

# How Locus of Control Orientations Affects Individual Nutritional Status: A Literature Review

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**Keywords:** Locus of Control Orientation, Obesity, Health Behaviours.

**Abstract:** Obesity is a health problem which is determined by the accumulation of fat, leading to weight gain. The study of obesity involves various disciplines, including psychology. Locus of control is a psychosocial concept that refers to an individual's belief in things that control events in their life; by their own control or external factors. This study aimed to review literature examining the relationship between locus of control orientation and individual's nutritional status. This article was a narrative literature review comprising up to 50 relevant sources about locus of control, health behaviors, and nutritional status issues, such as obesity, from various regions. This review concluded that locus of control orientation is likely influences an individual's overnutrition status indirectly by influencing their health behaviours. Some studies also found that locus of control orientation can impact food consumption, with individuals having an internal locus of control more likely to consume healthier food such. In summary, locus of control orientation can be considered as one of the crucial factors to regard in designing programs to reduce nutritional status problems in the future. Further research is also required to improve the understanding of how psychosocial factors, such as locus of control orientation, can influence nutritional status.

## 1 BACKGROUND

The Report of a World Health Organization Consultation in 2000 named obesity as a global epidemic. Obesity is a health problem involving excessive fat accumulation in an individual's body caused by an imbalance of energy intake and expenditure. Obesity can be considered a risk factor for non-communicable degenerative diseases, which are the most significant cause of death in humans (Sofa, 2018).

The growth of the obesity epidemic can be associated with many risk factors. Psychosocial is one of the factors that can influence an individual's eating habits. The locus of control orientation is one of the psychosocial factors referred to (Adnyani et al., 2015). A person's behavior executions can be predicted due to locus of control. In the early development of the theory, the locus of control orientation was divided into two dimensions: internal and external (Haskas, 2019). Individuals with internal locus of control orientation believe that the consequences of every action they do, no matter good or bad, happen because of the factors within themselves. In contrast, those with external locus of control orientations assume that the factors outside of

their control significantly affect the results they get (Nainggolan et al., 2018).

The development and severity of obesity are even considered an epidemic in many developed countries, and it is also starting to proliferate in many developing countries such as Indonesia (Sahoo et al., 2015). Obesity will have a significant impact on humanity in the future. Hence, actions must be taken to reduce and control the risk of health problems to maintain and improve the global public health status. This paper was written to conclude the relation between locus of control orientation and an individual's nutritional status problem, such as obesity, based on previous studies.

## 2 SUBJECTS AND METHOD

This article was a narrative literature review comprising up to 50 relevant sources about locus of control, health behaviors, and nutritional status issues, such as obesity, from various regions.

### 3 RESULTS

#### 3.1 Overnutrition

Overnutrition is a condition in which an individual's Body Mass Index (BMI) value, as the measure of nutritional status, exceeds the normal range. One of the overnutrition status characteristics is the increasing body fat levels. An Indonesian person can be classified as overnutrition if their BMI is  $\geq 25.0$  kg/m<sup>2</sup> (Ministry of Health of Republic of Indonesia, 2014). Overnutrition is divided into two classes, namely overweight and obesity. A person can be classified as obese if their BMI value is  $\geq 27$  kg/m<sup>2</sup>. Generally, the causes of obesity relate to food intake, metabolism, energy expenditure, and physical activity. Socio-cultural factors, lack of knowledge, peer pressure, uncontrolled eating habits, hunger, emotional eating, snack consumption, sleep deprivation, and impacts of drug therapy can cause excessive food intake. Meanwhile, aging processes, gender, and heredity can affect the slow mechanisms of metabolism and low energy expenditure. Low physical activity can be caused by muscle and joint pain, the types of jobs a person occupies, chronic fatigue, and emotional limitations (Blüher, 2019).

Obesity is a problem that occurs due to various factors. Genetics is one of the factors that can cause obesity. After the first single-gene defect that causes monogenic obesity was found in 1997, researchers found that more than 20 single-gene defects can lead to autosomal obesity (O'Rahilly, 2009). The mutations in these genes eventually cause the leptin/melanocortin pathway in the central nervous system to play a critical part in the regulation of an individual's energy balance, so the obesity resulting from this appears to be caused by the increasing appetite and reduced satiety (Herrera and Lindgren, 2010). The prediction from the Non-Communicable Disease Risk Factor Collaboration (NCD-RisC) institution also showed that the probability of obesity based on gender is more significant in females, which is 21% compared to 18% in males (Chooi et al., 2019). This incidence can be associated with maternal obesity in women during pregnancy (Huda et al., 2010), changes in fat distribution in women experiencing menopause, and the twofold acceleration of lipoprotein metabolism compared to men due to estrogen stimulation (Kanter and Caballero, 2012).

Cultural factors can also lead to obesity by influencing an individual's view of their body image. On an individual level, their views and preferences toward their body shape can be the reason behind

weight gain occurrence. In some regions, such as the Pacific Islands, plus-size people are considered more attractive than those who are not (McCabe et al., 2011). Social and environmental factors also have a role in promoting the incidence of obesity. Lifestyle changes caused by the increasing income in society, especially those living in urban areas, along with the growing influence of foreign culture due to the development of information technology, have also led to an increase in low-carbohydrates, low-fibers, and high-fat diets (Aini, 2014). Together with the decreasing intensity of physical activity due to economic improvement, this can escalate energy intake and reduce energy expenditure, thus leading to a positive energy balance. When an individual's positive energy balance occurs for a long time, excessive fat accumulation as an energy reserve can occur, which leads to obesity (Selassie and Sinha, 2011).

#### 3.2 Locus of Control

Locus of control is a psychosocial concept that refers to an individual's belief in things that control events in their life (Morowatisharifabad et al., 2010). In the theory's early development, Julian Rotter proposed this concept as a component of social learning theory. The concept of locus of control is categorized into two dimensions of orientation: internal and external (Rotter, 2011). A person with an internal locus of control orientation believes that the behavior they perform determines the reinforcement or results they obtain. In contrast, people with an external locus of control orientation assume that the reinforcement or results they receive are beyond their control, namely by other people who are more powerful than them or by accidental events (Malhotra, 2017). In other words, people with an internal locus of control orientation are confident that the environment around them is responsive to their relatively permanent characteristics. In contrast, people with an external locus of control orientation are convinced that the environment and external things they get seem out of their control.

After Rotter proposed the concept, locus of control has been studied on a broader scale in various sub-disciplines of psychology (Zeigler-Hill and Shackelford, 2020). The concept's development continues, proven by the development of different domain-specific measurements with multiple uses of locus of control, including the Multidimensional Health Locus of Control (MHLC) Scale developed by Kenneth A. Wallston and Barbara S. Wallston with Gordon D. Kaplan and Shirley A. Maides in 1976

(Masters and Wallston, 2005). The development of this MHLC instrument is used as a behavior predictor related to individual health status after Hanna Levenson in 1974 argued that locus of control is not a unidimensional construct but multidimensional. The concept of locus of control claimed by Levenson categorizes the dimensions of locus of control into three, namely internal control, powerful others, and chances (Ross et al., 2015).

Differences in the locus of control orientation tend to be affected by various aspects, such as socioeconomic factors, childhood background, education received, financial difficulties, and social integration (Wardle, 2003). Each individual can have different orientations with the varieties in the underlying locus of control orientation tendencies. These orientation differences ultimately promote the execution of health behaviors, leading to diverse outcomes of an individual's health indicators, including nutritional status.

## 4 DISCUSSION

The escalating incidence of overnutrition can be linked to various risk factors. H.L. Blum's Classical Theory classifies the factors affecting health status into behaviors, environment, health services, and heredity (Saraswati et al., 2021). Behavioral factors conducted by an individual can also be influenced by their locus of control orientation. Locus of control orientation is considered a measurable psychosocial factor related to the performance of an individual's health behaviors (Adhanty et al., 2021). Locus of control orientation is a critical characteristic whose relation with the incidence of overnutrition should be observed since it can indicate whether a person is confident that the environment and their life choices are within control (Neymotin and Nemzer, 2014).

In general, internal locus of control orientation can be associated with positive outcomes, such as more outstanding academic achievement (Findley and Cooper, 1983), better mental health (Gallagher et al., 2014), and improved physical condition. This can happen since individuals with an internal locus of control orientation consider that their every action is vital to the realization of events in their life, so they are more likely to manifest positive behaviors such as exercising, not smoking, and maintaining healthy eating habits (Wallston and Wallston, 1978).

The theory is supported by the research results from Cobb-Clark et al. (2014) on household members in Australia from 2003 to 2010, demonstrating that individuals with an internal locus of control tend to

pay more attention to their health by doing more exercise and consuming healthier foods, such as by ingesting more various types of vegetables, fruits, and low-fat milk in men and regularly eating vegetables and avoiding fatty foods in women. In addition, a study conducted by Bellini et al., (2011) on children and adolescents with celiac disease in Italy also showed that individuals with an internal locus of control orientation tend to be more compliant with a gluten-free diet than those with an external orientation. This study proved that locus of control is a beneficial early warning system to identify which individuals are most likely to disobey the predetermined diet related to their health problems.

Aside from influencing individual health-related behaviors, locus of control orientation can also affect stress levels (Paranjpe, 2014). This can be related to a person's ability to deal with the stressors they receive. A previous study on groups of workers proved that people with an internal locus of control orientation helped reduce the adverse effects of their workload (Gray-Stanley et al., 2010).

Stress can be defined as a non-specific response the body gives to a command (Selye, 1956). The characteristic of stress is that it causes individuals to feel uncomfortable since there is an imbalance between orders, both from within and from outside of themselves, which are obtained by the limits of the ability they think when they have to carry out these orders. Stress can cause various changes in an individual's behavior, including eating patterns (Choi, 2020). A report claimed that individuals with higher stress levels tend to have the urge to adopt unhealthy eating patterns, such as consuming lots of snacks (Sogari et al., 2018).

This can be associated with an increasing appetite due to fluctuations in hormonal changes when an individual experiences stress since stress can affect glucocorticoid secretion. Glucocorticoids stimulate appetite and the production of insulin, a hormone that can affect nutrient intake (Dallman, 2010). This theory is proved by the research conducted by Mouchacca et al. (2013) on 1,382 women aged 18 to 46 years in Victoria, Australia, which concluded that stress levels are associated with intensified fast food consumption. Furthermore, the research conducted by Al Jaber et al. (2019) on students of the Medical Study Program at the Islamic University of Al-Imam Muhammed Ibnu Saud revealed that when the students' stress levels increase, their execution of bad eating habits will also escalate, as evidenced by the high consumption of unhealthy foods such as fast foods which are high in calories.

## 5 CONCLUSION

Previous studies have proven that locus of control orientation can indirectly affect an individual's nutritional status, including the execution of overnutrition prevention, by encouraging the person to perform healthy behaviors. In addition, locus of control orientation can also affect stress levels related to regulating appetite-affecting hormones. Based on this, locus of control orientation can be considered as one of the crucial factors to regard in designing programs to reduce nutritional status problems in the future. Further research is also required to improve the understanding of how psychosocial factors, such as locus of control orientation, can influence nutritional status.

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