



Metabolic Syndrome as an Indicator to the Quality of Life

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DOI: 10.5281/zenodo.10798412

Submission Date: 10 Jan. 2024 | Published Date: 29 Feb. 2024

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Abstract

This article discusses briefly metabolic syndrome as a form of metabolic disorder; its symptoms, psychosocial factors that stand behind, especially for the acquired one. Then the quality of life with its unhealthy life style that associated with such syndrome, suggesting an equation for such relationship.

Keywords: Metabolic disorder- metabolic syndrome- unhealthy life style- quality of life.

What is metabolic disorder?

Metabolic disorders occur mainly due to deficiencies in the enzyme that are necessary to convert one metabolite to another metabolite. The abnormalities or manifestations of metabolic disorders are either due to the accumulation of large amounts of one metabolite or a deficiency of one or more metabolites. Metabolic disorders can be broadly classified into inherited metabolic disorders and acquired metabolic disorders. Acquired metabolic disorders are associated with external factors, such as an unhealthy lifestyle along with little physical activity and excessive caloric intake. Metabolic syndrome is the most common metabolic disorder associated with the global epidemic of obesity and diabetes. (<https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/metabolic-disorder>).

Metabolic syndrome is a form of metabolic disorder, and a most common form around the globe.

What is Metabolic Syndrome?

Metabolic syndrome is a group of conditions that together raise your risk of coronary heart disease, diabetes, stroke, and other serious health problems. Metabolic syndrome is also called insulin resistance syndrome. (<https://www.nhlbi.nih.gov/health/metabolic-syndrome>).

What are the signs or symptoms of the syndrome that indicate the presence of this disorder?

- Abdominal obesity: Which means having a waist circumference of more than 35 inches for women and more than 40 inches for men? An increased waist circumference is the form of obesity most strongly tied to metabolic syndrome.
- High blood pressure of 130/80 mm Hg (millimeters of mercury) or higher. Normal blood pressure is defined as less than 120 mm Hg for systolic pressure (the top number), and less than 80 mm Hg for diastolic pressure (the bottom number). High blood pressure is strongly tied to obesity. It is often found in people with insulin resistance.
- Impaired fasting blood glucose. This means a level equal to or greater than 100 mg/dL.
- High triglyceride levels of more than 150 mg/dL. Triglycerides are a type of fat in the blood.
- Low HDL (good) cholesterol. Less than 40 mg/dL for men and less than 50 mg/dL for women is considered low. (<https://www.hopkinsmedicine.org/health/conditions-and-diseases/metabolic-syndrome>).

What are the psychosocial factors leading to acquired metabolic syndrome?

There are many factors that increase the risk of acquiring this syndrome;

1. Economic conditions: as low income leads to access unhealthy, unsuitable foods, high income also often leads to unhealthy consumption.
2. Social discrimination against gender, race, or social class affects the individual's general health status, including metabolism.
3. The level of education affects awareness of the importance of a healthy diet.
4. Social support from family and friends has a positive impact on general health and adherence to a healthy lifestyle.
5. Advertising and publicity mean that encourage a healthy lifestyle or not.
6. Constant stress and anxiety increase unhealthy food intake.
7. Some mental illness, as depression reduces overall health care.
8. Emotional emptiness, sadness, and distress increase the desire to eat as compensation for emotional hunger.
9. Lifestyle, generally, affects metabolism positively or negatively.
10. Lack of sleep negatively affects physical activity and eating pattern.
11. Self-psychological motivation and moral support is a positive factor in whether or not to promote a healthy lifestyle.

Examples of some previous studies that linked metabolic syndrome and some variables:

Gender and syndrome with a cancer diesis:

- A study that applied on 578,700 men and women, in their 44 years and follow up for 12 years, the participants have: index (BMI), blood pressure, and blood levels of glucose, cholesterol, and triglycerides, showed that: there is no difference between men and women in the significance of correlations between metabolic syndrome and cancer diesis. (Stocks, T. and others: 2011:1).
- Age and syndrome: 22 071 children (11 638 were boys and 10 433 were girls) aged 7 to 16 years from 6 representative geographical areas in China, found no difference in syndrome to age or gender. (Prevalence of metabolic syndrome of children and adolescent students in Chinese six cities: 2013).

From the previous introduction we can conclude the following

- 1) Acquired metabolic syndrome appears at all ages.
- 2) Acquired metabolic syndrome appears in both genders.
- 3) Acquired metabolic syndrome appears in all societies, a global phenomenon.
- 4) There are psychosocial factors that lead to its occurrence and are linked to the individual's lifestyle.
- 5) Acquired metabolic syndrome mainly caused by unhealthy life style including unhealthy diet manner.

The relationship between the current syndrome and the quality of life:

What is the quality of life?

In general, quality of life refers to the degree to which an individual is healthy, comfortable, and able to participate in or enjoy life events.

(<https://www.britannica.com/topic/quality-of-life>).

Quality of life may measure as the perceived difference between the reality of what a person has and the concept of what the person wants, needs, or expects. Quality of life (QoL) has become a key goal of contemporary health care. (<https://www.sciencedirect.com/topics/medicine-and-dentistry/quality-of-life>).

Factors that affect the quality of life:

There are many factors that affect the quality of life, as social, psycho-emotional circumstances, financial status and physical one.

A longitudinal study that applied on over 5000 adults examining the effects of childhood cognitive ability (measured at age 11), parental social class (measured at birth), personality, educational qualifications and current occupational attainment (all measured at age 50) on adult quality of life (measured at age 50), found a significance between all above and the quality of life. (Cheng, H. and others: 2014:

(<https://www.sciencedirect.com/science/article/abs/pii/S0191886914002645>).

Is the relationship between metabolic syndrome and the quality of life a direct, positive relationship?

A systematic review study conducted in 2016 on 30 studies, and 62.063 patients, suggested that metabolic syndrome is significantly associated with impaired quality of life. Some, however, found association only in women, or only if

associated with depression or Body Mass Index. Merely one study did not find association after adjusted for confounding factors. (Saboya, P. and others: 2016: (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5172619/>).

Unhealthy life style, metabolic syndrome, commitment to, and associated with some diseases as cancer appear in all categories; economic status, gender, rural and urban, different ages. Although, the ratio of metabolic syndrome may differ among gender, more in somewhat among females than males, or elder than young, but they are appearing among all.

Conclusion and discussion:

From the above findings, I suggest a linear positive relationship between the quality of life, as a dependent variable, affects a metabolic syndrome, independent variable. The demographic variable(s) that may play as categorical variable; as age, gender, economic, educational status, geographical area is not change this positive relationship, because it presents in all categories.

So,

Quality of life= (constant ration*metabolic syndrome) + categorical variable.

Symbolize the equation as:

Quality of life: QoL or Q

Constant ratio: CR or R

Metabolic syndrome: MS or M

Categorical variable: C V or C

By substituting the symbols above into the equation:

$Q = RM + C$

The percentage (constant ratio) change within categorical segments, but it is constant with every case.

So, the relationship is positive: two variables syndrome and quality of life up together, or down together.

The relationship appears between all categorical variables, so $C = 0$, meaning it does not appear for one category without another or one segment without another segment.

So, it is a linear relationship with positive direct one.

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CITATION

Samah K.Z. (2024). Metabolic Syndrome as an Indicator to the Quality of Life. In Global Journal of Research in Education & Literature (Vol. 4, Number 1, pp. 28–30). <https://doi.org/10.5281/zenodo.10798412>