

Quetelet's Quodlibet

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Abstract

Body mass index calculation is an integral part of metabolic care. This communication describes the history of body mass index, earlier known as Quetelet Index. It also describes other anthropometric indices such as Ponderal index, Quetelet's 2.5 index, and Trefethan's index. The aim is to kickstart a constructive dialogue, or quodlibet, to improve screening, diagnosis and monitoring of overweight and obesity.

Keywords: Anthropometry, body mass index, obesity, overweight

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Quetelet's Legacy

Adolphe Quetelet (1796-1874) was not a doctor or health care professional. His contribution to health, especially endocrinology and metabolism, however, dwarfs that of most physicians.¹ Quetelet was a polymath who introduced statistical analysis to social sciences. He developed the body mass index (BMI) and created the concept of 'average man', basing his original calculation on a sample of Scottish and French soldiers and policemen. For Quetelet, BMI, then termed as Quetelet index, was a component of defining the socially ideal human being. He created the field of social physics, which would later be developed by Francis Gallon as the science of eugenics.

Body Mass Index

The term BMI was first used by Ancel Keys in 1972.² about 140 years after Quetelet's contribution, to serve as an indicator of "relative obesity". Keys proposed its use for population studies, rather than individual or clinical evaluation.

BMI calculates the square of height, though mass is known to increase to the third power of linear dimensions. This

fallacy means that BMI may overestimate obesity in taller individuals. The Ponderal index (also known as corpulence index or Rohrer's index), calculated as mass divided by height,³ has therefore been proposed.³ While this formula accurately predicts density, and is used to assess adiposity in infants, it has not found popularity in adult medicine. Quetelet himself proposed an exponent of 2.5 for calculating his index. Nick Trefethan⁴ took this forward, proposing a new BMI, calculated as $BMI_{new} = 1.3 \times \text{mass (kg)} / \text{height (m)}^{2.5}$. Because of higher risk of cardiovascular disease at lower body weight, India uses ethno specific cut offs of BMI for assessment of weight status.⁵

Scope for Improvement

The current obesity pandemic, along with development of newer medications has stimulated interest in Quetelet's work. This, coupled with the multifaceted character of obesity, allows us to indulge in quodlibet, or a free, ranging discussion on anthropometry and health.

Researchers and clinicians alike may wax eloquent about the limitations of BMI. However, there is no tool better than this for mass screening. One may consider the use of Ponderal index, but this will confuse, rather than clarify, clinical care.

Along with BMI, however, there must be awareness of its shortcomings. Obesity care professionals must be able to counsel individuals with tall frames, as well as athletes, who may have high BMI in spite of good muscle mass. The use of paediatric and adolescent-specific indices should also be explained. Other anthropometric parameters, such as waist circumference, and methods of body composition analysis, including bioimpedance analysis (BIA) and dual energy (BIA) and dual energy X-ray absorptiometry (DEXA) should be viewed as being complementary to, rather than competing with, BMI.⁶ It must also be remembered that waist circumference and BIA are more prone to inter-observer error than BMI.

The Quodlibet Continues

Quetelet wished to define the average or ideal human person. While no single number can capture the complexity of human health and humanness, the BMI creates a basic framework for this.

A quodlibet is a quintessential example of an infinite game, or never-ending story. So is obesity medicine.

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Characterized by infinite combination of cause and clinical presentations, obesity's quiddity, of multi quarks, requires quodlibet. At our journal, we aim to achieve quorum for this.

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