an escape from internal discomfort you are going through. Addiction can be used to refer a wide range of excessive behaviours like gambling, video game playing, eating disorders, sports and physical exercise, media use, pathological working, sex addiction and compulsive criminal behaviour.

Like smartphone addiction has become a global phenomenon. Many people fail to realize that addiction to smartphone usage can become a serious issue that can have negative effect on person's thought, behaviour, tendencies, feelings and sense of well-being.

Recently there is increased number of smartphone users because of its capability to provide an information and it also includes various types of features like gaming, access to internet, videos messaging, pictures and social media. Because of these, individuals are more dependent on smartphones.

Symptoms of smartphone addiction can be characterized by presence of tolerance, silence, withdrawal, mood changes and dependence on smartphones. <sup>(1)</sup>

Particularly it can become a risk factor for depression, loneliness, anxiety and sleep disturbances. People with depression experience an unhappy mood, loss of interest, feelings of guilt or low-self-worth, disturbed sleep or appetite, low energy or poor concentration. It indicates that high levels of smartphone addiction have correlation with low self-esteem, loneliness, depression and shyness. <sup>(2)</sup>

There are various scales available for assessing smartphone addiction, in which smartphone addiction scale (SAS) consist of six factors and 33 items with a six-point scale (1: strongly disagree and 6: strongly agree) based on self-reporting. The six factors were daily-life disturbance, positive anticipation, withdrawal, cyberspace-oriented relationships overuse and tolerance. <sup>(3)</sup>

The common features of quality of life include personal health (physical, mental and spiritual), relationships, education status, wealth, work environment, social status, a sense of security and safety, freedom, autonomy in decision making, social belonging and their physical surroundings. <sup>(4)</sup>

The unaware use of smartphones, in conjunction with other activities or late at night, can be related to lower levels of quality of life. There are associations between smartphone addiction and mental health, physical health and neurological problems. Because of the smartphone addiction, the quality of life can be affected in complex way by person's psychological state, level of independence and social relationships and physical health. There is increased amount of stress, anxiety, sleep disturbances and depression in the individuals. The negative feelings like pain, lack of control, fear or anxiety might be seen. <sup>(5)</sup>

Quality of life can be assessed with various scales, in which WHOQOL-BREF Scale based on four domain structure like physical health, psychological, social relationships and environment. It has been developed to provide a short form quality of life assessment that looks at domain level profiles. <sup>(6)</sup>

Yoga promotes a balanced development of the physical, mental and spiritual well-being of human being. It includes different yoga practices in which breathing techniques are the main component. Yogic breathing techniques are mainly based on active regulation of the breath.

Yogic breathing exercises helps in improving physical well-being by providing relaxation and peacefulness by reducing stress and tension as they are closely connected to meditation which involves observation of breaths.

Yogic breathing techniques tends to helps in promoting relaxation, increase in concentration, enhance activation and balance arousal. The use of many breathing techniques leads to higher accepting and non-judgemental attitude and would result in higher satisfaction with the current state of the body.

It creates inner awareness which further leads to increase attention and concentration. It also works to improve psychological status of the person. Various breathing techniques are used to improve both physical and psychological status of the individual. <sup>(7)</sup>

Mindfulness is a process in which mental state can be seen as a non-judgemental awareness of present moment experience, which includes one's thought, consciousness, body state and environment while encouraging openness, curiosity and acceptance.

The present moment experience can also include one's body sensations, emotional reactions, mental images, mental talk and perceptual experiences. Its principle is applied in individuals like in recognizing deterioration of mood without immediately judging or reacting to this change. <sup>(8)</sup>

Mindfulness yoga is a dynamic mindfulness training method that focuses on perceiving one's unconscious emotions and thought patterns while giving attention to body sensations that change. Mindfulness yoga induces neutral healing without the need of medication. It will give effect on individuals that will become less reactive to unpleasant internal discomfort but more reflective, which in turn will lead to positive psychological outcomes.

Mindfulness yoga indicates that it decreases depression by improving one's ability to recognize and accept negative thoughts and feelings by being aware of one's thoughts and physical sensations.

By practicing mindfulness yoga self-esteem can be improved by promoting positive emotions toward oneself. By increased self-esteem through mindfulness yoga further helps in overcoming the psychological crises by bringing positive changes in their lives. Mindfulness yoga shows improvement in psychological, social and overall quality of life. <sup>(9)</sup>

## METHODOLOGY

Study type: Experimental Study

Study set up: PCMC Area

Sample method: Purposive Method

Sample size: 164

Study duration: 6 months

### OUTCOME MEASURE:

Quality of life scale: WHOQOL-BREF Scale

Questionnaire: Smartphone Addiction Scale

### INCLUSION CRITERIA:

Age group should be between 30-40 years of age, both genders and 90 score on smartphone addiction scale <sup>(1)</sup>

### EXCLUSION CRITERIA:

People diagnosed with any psychiatric illness

### Procedure: -

participants were selected based on inclusion and exclusion criteria. Consent was taken who fulfilled the criteria. Pre quality of life scale and smartphone addiction scale was taken. These participants were divided into two groups 1 & 2 by chit method. Group 1 performed Yogic breathing exercises and Group 2 performed Mindfulness yoga for 3 days/week for 4 weeks. After completion of the 4 weeks protocol, post quality of life scale and smartphone addiction scale was taken. The data was collected and analyzed.

Group 1:

Yogic breathing exercises: 3 days/week for 4 weeks <sup>(7)</sup>

1. Ujjayi - Relaxation through slowing down the breath
2. Paced breathing - Enhancement of concentration by following a precise protocol of slowdown breathing
3. Kapalbharati - Raising wakefulness by mild hyperventilation

4. Alternate nostril breathing- Balancing the autonomic nervous system by alternating breath between two nostrils.

Group 2:

Mindfulness Yoga: 3 days/week for 4 weeks <sup>(9)</sup>

Mindfulness breathing (For 5 mins):

Individuals had to concentrate on the breathing cycles and hold it for at least 6sec each. Individuals attained a comfortable position sitting/supine and after that the individuals were need to perform the breath cycles for a minute without having any other thoughts in their mind.

Mindfulness program:

Gentle stretching (10 mins)

Asanas (For 30 mins):

1. Tadasana
2. Uttanasana
3. Virbhadrasana
4. Trikonasana
5. Vajrasana
6. Bhujangasana
7. Cakravakasana
8. Jathara parivartanasana
9. Apanasana

Relaxation & meditation (For 5 mins):

1. Shavasana
2. Padmasana

## STATISTICAL ANALYSIS:

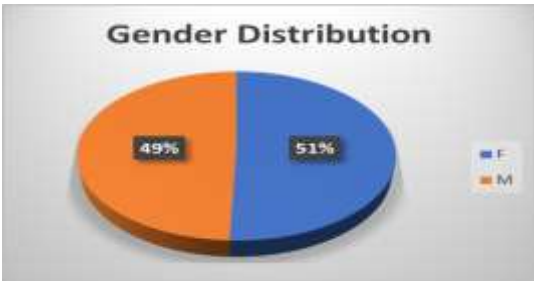


Graph 1

| Age Distribution | No. of participants | Percentage |
|------------------|---------------------|------------|
| 30-34            | 89                  | 54%        |
| 35-40            | 75                  | 46%        |

Table 1

Interpretation- There are 89 subjects are between 30-34 years and 75 subjects are between 35-40 years.



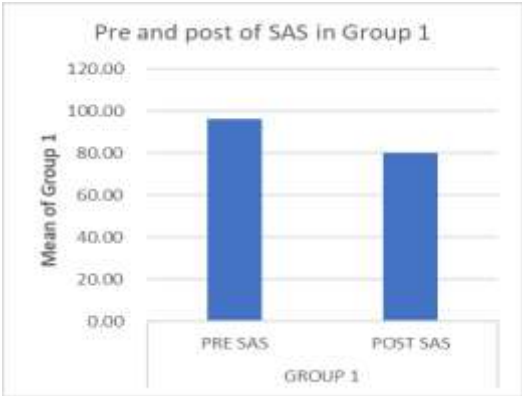
Graph 2

| Gender | No. of participant<br>s | Percentage |
|--------|-------------------------|------------|
| Female | 83                      | 51%        |
| Male   | 81                      | 49%        |

Table 2

Interpretation- There are 51% of females and 49% of males

Table 3: Pre and post values of SAS in Group 1 (Yogic breathing exercises) by Wilcoxon signed rank test



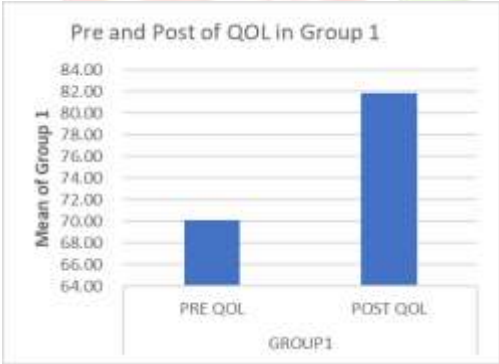
Graph 3

|      | Mean | SD | p-value |
|------|------|----|---------|
| Pre  | 96   | 4  | <0.0001 |
| Post | 80   | 5  |         |

Table 3

Interpretation- The mean of pre SAS in group 1 is greater than the mean of post SAS in group 1. There is reduction in smartphone addiction in Group 1(Yogic breathing exercises).

Table 4: Pre and Post values of QOL in Group 1 (Yogic breathing exercises) by Wilcoxon signed rank test



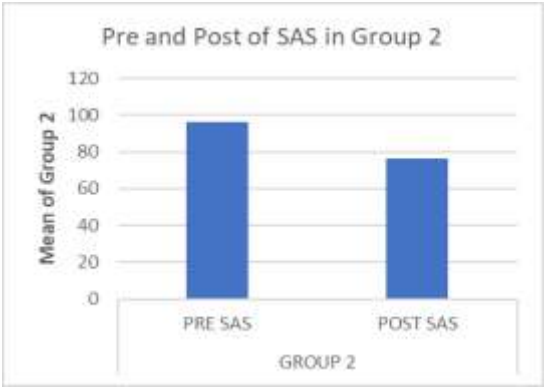
Graph 4

|      | MEAN | SD   | p- value |
|------|------|------|----------|
| Pre  | 70   | 4.2  | <0.0001  |
| Post | 82   | 4.04 |          |

Table 4

Interpretation- The mean of post QOL in group 1 is greater than the mean of pre QOL in group 1. There is improvent in QOL in group 1(Yogic breathing exercises).

Table 5: Pre and Post values of SAS in Group 2(Mindfulness yoga) by Wilcoxon signed rank test



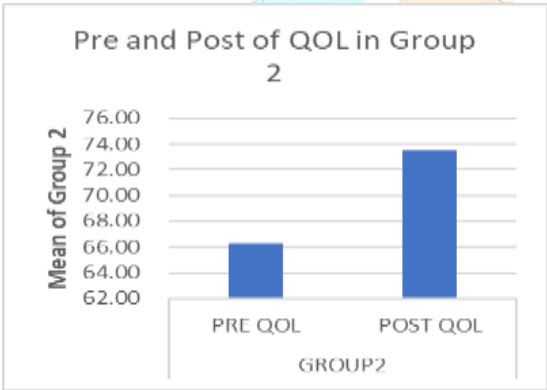
|      | MEAN | SD  | p-value |
|------|------|-----|---------|
| Pre  | 96   | 3.3 | <0.0001 |
| Post | 77   | 3.8 |         |

Graph 5

Table 5

Interpretation: The mean of pre-SAS in group 2 is greater than the mean of post SAS in group 2. There is reduction in smartphone addiction in group 2(Mindfulness yoga).

Table 6: Pre and Post values of QOL in Group 2(Mindfulness yoga) by Wilcoxon signed rank test



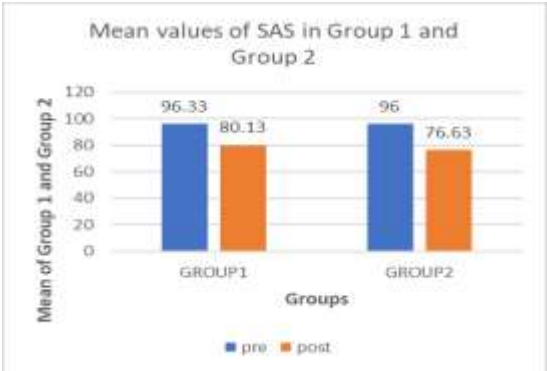
|      | Group 1 | Group 2 |
|------|---------|---------|
| Pre  | 96.3    | 96      |
| Post | 80.1    | 76.6    |

Graph 6

Table 6

Interpretation- The mean of post-QOL in group 2 is greater than the mean of pre QOL in group 2. There is improvement of QOL in group 2 (Mindfulness yoga).

Table 7: Mean values of pre SAS of Group 1 (Yogic breathing exercises) and Group 2 (Mindfulness yoga)

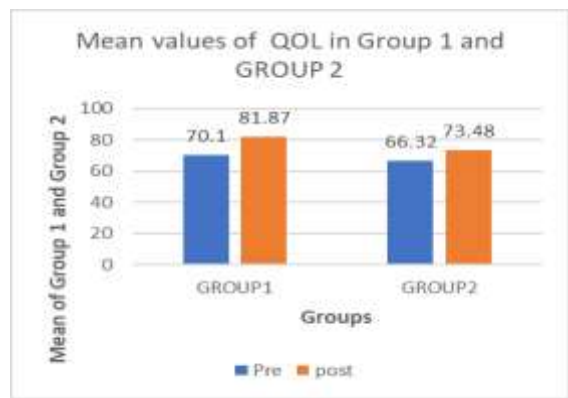


|      | MEAN | SD   | p-value |
|------|------|------|---------|
| Pre  | 66.3 | 5.13 | <0.0001 |
| Post | 73.4 | 4.8  |         |

Graph 7

Table 7

Interpretation: Mean values of pre SAS of group 1 and group 2 are similar.



Graph 8

|      | Group 1 | Group 2 |
|------|---------|---------|
| Pre  | 70.1    | 66.3    |
| Post | 81.8    | 73.4    |

Table 8

Interpretation: Mean values of pre QOL of group 1is greater than group 2.

Table 9: Group 1 and Group 2 on post SAS (Mann-Whitney test)



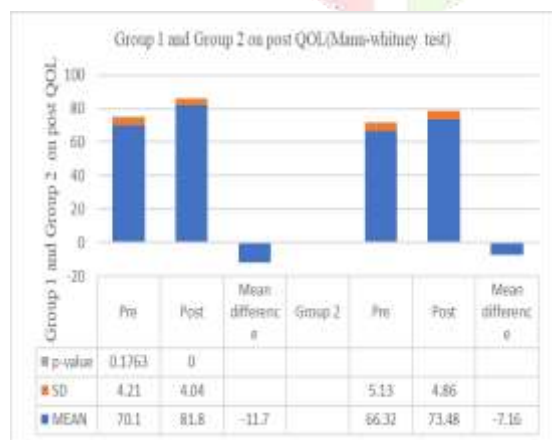
Graph 9

| Group 1         | MEAN  | SD  | p-value     |
|-----------------|-------|-----|-------------|
| Pre             | 96.3  | 3.6 | <0.0001     |
| Post            | 80.1  | 4.6 | Significant |
| Mean difference | 16.20 |     |             |
| Group 2         |       |     |             |
| Pre             | 96    | 3.3 |             |
| Post            | 77    | 3.8 |             |
| Mean difference | 19.37 |     |             |

Table 9

Interpretation: p value of Group 1 and Group 2 on pre and post SAS is <0.0001 i.e significantly different.

Table 10: Group 1 and 2 on post QOL (Mann -Whitney test)



Graph 10

| Group 1         | MEAN  | SD   | p-value         |
|-----------------|-------|------|-----------------|
| Pre             | 70.1  | 4.21 | 0.1763          |
| Post            | 81.8  | 4.04 | Not significant |
| Mean difference | -11.7 |      |                 |
| Group 2         |       |      |                 |
| Pre             | 66.32 | 5.13 |                 |
| Post            | 73.48 | 4.86 |                 |
| Mean difference | -7.16 |      |                 |

Table 10

Interpretation: p value of Group 1 and Group 2 on pre and post QOL is o.1763 i.e there is not significant difference between these two groups.

**Result:**

In this study 168 subjects were participated out of which 83 were female and 81 were male. 89 subjects were between age group of 30-34 years and 75 subjects were between age group of 35-40 years.

After conducting this study, reduction in smartphone addiction and improvement in quality of life was noticed using SAS and WHOQOL-BREF scale.

Data analysis was done using statistical software GraphPad Prism 10.2. The normality of data was tested using Kolmogorov-Smirnov test. It indicates that post SAS in Group 2 (Mindfulness yoga) was normally distributed and pre SAS in Group 1 (Yogic breathing exercises), post SAS in Group 1 (Yogic breathing exercises), pre QOL scale in Group 1 (Yogic breathing exercises), post QOL scale in Group 1 (Yogic breathing exercises), pre SAS in Group 2 (Mindfulness yoga), pre QOL scale in Group 2 (Mindfulness yoga), post QOL scale in Group 2 (Mindfulness yoga) were non-normally distributed.

P value of Group 1 (Yogic breathing exercises) on pre and post SAS and QOL scale is  $<0.0001$  which is calculated by Wilcoxon signed rank test because of non-normal distribution. It is conclude that there is significant difference between the group.

P value of Group 2 (Mindfulness yoga) on pre and post SAS and QOL scale is  $<0.0001$  which is calculated by Wilcoxon signed rank test because of non-normal distribution. It is conclude that there is significant difference between the group.

P value of Group 1 (Yogic breathing exercises) v/s Group 2 (Mindfulness yoga) on post SAS is  $<0.0001$  which is calculated by Mann-Whitney test because of non-normal distribution. It is conclude that there is significant difference between these two groups.

P value of Group 1 (Yogic breathing exercises) v/s Group 2 (Mindfulness yoga) on post QOL scale is 0.1763 which is calculated by Mann-Whitney test because of non-normal distribution. As the p value  $>0.05$  it is conclude that there is not significant difference between these two groups.

**DISCUSSION:**

This study aimed to compare the effects of Yogic breathing exercises and Mindfulness yoga on the quality of life (QOL) in smartphone addicted middle-aged adults. The result of this study showed significant improvement on reduction of smartphone addiction and enhancement of quality of life in smartphone addicted middle-aged adults.

Addiction to smartphone is common among adults worldwide. It also has its effect on mental health which may lead to depression, anxiety, loneliness and sleep disturbances which further cause negative effect on physical well-being. As a person with depression, experience an unhappy mood, loss of interest, feelings of guilt or low self-esteem, low energy and poor concentration. Due to lack of interest, low self-esteem and poor concentration will affect on person's creativity which will leads to decrease in productivity of the work.

Yogic breathing exercises tends to help in improving physical well-being in terms of relaxation and peacefulness by reducing stress and tension. It also helps in development of inner awareness might indicate an increased capacity for focused attention and the associated enhancement of concentration. Breathing practices influence many processes in the body, e.g. heart rate variability and the mind, e.g. relaxation and stress through their impact on the autonomic nervous system. It is also seen that as an effective non-pharmacological intervention to control emotions.

In a study done by **Janika Epe (2021)** regarding yogic breathing exercises showed that it improves focus and self-awareness enhancing improved quality of life by using four breathing techniques. Breathing exercises showed that it has positive effect on comfort, pleasantness, relaxation, anxiety, depression, tiredness, anger and confusion.

In this study yogic breathing exercises showed improvement in reduction of smartphone addiction by decreasing the symptoms like depression, stress, anxiety as well as low self-esteem and improved the quality of life by developing relaxation effect, peacefulness and inner-awareness.

Mindfulness yoga helps to improve one's ability to recognize and accept negative thoughts and feelings by being aware of one's thoughts and physical sensations. It also improves the most common depressive symptoms, self-esteem which further leads to the improvement of psychological, social and overall quality of life. Mindfulness yoga promote present-moment awareness, acceptance, and non-reactivity to internal experiences, which may help individuals regulate their smartphone usage and cope with stress more effectively.

In a study conducted by **Hyunwoo Kang and Seyong Jang (2021)**, on topic of effect of mindfulness yoga on depression severity, self-esteem and quality of life in middle-aged men, concluded that depression severity significantly decreased and self-esteem significantly increased and it was noticed that there is significant increase in psychological, social and overall quality of life.

In this study mindfulness yoga showed that there is significant improvement in reduction of smartphone addiction by improving self-control, inner-awareness and self-esteem. Quality of life is improved due to reduction in the symptoms which was created by smartphone addiction like sleep disturbances, anxiety, poor concentration etc.

In a study done by **Surbhi Khanna and Jeffrey M. Greeson**, it shows that yoga asanas and yogic breathing exercises can be used to break the cycle of stress, negative emotions and addictive behavior by creating a sense of self-awareness, self-control and self-realization. This will improve both physical and mental health.

Both treatments are drug free and doesn't have any side effects hence both are important. They tend to help in reduction of smartphone addiction and enhancement of quality of life.

This study suggest that Mindfulness yoga has shown more effect on reducing smartphone addiction as compared to Yogic breathing exercises. The study suggests that there is no significant difference between Group 1(Yogic breathing exercises) and Group 2(Mindfulness yoga) on quality of life. Yogic breathing exercises and Mindfulness yoga both are equally effective in improving quality of life in smartphone addicted middle-aged adults.

## CONCLUSION:

This study concluded that the yogic breathing exercises and mindfulness yoga both were effective on improving quality of life in smartphone addicted middle-aged adults and mindfulness yoga has shown more effective on reducing smartphone addiction as compared to yogic breathing exercises.

## LIMITATIONS:

This study unable to confirm the long-term positive effect of both yogic breathing exercises and mindfulness yoga.

## FUTURE RECOMMENDATIONS:

The study can be undertaken for longer duration of weeks so that long term effects of yogic breathing exercises and mindfulness yoga can be measured.

The study can be done in the individuals of different age groups.

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