Addressing the Obesity Epidemic: Biopsychosocial Factors and Solutions

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Abstract

The prevalence of obesity in the United States has increased substantially over the past few decades. This paper will explore social, biological, and psychological factors that contribute to the recent rise in obesity. Socioeconomic status, culture, learning principles, stress, metabolism, and thyroid conditions are all examined as possible contributors. In addressing the obesity epidemic, it is essential to apply learning principles to community health education in impoverished areas. Due to the diversity of the field of psychology, researchers should not underestimate the application of psychological science when investigating public health crises such as obesity.
Introduction

Long before greasy fries, pink shakes, and other products of the fast food industry existed, obesity was regarded by many as a sign of health. Those who exceeded weight standards in Medieval Europe, for example, were labeled by their famished counterparts as healthy, wealthy, and powerful (Vigarello, 2013). This is quite possibly the result of overweight individuals’ evolutionary edge over their thinner peers. Those who had extra fat from which to derive nutrients survived the ruthless process of natural selection (Lev-Ran, 2011).

Today, obesity is looked upon very differently. As the number of overweight Americans rises and knowledge of the consequences of obesity deepens, obesity has become the common cold of health conditions. Not only are one third of American adults considered obese, but obesity can also induce an array of medical problems such as heart disease and diabetes (Ogden, Carroll, Kit, & Flegal, 2012). Consequently, medical expenses for treating obesity-related conditions have skyrocketed, forcing the medical community to allocate about 9.1% of all funds to obesity-related healthcare costs (Wang, Beydoun, Liang, Caballero, & Kumanyika, 2012). Even more shocking, an estimated 300,000 Americans die each year due to diseases brought on by obesity, making the condition the second leading cause of preventable death in America (U.S. Department of Health & Public Services, 2001). Additionally, the prevalence of obesity is expected to rise on an international scale (Sturm & Hattori, 2013). In this way, obesity is not as much an easily alleviated common cold of the medical community as it is a deadly flu.

In order to fully understand the scope of the global obesity epidemic, we must first understand the parameters and associated demographics of a label so readily used. The Centers for Disease Control (2009) defines an obese individual as someone whose Body Mass Index (BMI) falls above the 95th percentile. Body Mass Indices are weight-to-height ratios that assist
in measuring a person’s body fat. The National Institutes of Health (2014) maintains that a person whose BMI falls below 18.5 is categorized as underweight, while those with BMIs over 25 are considered overweight. Obese individuals have BMIs over 30.

Racial and ethnic groups characteristically suffering from higher poverty rates face the greatest obesity prevalence. For example, nearly 54% of African-American women older than 20 years of age are obese. The same can be said for 42% of Hispanic women, making the 32% obese portion of the white female population seem like a modest figure (Bernstein, 2009). However, adults are not the only group affected by the obesity epidemic. In fact, between 16 and 33% of children and adolescents in the United States are obese (American Academy of Child and Adolescent Psychiatry, 2011). The importance of early intervention cannot be overlooked, for obese children are likely to become obese adults (Weir, 2012). Just as teen substance abuse often leads to a life of addiction, premature obesity can result in a life of unhealthy eating habits and consequently early death (Mayo Clinic, 2014).

The reasons obesity has become an epidemic are varied and complex. In order to understand the development of a condition that is so common yet so dangerous, three fundamental factors must be considered.
Biopsychosocial Factors

Most young people encounter their first experiences with social pressure associated with food as they enter middle school. When an abundance of vending machines and newfound independence are combined, diet changes often result (Park, Sherry, Sappenfield, Huange, & Bensyl, 2010). Perhaps more influential, teen vulnerability to peer pressure contributes to a socially controlled eating environment (Lieberman, Gauvin, Bukowski, & White, 2001). If a young person’s friend eats an unhealthy meal, the young person is likely to follow.

While many people are familiar with this type of social weight gain, social aspects of overeating and obesity are not limited to the middle school cafeteria. For example, the link between poverty and obesity are crucial to understanding the prevalence of obesity in the United States. The Centers for Disease Control (2010) reported that low-income children have a much higher risk of becoming obese than more affluent children. Specifically, 21.1% of male children 130% below the poverty level were categorized as obese while only 11.9% of young males 350% above the poverty level demonstrated obesity (Ogden, Lamb, Carroll, & Flegal, 2010). Clearly, a correlation between poverty and obesity exists, but in order to prove causation, the properties of limited access must be thoroughly explored.

It’s no surprise that people who live in poorer areas have more limited access to healthy food choices. In many cases, corner or convenience stores are the only available places to purchase food in low-income neighborhoods, and these suppliers rarely sell low-fat foods (Larson & Story, 2009). When fruits and vegetables are out of reach, health decays. In fact, zip codes associated with low-income areas contain 30% more convenience stores than high-income zip codes (Treuhaft & Karpyn, 2010). Convenience stores rarely provide sufficient nutrition—they’re meant for snacks, not meals. Even more daunting, Treuhaft et al. (2010) found that
roughly 23.5 million Americans lack access to comprehensive supermarkets within a one-mile radius from their homes. This statistic is relevant when considering that the highest number of individuals without access to supermarkets live in poorer areas (Treuhaft et al., 2010). One mile may not seem like a long distance, but the poor often lack transportation that most people take for granted. Without the ability to purchase healthy meals from substantial food vendors, those in poverty are predisposed to adopting an unhealthy diet.

Increased access to unhealthy food rather than fruits and vegetables perpetuates the problem of obesity. Most people readily associate poverty with malnourishment, which is usually defined as an inadequate intake of protein. However, the poor often face a type of malnourishment that is not related directly to food shortage. Fast food chains such as McDonald’s, Wendy’s, and Burger King do little to nourish their customers. Harris, Schwartz, and Brownell (2010) of the Yale Rudd Center for Food Policy and Obesity reported that only 15 of 3,030 children’s meals offered across America’s main food chains provide sufficient nutrition. Prices at such restaurants are incredibly cheap, prompting more impoverished individuals to purchase them. Hence exists the vicious cycle of malnutrition in poor communities—the purchase of inexpensive meals with little nutritional value forces the poor to consume larger quantities of unhealthy food. This, in turn, can lead to obesity (Bowman & Vinyard, 2004). The process of becoming malnourished as a result of eating seems ironic, but it is undoubtedly one of the greatest issues facing impoverished individuals.

Just as poverty has extensive effects on the prevalence of obesity, so too does culture. For example, African Americans have the highest obesity rates of all ethnic groups in the United States and a startling 4 in 5 African-American women are considered either overweight or obese (Office of Minority Health, 2013). Why is this? First, traditional meals enjoyed by African-
Americans are heavy in fat and salt. These recipes have been passed down through generations, and play a major role in governing African-Americans’ food choices (Bernstein, 2009). While eating this type of food in moderation may remind modern-day African-Americans of their historical roots, consuming excess amounts of “soul food” can result in unhealthy eating habits (Ewing, 2010).

Culture manifests itself not only in food choices but also in African-American sexuality. According to Powell and Kahn (2006), black men prefer larger women more than white men do. This contributes to the fact that African-American women’s ideal body sizes are typically larger than white women’s. When larger size is held in high esteem, it is quite possibly sought after in the black community (Caprio et al., 2012).

While African-Americans are not the only ethnic population whose culture in some aspects may contribute to elevated obesity rates and other factors could contribute to obesity prevalence within this subgroup, there is undoubtedly a relationship between cultural ideals such as those possessed by African-Americans and changes in obesity rates.

As the founder of behaviorism, John B. Watson is an important name in psychology. In the famous Little Albert study, Watson and Rayner (1920) demonstrated that it was possible to shape human behavior. By exposing an 11-month old known as “Little Albert” to loud clangs every time the child encountered a rat, Watson and his colleagues caused the infant to experience intense apprehension upon a mere glimpse of the animal.

If behavior is indeed as malleable as Watson described, can learning principles associated with behaviorism be used to make obese patients wary of overeating just as Little Albert became
afraid of the rat? Not quite. While learning principles are frequently used to treat obesity, most psychologists use them to focus on stimulus identification (Foster, Makris, & Bailer, 2005).

In some cases, emotions such as stress are strong enough to stimulate dangerous eating patterns (Creagan, 2011). Specifically, UNC psychology professor Lisa Freeman and colleague Karen Gil (2004) discovered that women more susceptible to stress are more likely to participate in binge-eating activities. Stress also seems to have a significant impact when evaluating eating trends of freshman college students as they adjust to independence. By the end of the school year, more students reported unhealthy eating habits along with high levels of stress (Striegel-Moore, Silberstein, French, & Rodin, 2006). If people suffering from obesity successfully identify stress as a binge trigger, they can adopt appropriate therapeutic approaches to help manage diet and end the cycle of negative reinforcement.

Although emotional stimuli can certainly influence eating patterns, most people are unaware that pairing food consumption with standard activities contributes immensely to overeating. Psychologist R. B. Stuart (1967) recommended that eating become a “pure experience” for overweight patients. In other words, eating cannot be associated with any other stimulus—whether that be watching television, sitting in a particular chair, or talking on the phone. If a person frequently consumes a bag of potato chips while in front of the television, merely watching the television will result in an unconditioned response of chip cravings (Collins & Bentz, 2009). However, when the conditioned stimulus of television viewing is severed from the unconditioned stimulus of chip eating, the properties of classical conditioning maintain that extinction of unhealthy unconditioned responses will result.

The behavioral approach to curbing food intake also manifests itself in Thorndike’s law of effect (1927), or the idea that rewarded behaviors persist. While humans must eat for survival,
eating for reward is more closely associated with obesity (Volkow, Wang, & Baler, 2011). De Araujo et al. (2008) reported that when rodents consume calorie-dense foods, dopamine levels increase. If this finding proves true in humans, it may help to explain why people eat beyond their biological needs. Just as a child strives to succeed after receiving a gold star for an achievement, overeaters might be encouraged to continually indulge themselves after experiencing a surge of dopamine.

Of course, obesity is a physical condition, and thus biological factors must be additionally evaluated. One of the most important components of understanding obesity is understanding metabolism. Metabolism is the rate at which the human body converts food to energy. When a person has a slower metabolism, more food is stored in the body instead of being used as a source of energy (Mayo Clinic, 2011). Many people are quick to blame a slow metabolism for their weight gain. In reality, changes in metabolism are both a product and a cause of obesity.

In some cases, metabolic disorders can dictate a person’s body size. Hypothyroidism, or an underactive thyroid, is a metabolic disorder that can be congenital or environmental. The condition causes body processes, including the rate at which one metabolizes food, to slow (National Endocrine and Metabolic Diseases Information Service, 2013). A cross-sectional study led by Asvold, Bjøro, Nilsen, Gunnell, and Vatten (2008) demonstrated that hypothyroidism is positively correlated with higher BMI. In another study, researchers discovered that 10.3-10.9% of morbidly obese subjects suffered from hypothyroidism, a rate much higher than seen in the general population (de Moraes et al., 2005). Clearly, the relationship between obesity and disorders such as hypothyroidism is substantial.
In other cases, obesity serves as a catalyst for metabolic changes. Dr. Roland Büttner and colleagues Schmölmerich and Bollheimer (2012) of the University of Regensburg measured the effects of modeling obesity in rodents and provided intriguing insight into the late onset of metabolic conditions. Büttner found that rats fed high-fat diets had a higher chance of developing insulin-resistance, a metabolic disorder, along with obesity. Scientific certainty on the topic of eating-induced metabolic fluctuation increases when metabolic rates are evaluated in subjects suffering from the opposite of obesity. Researchers have consistently reported that anorexic females have much lower glucose metabolic rates than women with average weights do (Pannacciulli et al., 2003). This shift, although the reverse of many anorexics’ intentions, makes fat storage easier.

In a landmark study conducted by Keys, Brozek, Henschel, Mickelsen, and Taylor (1950), the physical and mental effects of starvation were measured in a group of men who were semi-starved for twenty-four weeks. By the end of this period, a 29% decrease in the men’s basal metabolic rates, or the metabolic rate at which the body could maintain vital processes, was observed. Keys’ study provides scientific confirmation that food consumption can affect the speed at which the body converts food to energy. Similarly, when obese individuals do not meet their energy demands, which rise with body size, they become starved and metabolic rates slow, perpetuating obesity (Myers, 2011).

Despite evidence that seems compelling, Goran (2000) posited that variation of body types, levels of obesity, and diet composition of subjects in typical studies make it exceptionally challenging to identify such a causal link between obesity and many metabolic disorders. The question remains: where do these metabolic syndromes begin and end? Are they as common as
obesity is common? In a way, understanding the connection between metabolic or thyroid abnormalities and obesity is much like asking whether the chicken or the egg came first.
Conclusion

The obesity epidemic presents psychologists with a diverse set of challenges. Social, psychological, and biological factors certainly contribute to the recent rise in prevalence of obesity. However, rather than generalize the reasons that obesity has become so startlingly common, it may prove more valuable to outline a focused eclectic approach.

The current emphasis on metabolic disorders should shift toward the creative development of better psychological and social solutions. While obesity induces an array of medical complications, finding ways to treat these disorders—though unquestionably important—will not lead scientists to the root of the epidemic. Further, the ambiguity of metabolic and thyroid disorders makes it extremely complicated to define the degree to which obesity is a result of factors that an obese individual can control. Before assuming that obesity is a purely medical problem, we must first attempt to understand which social and psychological components exist and how they can be effectively managed.

Due to the incredibly high prevalence of obesity in impoverished populations, focusing on curbing unhealthy eating practices in such groups may prove extremely beneficial. Organizations such as Let’s Move, an anti-obesity initiative headed by the First Lady Michelle Obama, is an outstanding example of how health education can be administered in areas with limited access to health services. Let’s Move allows Americans to independently organize open meetings in their communities to discuss obesity. If volunteers frequently coordinate such meetings in impoverished areas, citizens are provided with the opportunity to receive influential information on exercise and healthy diet. More importantly, if learning principles are applied at community assemblies in a way that teaches participants to successfully identify binge-stimuli, obese individuals may gain a clearer understanding of a path to health. Awareness is key. Once a
person knows which environments cause them to eat more—whether the environment is emotional or physical—they will be more cognizant of their diet.

However, the identification and understanding of stimuli may prove ineffective when healthy resources are scarce. A combination of self-evaluation based on learning principles with improved access to healthy food in low-income areas may allow poorer citizens access to healthy alternatives. In some cases, professional mental help can also improve an overweight person’s prognosis. If obese individuals discover that the stimuli that cause them to overeat include stress, alleviating that stress may improve poor eating habits. Although professional services are often expensive, free services for those in poverty are typically available through neighborhood health clinics. Regardless of which element of the issue receives more attention, the socioeconomic gradient associated with obesity simply cannot be ignored.

It would be irresponsible to discount the potential that psychology may have on lessening the prevalence of obesity in America. The diversity of psychology as a scientific field makes it incredibly powerful and unique. While attempting to prevent obesity, psychologists may focus on economics, mental disturbances, and biology all at once. From Little Albert to the “pure experience” theory, the application of psychological doctrine to health crises has a strong foundation that should be fully explored.
References


