

# Case study

## Naturopathy Module in Management of Obesity (class-3); a case study

---

### ABSTRACT

Obesity is a complex condition with global prevalence reaching almost one-third of the world's population. It affects all ages, genders, and backgrounds, although older individuals and women tend to be more affected. In this case, a 36-year-old male business person leading a sedentary lifestyle presented with severe obesity (Class-3), hypertension, low back pain, fatigue and umbilical hernia for the past few years. The individual received 30-days of naturopathy treatments and diet intervention program. The treatment was provided through a personalized and customized protocol at Ipcowala naturopathy and yoga center (INYC) a residential naturopathy facility located in Vadodara, Gujarat. The findings indicated a significant reduction in body weight (from 130.74 kg to 116.60 kg), Body Mass Index (BMI) (from 41.76 to 37.25), Blood Pressure (from 140/100 to 130/86), as well as a notable decrease in back pain related disability and fatigue levels on scale. The patient experienced an overall improvement in functional health and reported an enhanced sense of well-being. Notably, the individual exhibited improvements across all domains of the WHO Quality of Life Bref scale. This case study strongly suggests that the naturopathy treatment, a tailored diet plan and fasting can serve as a beneficial intervention for reducing obesity and associated comorbidities. Further large scale studies are needed for observing effect of individual naturopathy therapies.

**Key words-** Naturopathy, Obesity, quality of life, naturopathy diet, Fasting.

### 1. INTRODUCTION

Obesity is a complex, multifactorial condition. The global prevalence of overweight and obesity has reached a point where almost one-third of the world's population is now categorized as overweight or obese. The rates of obesity have risen across all age groups and genders. The rise in obesity is believed to stem from a complex interplay of factors, including shifts in the food environment, levels of physical activity, socioeconomic conditions, environmental influences, and genetic factors (1). The economic burden of obesity is considerable. The risks and costs of various diseases escalate with higher BMI. Additionally, obesity significantly affects quality-adjusted life years and diminishes overall life expectancy (2). Obesity raises the risk of several diseases, including two leading causes of death: cardiovascular disease and cancer. On average, it is estimated that obesity decreases life expectancy by 3 to 13 years. The extent of excess mortality associated with obesity is greater in cases of severe obesity and when it develops at an earlier age (3). Both men and women face an increased risk of experiencing low back pain (LBP) when they are overweight or obese (4). In a cross-sectional study involving adults aged 20 to 59 years, fatigue was found to be associated with higher Body Mass Index (BMI), increased waist circumference, and a decreased likelihood of meeting the recommended levels of physical activity (5). It is crucial for physicians to be knowledgeable about the presence of comorbidities and their impact on outcomes and patient management when dealing with obese individuals (6).

Naturopathy is a holistic approach to healthcare that emphasizes the body's inherent ability to heal itself. Naturopathy focuses on treating the whole person rather than just the symptoms of a particular condition. By identifying and addressing the underlying imbalances in the body, naturopathic medicine aims to restore optimal health and vitality. The principles of naturopathy align with the body's innate healing wisdom and its connection to nature. Naturopathic doctors prioritize individualized care, considering each person's unique physical, mental, and emotional aspects. They also emphasize the use of natural remedies and treatments that support the body's natural healing processes while minimizing the risk of harmful side effects. (7), (8), (9). Fasting is an established therapeutic approach that is implemented in specialized hospitals or departments of naturopathic, integrative, and nutritional medicine in several central European countries as well as in the USA (10). Fasting therapy, followed by a vegetarian diet, has shown potential effectiveness in managing pain and reducing swelling associated with chronic conditions like rheumatoid arthritis (RA) (11).

A holistic approach to managing and preventing obesity-related disorders, incorporating natural therapies such as hydrotherapy, massage therapy, diet therapy, fasting, and walking, can provide an effective strategy.

## **2. CASE INFORMATION**

A 36-year-old Indian male businessman with sedentary lifestyle sought consultation with a Naturopathy and Yoga expert at INYC in Vadodara, Gujarat on Feb 11, 2023. Upon arrival, his primary concern was obesity; he was also presented with related symptoms like lower back discomfort, fatigue, disturbed sleep, and challenges in coping with sudden physical activity.

## **3. CLINICAL FINDINGS**

The patient was overweight since childhood, presently have BMI 41.76 thus can be classified as Obesity class-3. Over the past 5-7 years, he has been grappling with significant discomfort due to obesity-related problems such as lower back pain, sleep difficulty, fatigue, and challenges in engaging in sudden physical activities. He has been diagnosed with hypertension for the past 9 years and has been taking medication for it. He was experiencing difficulties walking beyond a distance of 200 meters. Additionally, he has been dealing with an umbilical hernia for the past 3 years. Despite having a good appetite, the patient struggled with controlling their food habits. During the examination, the patient's blood pressure was measured at 140/100 mmHg, heart rate at 68 beats per minute, weight at 130.74 kg, height at 177 cm, and BMI at 41.7 kg/m<sup>2</sup>.

## **4. THERAPEUTIC FOCUS**

The line of treatment was focused on reducing body weight, easing low back pain and improving quality of life. According to Naturopathy principles, an eliminative diet therapy and fasting were implemented. Furthermore, Naturopathy treatment including Swedish massage, steam bath, lapet, mud pack, enema, for 30 days was planned (Tables 1 and 2).

## **5. METHODS**

Following a detailed case history, Initial counseling and obtaining informed consent signed. The intervention was planned by a team of Naturopathy physician and yoga expert. Keeping a daily watch on vitals, medicines were trapped by the physician. His in-patient stay was for 30 days.

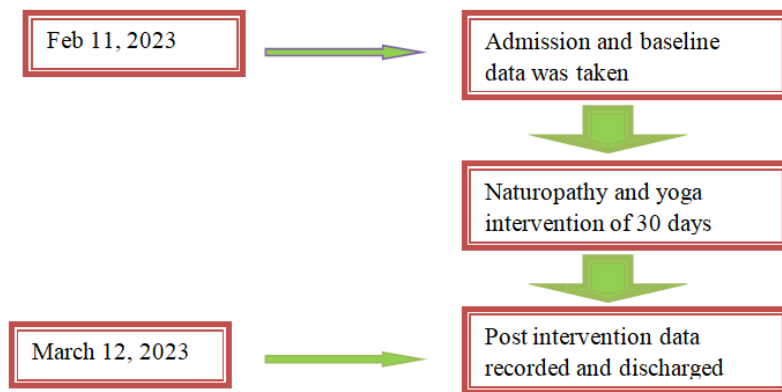


Figure 1, study profile

## 6. ASSESSMENT

Height was measured by stadiometer in centimeters. The weight of the body was measured using an electronic research grade weighing machine (12). BMI was calculated as weight(kg) divided by height squared(m<sup>2</sup>) (13). The resting blood pressure was measured using a standard mercury sphygmomanometer, and the readings were recorded in millimeters of mercury (mmHg). Pulse rate and respiratory rate was also recorded manually.

The disability associated with back pain is evaluated using 'The Quebec Back Pain Disability Scale.' This scale consists of 20 points, which assess the impact of back pain on an individual's ability to carry out their daily activities. Each activity is assigned a rating on a scale of 0 to 5 (14).

The Chalder Fatigue Scale (CFQ 11) is a questionnaire that individuals can complete themselves to assess the level and intensity of fatigue, both in clinical and non-clinical environments. It is commonly employed in occupational research. In this study, on admission, the CFQ-11 score was 19, while after 30 days of intervention, the score decreased to 4, indicating a reduction of 78.94% (15).

The assessment of quality of life was conducted using the WHOQOL-Bref questionnaire. This questionnaire comprises 26 items and evaluates quality of life across four domains: physical, psychological, social, and environmental health (16).

## 7. INTERVENTION

This case study was conducted at the Ipcowala Naturopathy and Yoga Center, located in Vadodara, Gujarat. The naturopathy intervention was administered under the supervision of a qualified naturopathy physician. Following a thorough consultation, the patient commenced a naturopathy intervention comprising of naturopathy treatments, regular walks, and adherence to a naturopathy diet plan.

Trained therapists performed Naturopathy treatments that included Swedish massage therapy, water therapy, vibro massage, Poulitice and mud therapy. Swedish massage is a systematic rubbing of soft tissue including muscles, tendons, ligaments, and connective tissue. It was typically performed using various hand movements, such as stroking, kneading, tapping, or rubbing. Massage was performed with cold press sesame oil. Vibro massage was given for 15 minutes to thighs and sides of belly by using an electronic massager. Poulitice was made by using Nagod (*Vitex negundo*) plant leaves; it was mildly heated with sesame oil and applied to area prescribed. A detail of intervention is provided in table 1.

The patient prefers walking instead of other exercise and yoga so he was going to walk for 10 minutes twice a day morning and evening for first 7 days. Then gradually length and duration of walking increased as per his comfort level. Sun bath was also administered for 15-20 min daily.

Naturopathy Intervention Details		
Procedure	Method	Frequency
Neem water Enema	Neem (Azadirachta indica) leaves are boiled in to water for 30 min. Water is then allowed to cool down. 500-700 ml of this neem water is introduced in to colon	10 days
Oil enema	200 ml of sesame oil is introduced in to colon	2 days
Full body massage	Swedish massage for 45 min	12 days
Half body massage	Swedish massage for 30 min, Part covered- Abdomen and legs	5 days
Half body Nagod Shek	With Nagod leaves duration 30 min, Part covered both arms and legs	5 days
Mud pack	Wet mud is wrapped in a thin cotton cloth and kept over eyes and lower abdomen for 20-30 min.	21 days
Lapet to Abdomen	A wet cotton cloth is wrapped around the abdomen and a blanket wrapped over it for 45 min.	28 days
Full body steam	Body is exposed to steam generated by cooker for 10 min after oil massage.	22 days
Local steam	Local steam to low back, Duration 10 min	15 days
Ice massage	Duration 15 min	18 days
Hot and cold fomentation	Hot and cold fomentation to abdomen, Duration 20 min	6 days
Vibro massage	Vibro massage to abdomen and thighs, Duration 15 min	6 days
Sun bath	Patient is asked to avoid sun light on face, head and neck, duration 15 min.	24 days

Table-1: Details of intervention

### Naturopathy diet plan

The subject is provided with plant based whole foods including fruits, vegetables, whole grains, and legumes (fig 1). These foods are rich in essential nutrients and are less likely to contain additives or artificial ingredients. This approach provides ample fiber, vitamins, minerals, and antioxidants. Drinking adequate amount of water is another aspect we included to maintain proper hydration. Patient was given proper counseling for mindful eating and fasting.



**Fig 1: Naturopathy food plate, rich in vegetables, fibers and whole food.**

Main food components of his dietary regimen were included Cumin water, herbal tea, fruits, Green gram soup, vegetable soups, salads, green chutneys, Bottle gourd and carrot juice, and lemon water. He was consuming solid meals twice a day and liquids for the remaining three meals for days apart from fasting.

The therapeutic fasting (17) was implemented in a gradual manner. Initially, the patient was provided with fruits and boiled vegetables as an eliminative diet. However, after a few days, the patient expressed reluctance to consume solid food. As a result, he was shifted to liquid diet, and after two days on the liquid diet, the patient was shifted to warm lemon water for a period of time until natural hunger emerged. He completed 9 days of fasting, which consisted of 5 days on a liquid diet and 4 days on lemon water only for a period of time until natural hunger emerged. During the 5 days of the liquid diet, the patient consumed green juice, vegetable soup, and green gram soup. And during lemon water fast patient was consuming 5 glasses of lemon water at different times and rest of the normal water (Table 2).

Naturopathy Diet Module						
Days	6:00 AM	7:30 AM	11-12 Am	3:30 PM	6:pm	Others
Day 1	Cumin water	Herbal Tea	Half roti + boil Vegetable + salad+chutney + Green gram soup	white Pumkin Juice + Cumin powder	two fruits + cereal + Vegetable Soup	
Day 2 to 4	Cumin water	Herbal Tea	Papaya+ boil Vegetable + salad+ chutney + Green gram soup	white Pumkin Juice + Cumin powder	two fruits + cereal + Vegetable Soup	puffed rice 1bowl
Day 5 to 6	Cumin water	Herbal Tea	Papaya+ Green gram soup	white Pumkin Juice + Cumin powder	1 apple+ Vegetable Soup	puffed rice 1bowl
Day 7to 9	Cumin water	Herbal Tea	Green gram soup	white Pumkin Juice + Cumin powder	Vegetable Soup	
Day 10 to 13	WLM	WLM	Worm Lemon water (WLM)	WLM	WLM	

Day 14 to 15	WLM	WLM	Apple+Pommegranate juice + Cumin powder	Bottel guard juice	Apple+Pommegranate juice + Cumin powder
Day 16 to 17	WLM	Herbal Tea	Green gram soup	Carrot+Bottel guard juice	Vegetable Soup
Day 18 to 21	WLM	Herbal Tea	One fruit+ Green gram soup	Carrot+Bottel guard juice	Papaya+ Vegetable Soup
Day 22 to 29	WLM	Herbal Tea	Papaya+ boil Vegetable + salad+ chutney + Green gram soup	Carrot+Bottel guard juice	Papaya+half cereal+ Vegetable Soup
Day 30	WLM	Herbal Tea	Regular meal		Regular meal

Table 2: Details of dietary intervention.

## 8. OUTCOMES

On March 12, 2023, all psycho-physiological parameters were reevaluated. Encouraging results were observed in the patient's condition following one month of intervention. Significant improvements were noted in body weight, back pain, tiredness, and overall quality of life, as indicated on the assessment scales. On 15<sup>th</sup> day his blood pressure dropped to 110/70 so as per the physician's advice his B.P. medicine were discontinued for rest of the days. His B.P. was monitored on daily basis and it was normal without medicine.

The patient experienced a significant and noteworthy reduction in body weight throughout the intervention. On the first day, their body weight was recorded as 130.74 kg, which decreased to 125.48 kg on the fifth day. By the fifteenth day, the weight further dropped to 119.7 kg, and on the eighteenth day, it reached 117.9 kg. Finally, on the thirtieth day, the patient's weight was measured at 116.6 kg. After 30 days of intervention, his BMI decreased from 41.76 to 37.25, indicating a transition from class 3 obesity to class 2 obesity (fig 2).

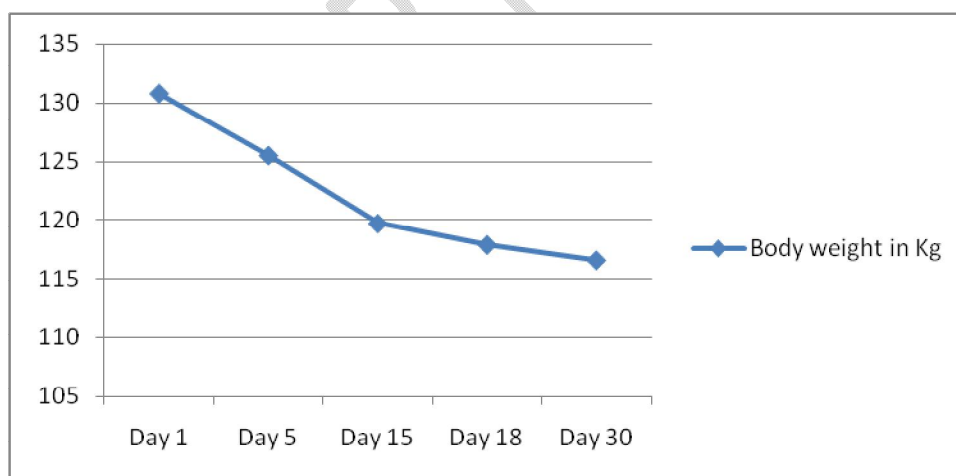


Fig 2: Graph showing gradual reduction in body weight.

Following one month of intervention, notable progress was observed in the Quebec Back Pain Disability Scale. Complete recovery was observed for six activities: getting out of bed, turning over in bed, standing up for 20-30 minutes, walking a few blocks, taking food out of the refrigerator, and moving a chair. However, no improvement in difficulty scores was noted for two activities: running about 100 meters and

lifting and carrying a heavy suitcase (table-3). 'Chalder Fatigue Scale' was assessed to measure fatigue levels on 11 points; a significant improvement was noted on 8 points while 3 points remained unchanged (table-3). Significant improvements were observed in all four domains of the WHOQOL-Bref, reflecting an enhancement in overall quality of life. The physical health dimension exhibited a remarkable increase of 65.78%, while the psychological health and social relationship domains demonstrated notable improvements of 27.27% each (fig 3). Furthermore, there was an 8% enhancement in the environmental health domain (table-3).

Results			
Variables	Before treatment	After treatment	Improvement in percentage
Systolic blood pressure	140 (with medicine)	130(without medicine)	2.86%
Diastolic blood pressure	100 (with medicine)	86 (without medicine)	14%
Body weight	130.74	116.60	10.82%
Height	177 cm	177 cm	
BMI	41.76	37.25	10.79%
Quebec Back Pain Disability Scale	67	28	58.20%
Chalder fatigue scale	19	5	73.68%
WHOQOL-Bref			
Physical health	38	63	65.78%
Psychological health	44	56	27.27%
Social Relationship	44	69	56.81%
Environmental	75	81	8%

Table 3: Results

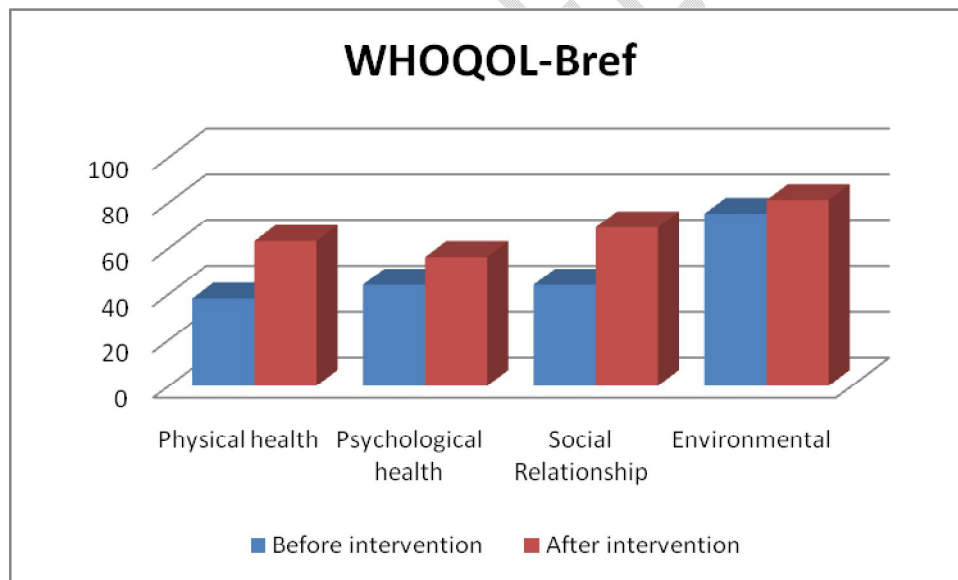


Fig 3: Graph showing improvement in different domains of WHO-quality of life-Bref

## 9. DISCUSSION

Data suggests that a 30-days naturopathy intervention is helpful in reducing Obesity, BMI, back pain, blood pressure (both systolic and diastolic), and fatigue levels. Furthermore, the data shows remarkable improvements in all domains of quality of life for a 36-year-old male patient with obesity(fig 3). Strength of the study lies in long term intervention.

There is a pressing need to develop highly effective interventions that target and counteract the influential factors contributing to obesity, often referred to as "obesogenic" drivers. These interventions should encompass a range of strategies, including comprehensive government policies and health education and promotion programs (18). Researches has demonstrated the efficacy of Intermittent Fasting in overweight individuals, leading to enhanced body composition through reductions in fat mass, as well as improvements in various health-related biomarkers like glucose and insulin levels (19). The findings of a recent clinical trial suggest incorporating intermittent fasting, along with calorie restriction and liquid meals, proves to be a successful approach for aiming individual to achieve weight loss and reduce their cardiovascular risk (20).

In a recent case study involving a 50-year-old male patient, integrated yoga and naturopathy intervention demonstrated comparable outcomes in reducing body weight in an individual with obesity (21). In another study involving a 53-year-old patient with obesity, hypertension, and joint pains, a 45-day intervention of holistic yoga therapy and naturopathy treatment resulted in significant reductions in BMI, blood pressure, and joint pain (22). The current study shows comparable trend to previous research on pilates and aerobic training in improving quality of life in overweight individuals (23).

Taken together, these outcomes provide compelling evidence for the efficacy of Naturopathy as a treatment approach for addressing obesity-related issues and promoting overall well-being. The findings demonstrate that a 30-day Naturopathy treatment plan can lead to substantial improvements in body weight, BMI, blood pressure, fatigue levels, back pain-related disability, and various aspects of quality of life. These results highlight the potential of Naturopathy as a holistic approach that not only addresses physical health but also positively impacts psychological, social and environmental well-being.

The authors attribute these positive outcomes to the incorporation of diverse naturopathy therapies, dietary adjustments, and fasting. Importantly, the patient's unwavering determination and strong desire to recover were also instrumental in achieving these results. This case study contributes to the expanding body of clinical evidence supporting the efficacy of naturopathy therapies in managing chronic metabolic and degenerative diseases. However, further large-scale studies are required to comprehensively observe the effects of individual naturopathy therapies.

## 10. CONCLUSION

In summary, the findings from this case study are highly promising, showcasing significant improvements in various health markers and overall well-being. The results demonstrated a substantial decrease in body weight, BMI, and blood pressure, signifying significant progress in managing obesity. The study also revealed a remarkable shift from class 3 to class 2 obesity, accompanied by a notable reduction in fatigue levels and disability caused by back pain. Furthermore, the patient experienced an overall improvement in the quality of life across various domains such as physical, psychological, social and environmental relationship following just 30 days of Naturopathy treatment. Reduction in blood pressure is suggestive of improvement in cardiac health. These outcomes serve as compelling evidence for the efficacy of Naturopathy in addressing obesity-related issues and enhancing overall well-being.

## PATIENT CONSENT

Informed written consent has been obtained.

## REFERENCES

1. Chooi YC, Ding C, Magkos F. The epidemiology of obesity. *Metabolism*. 2019 Mar 1;92:6-10.

2. Thompson D, Edelsberg J, Colditz GA, Bird AP, Oster G. Lifetime health and economic consequences of obesity. *Archives of internal medicine*. 1999 Oct 11;159(18):2177-83.
3. Jebb S. Obesity: causes and consequences. *Women's health medicine*. 2004 Nov 1;1(1):38-41.
4. Zhang TT, Liu Z, Liu YL, Zhao JJ, Liu DW, Tian QB. Obesity as a risk factor for low Back pain. *Clinical spine surgery*. 2018 Feb 1;31(1):22-7.
5. Resnick HE, Carter EA, Aloia M, Phillips B. Cross-sectional relationship of reported fatigue to obesity, diet, and physical activity: results from the third national health and nutrition examination survey. *Journal of Clinical Sleep Medicine*. 2006 Apr;2(02):163-9.
6. Pi-Sunyer X. The medical risks of obesity. *Postgraduate medicine*. 2009 Nov 1;121(6):21-33.
7. Kumari H. *International Journal of Yogic, Human Movement and Sports Sciences* 2019: (1): 215-218.
8. Nair PM, Nanda A. Naturopathic medicine in India. Focus on Alternative and Complementary Therapies. 2014 Sep;19(3):140-7.
9. World Health Organization. Benchmarks for training in Naturopathy. In *Benchmarks for training in naturopathy 2010* (pp. 20-20).
10. Michalsen A, Li C. Fasting therapy for treating and preventing disease-current state of evidence. *Complementary Medicine Research*. 2013;20(6):444-53.
11. Kjeldsen-Kragh J, Borchgrevink CF, Laerum E, Haugen M, Eek M, Førre O, Mowinkel P, Hovi K. Controlled trial of fasting and one-year vegetarian diet in rheumatoid arthritis. *The Lancet*. 1991 Oct 12;338(8772):899-902.
12. Model no. ws 2019;Narang medical Ltd.,New Delhi;India.
13. Tudor-Locke C, Ainsworth BE, Adair LS, Du S, Popkin BM. Physical activity and inactivity in Chinese school-aged youth: the China Health and Nutrition Survey. *International Journal of Obesity*. 2003 Sep;27(9):1093-9.
14. Kopec JA, Esdaile JM, Abrahamowicz M, Abenhaim L, Wood-Dauphinee S, Lamping DL, Williams JL. The Quebec Back Pain Disability Scale. Measurement properties. *Spine*. 1995 Feb 1;20(3):341-52.
15. Jackson C. The Chalder fatigue scale (CFQ 11). *Occupational medicine*. 2015 Jan 1;65(1):86-86.
16. World Health Organization. The world health organization quality of life (WHOQOL)-BREF. World Health Organization; 2004.
17. Johnstone A. Fasting for weight loss: an effective strategy or latest dieting trend?. *International Journal of Obesity*. 2015 May;39(5):727-33.
18. Wright, S. M., & Aronne, L. J. (2012). Causes of obesity. *Abdominal Radiology*, 37, 730-732.
19. Sandoval C, Santibañez S, Villagrán F. Effectiveness of intermittent fasting to potentiate weight loss or muscle gains in humans younger than 60 years old: a systematic review. *International Journal of Food Sciences and Nutrition*. 2021 Aug 18;72(6):734-45.
20. Klempel MC, Kroeger CM, Bhutani S, Trepanowski JF, Varady KA. Intermittent fasting combined with calorie restriction is effective for weight loss and cardio-protection in obese women. *Nutrition journal*. 2012 Dec;11:1-9.
21. Gowda S, Mohanty S, Saoji A, Nagarathna R. Integrated yoga and naturopathy module in management of metabolic syndrome: A case report. *Journal of Ayurveda and integrative medicine*. 2017 Jan 1;8(1):45-8.
22. Gupta R, Mishra S. Outcome of a Holistic Yoga Therapy and Naturopathy Treatment for Obesity: A Case Study. *International journal of innovative research in technology*. 2021: (8):549-551.
23. Vancini RL, Rayes AB, Lira CA, Sarro KJ, Andrade MS. Pilates and aerobic training improve levels of depression, anxiety and quality of life in overweight and obese individuals. *Arquivos de neuro-psiquiatria*. 2017;75:850-7.