

## The octagon of opportunities in obesity

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### Abstract

The Ominous Octet is a popular construct, which has been used to describe the aetiopathology of diabetes, as well as the endocrine causation of obesity. We utilize this model to create a smart and salutogenic rubric of obesity pathogenesis. Our optimistic Octagon of Opportunities lists eight causative or contributory factors, all of which are associated with the development of obesity. The model gives equal weightage to the biomedical and psychosocial arms of the biopsychosocial model of health. The framework encourages a proactive and comprehensive approach to the prevention and management of obesity.

**DOI:** <https://doi.org/10.47391/JPMA.24-83>

### Introduction

The Ominous Octet is a popular construct, which has been used to describe the etiopathology of diabetes, as well as the endocrine causation of obesity.<sup>1,2</sup> We utilize this model to create an alliterative comprehensive 8E rubric of obesity pathogenesis. Our Octagon of Opportunities lists eight causative or contributory factors, all of which are associated with the development of obesity. The model gives equal weightage to the biomedical and psychosocial arms of the biopsychosocial model of health. Four of our factors are biomedical in nature, while the other four relate to the psychosocio- environmental domain.

### Biomedical quadruple

Weight homeostasis is regulated by endocrine factors, and the endocrine ominous octet forms the first part of our comprehensive octagon.<sup>1</sup> This includes four 'major players' (the hypothalamus, adipose tissue, pancreas and gut), along with four 'minor' contributors (the thyroid,

adrenal, muscle and liver). The multiple endocrine pathways represent an opportunity restoration of physiology and management of obesity.

The second aspect, that we term 'extraneous limitations', refers to medical and musculoskeletal factors which may impact ability to follow a healthy lifestyle.<sup>3</sup> Conditions such as anaemia, heart failure, and chronic lung, liver or kidney disease may prevent a person from exercising. Musculoskeletal diseases like sarcopenia, osteoporosis and osteoarthritis are associated with reduced mobility and increased weight gain. Therefore, treatment of these conditions represents an opportunity for management of obesity as well.

'Estate' or inheritance highlights the role of genetics in obesity. Syndromic obesity may be suspected in persons who meet criteria laid down earlier.<sup>4</sup> Early recognition of syndromic obesity facilitates efficient deployment of health resources.

The fourth biomedical E stands for 'endocrine disruptor' drugs. Multiple medications including corticosteroids, atypical anti- psychotics, and thiazolidinediones, are associated with weight gain.<sup>5</sup> Clinical audits and pharmacovigilance programmes represent a window of opportunity for prevention and mitigation of iatrogenic obesity.

### Psychosocio-environmental quadruple

The psychosocio-environmental domain of our octagon of obesity lists four opportunities: environmental, emotional, educational and economic.

Our physical environment contributes, in no small measure, to the development of obesity. Creating a weight-friendly environment, which encourages physical activity, stress and substance abuse, and promotes healthy eating necessary to stem the global epidemic of obesity. Global warming, pollution and exposure to plastics are also associated with metabolic dysfunction, including obesity. These must be addressed as well.<sup>6</sup>

Emotional or mental health is an important influencer of weight. This interaction plays out at multiple levels. Suboptimal emotional health leads to release of counter regulatory hormones, and can cause binge eating or unwanted "comfort consumption of calories". It also

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**Table:** The octagon of opportunities in obesity.**BIOMEDICAL**

- Endocrine optimization
  - Major players
    - Hypothalamus
    - Gut
    - Adipose tissue
    - Pancreas
  - Minor players
    - Thyroid
    - Adrenal
    - Skeletal muscle
    - Liver
- Elimination of extraneous limitations which prevent adoption of healthy lifestyle
  - Medical, e.g., anaemia, heart failure
  - Musculoskeletal, e.g., osteoarthritis
- Early identification of inherited syndromes
  - Syndromes with developmental delay
  - Syndromes with developmental delay
- Endocrine disruptor” drugs: avoidance of iatrogenic causes

**PSYCHOSOCIO-ENVIRONMENTAL**

- Environmental optimization
  - Exercise friendly built-up environment
  - Pollution alleviating measures
- Emotional health focus
  - Addressal of obesity distress
- Management of depression, substance abuse disorders
  - Management of eating disorders, e.g., binge eating
- Economic interventions
  - Focus on economic determinants of obesity
  - Focus on commercial determinants of obesity
- Educational measures
  - Health literacy campaigns
  - Health awareness campaigns
  - Healthy consumer choices.

impairs acceptance of, and adherence to weight losing therapies. Hence, emotions form an integral part of the obesity octagon of opportunities.<sup>7</sup>

Education including health literacy, have been shown to be associated with weight disorders. Improving educational status at a community level, and fostering health literacy as well as awareness, are opportunities that can be utilized at a mass level.<sup>8</sup> The last E is economic: obesity is associated with choices that have a financial

context. For example, a high carbohydrate diet or a diet 'rich in ultra-processed foods may be consumed because it is economical. At the same time, options for exercise, such as gymnasias and formal sports, may not be utilized because they are expensive. Economic determinants of obesity,<sup>8</sup> which we discuss elsewhere in the JPMA as obesonomics, therefore, are included in the octagon.

**Summary**

The octagon of opportunities is an optimistic, action-oriented model, presented in a salutogenic manner. It highlights options and opportunities for weight control, at both clinical (individual) and public health level. Integrating internal as well as external, and biomedical as well as psychosocial determinants of health, it encourages a comprehensive, all-inclusive approach to obesity management.

We now have increased understanding and awareness of the importance of managing obesity as a disease, with the advent of effective weight loss drugs, and with an enhanced focus on advocacy for obesity care.<sup>9</sup> We hope that the octagon of opportunities in obesity will live up to its potential.

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