

## Impact of Obesity on Human Emotions and Psychology: Childhood Obesity Leading to “The Bell Jar of Obesity”

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### Editorial

Bullying related to childhood obesity has been proven to be a leading cause of youth violence, eating disorders, substance abuse, low grades, truancy, drops out of school, self-injury and suicide (Figure 1). Approximately 160,000 children a day stay home from school because they are afraid of being bullied. US Department of Education: that's over 3 million students a month. A national survey of kids in grades 6-10, found 13 percent reported bullying others, 11 percent reported being the target of bullies, and another 6 percent said that they bullied others and were bullied themselves. Experts say the facts are troubling, because bullying too often leads to violence, loss of self-esteem, depression and even suicide (Source: National Youth Violence Prevention Resource Centre).

A tremendous amount of facts and figures at epidemiological level, its relation to the “burden” of Chronic Degenerative Welfare Diseases (CDs) has been well documented and briefly mentioned below. But has the correlation between bullying related to obesity and suicide in childhood ever been made in psychological studies? (Figure 1). At present on a global scale one billion people are obese the major part due to an unhealthy fat diet. Obesity (BMI>30) was considered as a “phenotypical” reflection of overfeeding in combination with a sedentary life style. Because of these numbers the medical world in general acknowledged that the obesity is the primary cause for the around 2030 by the International Diabetes Federation in their IDF atlas 2016-On a global scale predicted pandemic of ≈ one billion Insulin Resistant/type 2 diabetes (IR/T2DM) patients, not even counting the coinciding burden of CDs e.g. exemplified by the by the WHO predicted explosion of coinciding also inflammatory based mental disorders (like dementia), for which the WHO expects at the similar era also one billion. Epidemiological studies at this well documented of Amsterdam “hunger-winter” mothers T2DM first generation offspring indicated that DM2 can trans-generational be inherited to the second and even third generation—not via the genes, but by a mechanism of “methylation” of the DNA, a process called “epigenesis” [1]. So summarizing the pandemic of T2DM is for several reasons one of the major problems of the 21st century and society should target to minimize the morbidity of T2DM for the following well-known six reasons: i) Treatment of the DM2 patient itself is very costly and from ethical point of view the pathogenesis is for the patient very dangerous and when not halted ultimately lead to mortality; ii) The accompanying economically costly CDs with T2DM are already proven for the US at the millennium; iii) The CDs can not only be ascribed to the on obesity and inflammation induction mechanism but also to micro-vascular complications (affecting unwanted tissue penetrating properties of micro-vascular arteries affecting many organs/tissues like: a). affecting the legs leading to amputations; b). eyes => blindness; c). kidneys => toxicity blood; d). brain: Recent MRI-studies indicated that these penetrating small arteries also affect the Blood Brain Barrier (BBB) adversely affecting the BBB-integrity with as consequence that the brain is exposed to all catabolic enzyme related properties and toxic compounds of the blood (vascular dementia). iv) There are no actual estimations of the number of patients in the “burden of CDs” accompanying DM2 and to some extent reminding the by the WHO already predicted one billion



Figure 1: Bullying related to childhood obesity.

patients with mental disorders (like dementia or other brain diseases related to inflammation) the consequences of these CDs cannot be overseen. In principle that only related to one organ—the brain, has consequences for one billion patients are while this “burden of CDs” affect in principle ≈8 organs/tissues gives insufficient information for any future scenario; v) Many underdeveloped countries follow the same pattern of development for nutrition and life-style patterns like activity, so the pandemic of diet induced obesity and evolving IR/T2DM is not only restricted to the westernized developed countries like the US. Strange enough, the “hungering” continent Africa has an explosion in morbidity of T2DM (IDF atlas 2016). vi) As mentioned earlier (based on an Amsterdam cohort) T2DM can trans-generational be inherited to the second- or even third-generation via the mechanism of “epigenesis”. In this perspectives placed the global pandemic of obesity and childhood obesity should continue its research efforts at the above mentioned medical research fields but the major topic of this (Editorial) will outline that childhood obesity related to suicide is a subordinate research area while the facts are severe.

According to the CDC suicide is the third leading cause of death of youth between the ages of 10 and 24. It results in approximately 4400 lives lost each year in the USA for this cohort. Deaths from youth suicide are only part of the problem. More young people survive suicide attempts than actually die. A nationwide survey of youth in grades 9-12 in public and private schools in the USA found that 15% of students reported seriously considering suicide, 11% reported creating a plan, and 7% reporting trying to take their own life in the 12 months preceding the survey. Teens who were bullied were 2.5 times as likely to attempt suicide. Occasionally, clinical studies were performed among

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humans to determine levels of depression and anxiety symptoms among obese vs. non-obese individuals. In one study performed among diabetic adults this metabolic disorder was associated with increased risk of psychological disturbance, especially for those with more diabetes-related complications [2].

For the metabolic disorder obesity it is often considered as the most common chronic disorders in childhood and its prevalence continues to increase rapidly. Despite growing awareness of the long-term health complications of obesity in children and adolescents, yet many medical specialists do not offer treatment to obese children and adolescents in the absence of comorbid conditions. The general prevailing assumption among specialist is that most widespread consequences of childhood obesity may be psychosocial. Obese children and adolescents are at risk for psychological and social adjustment problems, including lower perceived competencies than normative samples on social, athletic, and appearance domains, as well as overall self-worth. While aspects of self-esteem may predict psychological adjustment, including depressive symptoms, health-related quality of life (QOL) is a more comprehensive and multidimensional construct, and includes physical, emotional, social, and school functioning. Not many studies on emotional wellbeing and health-related quality of life (QQL) were performed among this emotional vulnerable group. Spare results of some studies indicated decreased emotional well-being among obese children.

The study of Schwimmer et al. [3], indicated that in comparison with healthy children and adolescents, obese children and adolescents reported significantly ( $P < 0.001$ ) lower health-related quality of life parameters (QOL) in all domains. Furthermore, obese children and adolescents were more likely to have impaired health-related QOL than healthy children and adolescents. But the impact of being obese can express itself in more severe emotional psychological negative awareness. In a very comprehensive psychological study performed by among children and adolescents it was attempted to describe major causative factors for major depressive disorder (MDD). Among some other criterion related to major depression were also two negative cognition factors were related to nutritional behavior and obesity namely appetite and weight changes [4]. The most ultimate expression of total emotional despair is suicide. The study of Carpenter et al. [5] sought to test the relationships between “relative body weight” (BMI) and clinical depression, suicide ideation, and suicide attempts in an adult USA general population.

The criterion investigated was past-year major depression, suicide

ideation, and suicide attempts diagnosed according to general medical applied standards. The primary predictor for this negative emotional awareness with in some cases suicide attempts were related to obesity like relative body weight (i.e., body mass index, BMI). Additional contributing factors were age, income and education, disease status. But major outcome reflecting the impact of obesity on emotional well-being were “relative body weight” (BMI) directly associated with major depression, suicide attempts, and suicide ideation, although relationships were different for men and women. Among women, increased BMI was associated with both major depression and suicide ideation. Among men, lower BMI was associated with major depression, suicide attempts, and suicide ideation. There were no racial differences [5].

In order to strengthen our perception that unhealthy nutrition is the major cause for the pandemics of obesity and its “burden” of CDs we enlist extensively for some very familiar food products from societal well known global operating “fast-food” companies the almost nearly lack of vitamins and minerals in our daily eaten stuff like hamburgers, whoppers, fried chicken, pizza’s and convenience meals [6]. In this manuscript we have given our perceptions how to prevent obesity in relation to our modern Westernized “fast-food” eating pattern and the biochemical lack of vitamins, cofactors and minerals [6] and will come with clear and proper solutions in line with the major aiming of our Blue Green Technologies Foundation (<http://www.bluegreentechnologies.nl>) “Will our health come from our oceans?”, meeting the eight Millennium goals.

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