PSYCHOLOGICAL ISSUES IN OBESITY: THE ROLE OF CLINICAL PSYCHOLOGY

VICTOR ODEH OJOBO

Abstract

The purpose of this paper is to identify and discuss the psychological issues in obesity and the role of Clinical Psychology in the management of the disease. A holistic picture of obesity as a global problem/disease, the historical attitudes towards obesity, prevalence, risks, causes, psychological problems of obesity, and the roles of clinical psychologists in obesity management were highlighted and discussed. Available literature indicated that obesity is a global problem due to the prevalence and the implications of obesity on physical and mental health. World Health Organization in 1997 recognized obesity as a global epidemic with comorbid psychological issues. Findings from available literature have shown that high-socio economic status is implicated in the disorder. In view of the above, it becomes fundamentally imperative for clinical psychologists to be actively involved in the management of obesity. Therefore, this paper highlighted the roles of Clinical Psychologists in obesity management which include indebt Clinical Psychological Assessments of the psychological problems comorbid in obesity as well as, the Psychotherapeutic Techniques that could be used for an effective management of both the disease and the comorbid psychological problems. The paper therefore suggest that in planning any intervention programme either to sensitize or manage the existing problems of obesity, clinical psychologists should be actively involved for a holistic management of the condition.

Keywords: Psychological Issues, Obesity, Role of Clinical Psychology

Introduction

In our society today, excess body weight or weight gain is relatively a common phenomenon in and around our environment. This problem of excess accumulation of body weight known as "Obesity," is a phenomenon that is prevalent in both sexes and among the young and old people both in developed and developing countries of the world, posing serious challenges to both physical and mental health of the individuals who are considered overweight.

Obesity is defined as a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced <u>life expectancy</u> and/or increased health problems (Haslam & James, 2005). One of the most common ways of measuring obesity is through the Body Mass Index (BMI). The BMI is used to calculate the relationship between a person's weight and their height. According to Gray

Victor Odeh Ojobo Department Of Clinical Psychology Federal Medical Centre Makurdi

Correspondence to Victor Odeh Ojobo Email: victorojobo@yahoo.com and Fujioka (1991), when the calculated BMI of an individual exceeds 30 kg/m2, one is considered obese or overweight. In other words, obesity is further evaluated in terms of fat distribution via the—waisthip ratio and total cardiovascular risk factors (Sweeting, 2007).

Obesity is a serious global challenge; it is widely believed to be one of the leading causes of death worldwide because of the health related consequences, as well as, the risks associated with the disease. Research has shown that obesity reduces life expectancy by six to seven years among those who are obese at age 40 and three years of reduced life expectancy on average of those who are obese at age 40; and reduce life expectancy of ten years for those severely obese (Peeters *et al.*, 2003; Whitlock *et al.*, 2009).

Statement of the Problem

Obesity due to its implications on physical and psychological health has been recognized by World Health Organisation (W.H.O) to be a global epidemic that is prevalent among all ages including children, adolescents and adult. Much attention has been given to the implications of obesity on physical health; however, adequate attention has not been given to the psychological problems implicated in obesity for a holistic and effective management of the problem.

Consequently, many individuals with obesity who undergo treatments like dieting, bariatric surgery and among other forms of obesity treatments do not usually do well in treatment because of the neglect of the psychological problems involved in this disorder during obesity management. This may perhaps be due to lack of proper awareness about the psychological issues implicated in obesity and the role of Clinical Psychology in obesity management. This has made many people with obesity to opt out of therapy and relapse into their normal state of body weight before seeking therapy and/or gain more weight after failed attempt to lose weight.

Available literature has shown the prevalence, causes, and risks of obesity on physical and mental health. However, little is being known about the role of Clinical Psychology and the Clinical Psychological techniques that can be used in obesity management. Therefore, it becomes fundamentally imperative to discuss obesity and the psychological issues in obesity, as well as, Clinical Psychological techniques that can be used in obesity management for effective management of this global problem.

Basically, the aim and objective of this paper include:

- 1. To examine obesity as a global epidemic and the implications of obesity on psychological health.
- 2. To highlight the role and importance of Clinical Psychological interventions on obesity management.
- 3. To create more awareness about the need to involve Clinical Psychologists in obesity management for a holistic and effective management of the disorder.
- 4. To highlight Clinical Psychological techniques that can be used in obesity management.

Historical Dispositions towards Obesity

Historically, most of mankind has struggled with the scarcity of food. However, during the Middle Ages and Renaissance, the elites were the only people that could afford enough food to eat to the point of been overweight. Hence, at that time, obesity was seen as a sign of wealth and prosperity because it was often found among the elites in Europe and ancient East Asian civilizations (Zachary, 2003). This perception continued until the onset of the industrial revolution.

Ironically, during the onset of the industrial revolution, nations of the world thought that the military and economic power or strength of a nation is depended on both the body size and strength of their soldiers and workers. As a result, they started increasing the average body mass index of their soldiers and workers from what was then considered underweight to what is now considered overweight. Consequently, weight continues to increase through the 19th century in the developed world until the 20th century.

In the 1950s increasing wealth in the developed world decreased child mortality, but as body weight increased, heart and kidney disease became more common. Therefore, nations of the world at that time, realized that excess body weight has serious negative implications on health and life expectancy. Insurance companies at that time, having realized the connection between weight and life expectancy, increased premiums for people

who were obese (Haslam & James, 2005). This was meant to discourage people from becoming overweight in order to control the rising rate of obesity and promote longevity. In 1997, W.H.O formally recognized obesity as a global epidemic (Haslam, 2007).

This awareness about the implications of obesity continued to increase until in recent times when excess weight is no longer considered fashionable both in Africa and Western cultures. Excess weight is now regarded as unattractive, and obesity is commonly associated with various negative stereotypes. Many cultures in Nigeria and across the world now perceive obesity to be a result of character flaw and people who are obese are perceived as gluttons.

Consequently, public perceptions in Nigeria and several parts of the world regarding healthy body weight changes from what was considered ideal size before the 20th century. The body weight that was regarded as underweight is now viewed as an ideal body size. This is exemplary in the beauty pageant contest in different countries of the world including Nigeria where much emphasis is placed on slim body size as an ideal body size of a beauty queen.

Prevalence of Obesity

Obesity occurs worldwide and the prevalence is increasing in both developed and developing countries of the world. The vicious circle of obesity starts in childhood when a child starts gaining weight due to inactivity and intake of more junk food (Dixon, Scully, Wakefield, White & Crawford, 2007). The global prevalence of childhood obesity varies from 30% in the United States to less than 2% in sub-Saharan Africa; in the United Kingdom and Australia, the prevalence of overweight and/or obesity in school children is 20%; 16.2% in Brazil, 15.8% in Saudi Arabia, 15.6% in Thailand, 10% in Japan and 7.8-10.9% in Iran (Kelishadi *et al.*, 2008) and 6.2% in Delhi and 7.4% in Chennai-India respectively (Kapil, Singh, Pathak, Dwiwedi & Bhasin, 2002; Subramanyam, Jayashree & Rafi, 2003).

In Nigeria, Senbanjo and Adejuyigbe (2007) found 13.7% and 5.2% prevalence of overweight and obesity respectively in a sample of 270 children in Nigeria while, among the population of adult Nigerians, Akarolo-Anthony, Willett, Spiegelman and Adebamowo (2014) observed that the prevalence of overweight and obesity is as high as it is in the United Kingdom. Similarly, among 825 samples in obesity study in Nigeria, Puepet, Zoakah and Chuhwak (2002) found 21.4% prevalence of overweight and obesity in adult males and 23.5% in adult females in Jos – Plateau state, Nigeria. According to Puepet *et al.*, (2002) the highest incidence of overweight and obesity was found among people between the ages of 35-44 year old.

Risks of Obesity

Obesity increases the risk of many physical and mental conditions. It is a risk factor for many disorders both in its own right and because it affects other risk factors such as cardiovascular disease, blood pressure and plasma cholesterol level (Akpa & Mato, 2008). Obesity is implicated in type II diabetes,

obstructive sleep apnea, certain types of cancer, and asthma; it increases death rates for all cancers and reduces life expectancy (Taylor, 2009). It is implicated in premature death and/or early mortality and disability in adulthood, as well as increase risk in surgery, anesthesia administration, and child bearing (Brownell & Wadden, 1992).

It has implications on depression, stigmatization, unemployment, absenteeism from work, and decrease productivity among others. People who are obese are less likely to be hired for job and less likely to be promoted (Puhl & Brownell, 2001). When compared to their normal weight counterparts, obese workers on average have higher rates of absenteeism from work and take more disability leave, thus increasing costs for employers and decreasing productivity (Taylor, 2009).

Causes of Obesity

Obesity has no single causal factor or etiology but, a combination of multiple factors. Available literature shows that obesity is caused by dieting and diet, sedentary lifestyle, inactivity, genetic factors, and medical illnesses like hypothyroidism, and growth hormone deficiency among others. Others include mental illnesses

like depression; eating disorders, binge eating and night eating syndromes, as well as psychological trauma. Increased use of certain antipsychotic and antidepressant medications and pregnancy at a later age are implicated in obesity (Bouchard, 2002; Ness-Abramoff & Apovian, 2006; Sweeting, 2007).

Available literature has shown that socioeconomic status and culture are implicated in obesity. In a study done by Akarolo-Anthony *et al.*, (2014) using a cross-sectional research design to examine obesity epidemic among a sample of 1058 adult Nigerians from various works of life with different socio-economic status in Abuja Nigeria, found that about two-thirds of urban, professional, high-socio economic status Nigerian adults are either overweight or obese.

The result of the above finding is in line with the observation made by Boseley (2014) that in Nigeria, weight goes with wealth; the richest women in urban areas are three and a half times more likely to be overweight or obese than women in the rural areas with the lowest income bracket. This observation is reflected in the attitudes and beliefs of so many Nigerians who believe that gaining body weight is an evidence of "good living".

Psychological Issues in Obesity

Some of the psychological issues implicated in obesity are highlighted and discuss below.

Body image dissatisfaction

In most societies, many people have negative view about obesity by believing that those who are overweight are "weak-willed" and "unmotivated" to lose weight. Because of this negative view and perception of these individuals about people who are overweight, people who are overweight often internalize what others say about them thereby, making them feel dissatisfied with their body image.

Also due to high regards for low body weight and worldwide general acceptance and promotion of low body mass index as a thing of beauty, thinness is now considered an ideal beauty in most countries both in developed and developing countries of the world as reflected in beauty pageants organized to choose beauty Queens such as Miss World, Miss Nigeria, and Miss Tourism among others; individuals who are overweight or obese are usually disqualified from the contest even if they possess other qualities to win the contest. This societal attitudes and preferences for low body mass index in recent times have serious negative implications on the psychological health of overweight people including, body image dissatisfaction.

Depression

Individuals who are overweight or obese may become overwhelm with feelings of discouragement, helplessness, hopelessness, frustration and consequently depression when they have made multiple attempts to lose weight with little or no success. Wadden, Sarwer, Fabricatore, Jones, Stack and Williams (2007) observed that about 20-70% of individuals who are obese and considering bariatric surgery as the last resort after several failed attempts to lose weight suffer from a current and/or past psychiatric disorder, of which Major Depressive Disorder is the most prominent.

Perceptual Problem

Often times, people perceive overweight people to be at risk of poorer health due to their weight. Because of this societal perception about overweight people and obesity, individuals who are obese tend to believe that they are unable to engage in certain activities, or that they will not be able to have a long and fulfilling life due to their body size or weight as succinctly stated in the observation of Markowitz, Friedman and Arent (2008) that overweight or obese individuals are more likely to be unmotivated to engage in good health promoting behaviours, feel embarrassed to go out because of the fear that they may not "fit" into a chair or become socially isolated.

Stigmatization and Discrimination

People who are obese often experience weight-related stigma and discrimination. These individuals face repeated discrimination and mistreatment on a regular basis from strangers, acquaintances and intimates over time and this negatively affect their behaviour. According to Schwimmer, Burwinkle and Varni (2003) obesity is one of the most stigmatizing and least socially acceptable conditions in childhood. Children who are obese are

often faced with social rejection, discrimination and negative stereotyping. In corroborating this assertion, Wardle and Cooke (2005) states that between a quarter and a third of teenagers report being teased by peers for reasons of weight, with obese girls reporting the highest levels of teasing.

The Role of Clinical Psychology in Obesity Management

Clinical Assessments

It is pertinent to note that obesity is much a psychological problem as it is a physical problem. Psychological issues can not only foreshadow the development of obesity, but they can also follow ongoing struggles or efforts to control weight. Because the psychological aspects of obesity are so important, psychological assessments and interventions should become an integral part of obesity management. Therefore, the role of clinical psychologists in obesity management cannot be over-emphasized and should not be over-looked.

For a successful psychological intervention to be made in obesity, clinical psychologists must carry out indepth assessments of the patient/client's problem. This is for the purpose of identifying psychological issues associated with the disease, as well as case formulation of the problem and consequently, psychotherapy. Clinical assessments can be done using the various clinical psychological assessment methods including clinical interview, psychological tests, behavioural observation, information from significant others, and medical case note (if any). These will enable the professional to have comprehensive baseline information on the root cause or genesis of the problem.

Psychotherapy

Psychotherapy in obesity usually adopts eclectic approach. This is because; due to the nature of the disease, there may be several psychological issues involved. Therefore, Clinical Psychologists may need to combine different therapeutic techniques to achieve desired goal in obesity management. Some of the therapeutic techniques that could be used are highlighted and discussed below.

Behavioural Therapeutic Techniques

Behavioural therapeutic techniques take different forms however, the aim or rationale for using behavioural therapeutic technique for the management of obesity is to change maladaptive eating, to healthy eating behaviour as well as, encourage and promote health related behaviours like exercising daily and reducing alcohol consumption.

Clinical Psychologists train people who are obese in self monitoring of their eating behaviour. Psychologists teach them to monitor and keep careful records of what they eat, when they eat, how much they eat, where they eat it among other dimensions of eating. This type of self monitoring and record keeping simultaneously define the behaviour and make clients/patients more aware of their eating pattern. Taylor (2009), noted that this method is considered very important for weight loss, but becomes especially so at high-risk times such as during the holidays, when weight gain reliably occurs.

Clinical Psychologists may train people who are obese to modify the stimuli in their environment that have previously elicited and maintained overeating. They may be taught to confine eating to one place at particular times of day as well as develop new discriminative stimuli that will be associated with eating. This implies that, whenever they are hungry and has something to eat; they cannot eat outside the confine place and time of the day. They may also be taught how to gain control over their eating process itself as well as how to eat less and enjoy it more. For example, they may be urged to count each mouthful of food, each chew, or each swallow. They may be told to put down eating utensils after every few mouthfuls until the food in their mouth is chewed and swallowed.

Longer and longer delays are introduced between mouthfuls so as to encourage slow eating (which tend to reduce intake). Such delays are first introduced at the end of the meal, when the client is already satiated, and progressively move closer to the beginning of the meal. Finally, clients are urged to savor their food; to make a conscious effort to appreciate it while they are eating. Developing a sense of self-control over eating is an important part of behavioural treatments of obesity because it helps people override the impact of urges or temptations (Taylor, 2009).

Cognitive Therapeutic Techniques

The goal of the cognitive approach is to correct irrational thought pattern and negative speech frequently exhibited by individuals who are obese. Pessimistic thought and negative speech like "I will never lose weight, no matter how hard I try" are frequently exhibited by individuals who are obese. Most of them hold strongly to this pessimistic thought and negative speech to the point that it influences their compliance on therapeutic regimens.

Because of the strong influence of pessimistic thought and negative speech, clinical psychologists use cognitive restructuring technique to control irrational/maladaptive thought and speech of individuals who are obese as it has to do with their condition. This technique is an important part of weight-reduction programme because; poor health habits and weight management can be maintained through dysfunctional monologues. Individuals who are obese should be taught to substitute this kind of negative thought patterns with positive self talk by been optimistic about weight loss because; the belief that one will be able to lose weight predicts weight loss (Linde, Rothman, Baldwin & Jeffery, 2006).

Cognitive-Behavioural Therapy (CBT)

Cognitive behavioural therapy is another important psychotherapeutic technique or approach that is very relevant in the psychological management of obesity. The goal is to control maladaptive/irrational thought and behaviour and encourage good and healthy behaviour. Problems such as depression, low-self esteem, low self-worth, shame, helplessness, hopelessness among others are psychological issues that are comorbid in obesity. They frequently interfere with the patient/client's functioning in the society. However, these psychological issues can be alleviated by CBT without necessarily causing drastic weight loss but, helps the individuals to alleviate feelings of been overwhelmed by the disease and encourage efforts to overcome the problem.

CBT can be used for both adult and adolescent population with obesity to help them become more assertive in coping with the adverse social stigma and discrimination of being overweight. It enhances their self-esteem as well as reduces their dissatisfaction with body image regardless of their weight loss. According to Collins and Bentz (2009) CBT is an essential technique in obesity; it can be used to alleviate psychological problems associated with bariatric surgery (a surgical method of treating obesity) by helping the patients to rationally evaluate their progress after the surgery as well as, behavioral activation to aid them in making healthy behaviour changes.

Rational-Emotive-Behavioural-Therapy (REBT):

Rational-Emotive-Behavioural-Therapeutic (REBT) approach can also be very useful in managing obesity. REBT was developed by Albert Ellis in 1955, and the theory and practice are largely based on the idea that, the events that happen to people do not always "exclusively" determine how they feel. Rather, it is often the combination of what people "think" about what happens that determines how they feel. Albert Ellis conceptualization of human disturbance is referred to as the ABCDE model. The acronym ABCD and E means: A (activating event), B (beliefs), C (consequences), D (disputing) and E (existing new philosophy).

The ABCD and E model of REBT can be applied in obesity management especially for patients who has history of failed weight loss attempt. For instance, if a severe dietary restriction is an external activating event (A), and the thought that, "I hate this diet and no matter how hard I diet, I will never lose weight" is the patient belief (B), the patient may then say something to themselves as "I should not have to keep such an awful diet." Similarly, some individuals who are obese may also belief that, because of their excess weight, their health is failing and therefore, cannot do anything meaningful for themselves and the society at large.

The emotional and behavioural consequences (C) of such beliefs would be angry mood, low self-esteem, body image dissatisfaction, and depression. Such an individual might decide to step up his food intake with prohibited food leading to non compliance to treatment regimens. In such scenario, since the critical part of REBT therapy is to help people change their irrational beliefs to rational beliefs, the clinician will dispute (D) the irrational belief of the patient and replace it with existing new philosophy (E). When these distorted perceptions and beliefs of the patient is disputed, it is replaced by existing new philosophy aim at alleviating the psychological problems or consequences (C) resulting from the distorted perceptions and beliefs (B). Moran

and Fuller (2017) state that, REBT is an effective cognitive-behavioural therapy approach that is particularly suited for post-bariatric surgery lifestyle challenges.

Psychoeducation

Psychoeducation is very important for individuals who are obese and are preparing for weight reduction procedure like bariatric surgery. This is because; there are some emotional issues that are associated with bariatric surgery with psychic effects on the patients after the surgery. The individuals who undergo bariatric surgery sometimes feel frustrated because their weight loss might not be as anticipated since it usually takes longer time. The frustration leads to lack of motivation and difficulty adhering to the post-operative diet. Consequently, some individuals who struggled with emotional eating before the bariatric surgery return to similar behaviour after the surgery.

Due to the psychological issues involved in bariatric surgery, it is important for clinical psychologists to offer psychoeducation to individuals who are obese and preparing for bariatric surgery regarding; the pre-operative and post-operative procedures and diet, as well as emphasize the importance of post-surgery behaviour change for weight loss and maintenance. The patients should also be educated about how they will look after the surgery to avoid them feeling discomfort about their body image after losing a significant amount of weight. Psychoeducation helps the obese individuals to understand the bariatric surgery procedure as well as, relief them of the psychological problems that may emanate from the procedure. Mauri *et al.*, (2008) found psychoeducation to be significantly implicated in weight and BMI loss in a study to evaluate the efficacy of psychoeducational program in patients who had experienced an increase of body weight during treatment with olanzapine.

Supportive Therapy/Social Support

Social support serves as a protective management factor in patients' recovery and is considered an important aspect of managing every patient's conditions including obesity. Brownell and Kramer (1989) stated that patients with high degrees of social support during illness comply more with medical regimens and also, recover more successfully than those with little social support. Therefore, it is important for psychologists to ensure that effective social support is provided for individuals who are obese and undergoing therapy for weight loss. The social support could be informational, emotional, tangible and among others. Any form of social support for individuals who are receiving therapy for obesity can be helpful in obesity management. Wang, Pbert and Lemon (2014) found social support from adult employees, friends and coworkers for healthy eating and family support for physical activities to be predictive of weight and obesity management.

Relapse Prevention Training

Clinical psychologists incorporate relapse prevention training into treatment programme in obesity management. Initial relapse prevention training begins with effective screening of the patient to weight-loss programme. This is aim at assessing the individual's previous efforts and failed attempts to lose weight. This is done in accordance with the transtheoretical model of behaviour change proposed by Prochaska, Di-Clemente and Norcross (1992) to prevent the patients who are obese from relapsing into excessive eating and consequently, weight gain. Interventions in relapse prevention training are tailored towards understanding previous failed attempts and the patient's stage of behaviour change.

Relapse prevention training techniques for obesity include training the patients to match treatments to the eating problems and, restructuring the environment to remove temptation; rehearsing high-risk situations for relapse (such as holidays), and developing coping strategies to deal with high-risk situations. If the patient is effectively trained on relapse prevention technique, it is effective in helping individuals who are obese from relapsing into excessive weight gain. Baum and Sandler (1991) assert that maintenance programme which provides continued contact emphasizing relapse prevention training may be an important adjunct in the maintenance of therapy-induced weight loss.

Conclusion

In conclusion, obesity is an emerging global epidemic with physical and psychological health problems and consequences. However, it can be effectively managed holistically through the use of drugs and psychotherapy. This paper therefore suggests that:

- i. In planning any intervention programme either to sensitize or manage the existing problems of obesity, clinical psychologists should be actively involved for a holistic management of the condition.
- ii. People and the society should change their negative perception and attitudes towards people suffering from obesity. They should see obesity as a problem that can be effectively managed and encourage people with this problem to engage in activities that will help them lose weight and live healthily in the society.
- iii. Finally, Nigerians should modify their lifestyle and engage in health promoting behaviours like exercising regularly, eating staple and low caloric food among others.

REFERENCES

Akarolo-Anthony, S. N., Willett, W. C., Spiegelman, & Adebamowo, C. A. (2014). Obesity epidemic has emerged among Nigerians. *Bio-Medicine Central Public Health*, *14*, 455. doi:10.1186/147-2458-14-455.

- Akpa, M. R., & Mato, C. N. (2008). Obesity in Nigeria: current trends and management. *Nigerian Medical Practitioners*, 54(1), 11-15.
- Baum, J. G., Clark, H. B., & Sandler, J. (1991). Preventing relapse in obesity through posttreatment maintenance systems: Comparing the relative efficacy of two levels of therapist support. *Journal of Behavioural Medicine*, 14(3), 287-302.
- Boseley, S. (2014). Western lifestyles fuel growing obesity epidemic in Nigeria. Retrieved on 15th September, 2014 from http://www.theguardian.com/society/the-shape-we-are-in-blog/2014/jul/07/obesity-nigeria.
- Bouchard, C. (2002). Genetic influences on body weight. In C. G. Fairburn & K. D. Brownell (Eds.), *Eating disorders and obesity: A comprehensive handbook*. New York: Guilford Press.
- Brownell, K. D., & Kramer, F. M. (1989). Behavioural management of obesity. *Medical Clinics of North America*, 73, 185-201.
- Brownell, K. D., & Wadden, T. A. (1992). Etiology and treatment of obesity: Understanding a serious, prevalent, and refractory disorder. *Journal of Consulting and Clinical Psychology, 60,* 505-517.
- Collins, C. J. & Bentz, E. J. (2009). Behavioural and psychological factors in obesity. *The Journal of Lancaster General Hospital*, 4, 4.
- Dixon, H., Scully, M., Wakefield, M., White, V., & Crawford, D. (2007). The effects of television advertisement for junk food versus nutritious food on children's food attitudes and preferences. *Social Science Medicine*, 65:1311–23.
- Gray, D. S., & Fujioka, K. (1991). Use of relative weight and Body Mass Index for the determination of adiposity. *Journal of Clinical Epidemiology*, 44(6), 545-50.

- Haslam, D. W., & James, W. P. (2005). Obesity. *Lancet (Review)*, *366* (9492), 1197-209. doi:10.1016/S0140-6736(05)67483-1.
- Haslam, D. (2007). Obesity: A medical history. *Observers Review*, 8, (1), 31–6. doi:10.1111/j.1467-789X.2007.00314.x.
- Kapil, U., Singh, P., Pathak, P., Dwiwedi, S., & Bhasin, S. (2002). Prevalence of obesity among affluent adolescent school children in Delhi. *Indian Journal of Pediatrics*, *39*, 449 452.
- Kelishadi, R., Ardalan, G., Gheiratmand, R., Majdzadeh, R., Hosseini, M., & Gouya, M. M. (2008). Thinness, overweight and obesity in a national sample of Iranian children and adolescents: CASPIAN Study. *Child Care Health Development*, *34*, 44–54.
- Linde, J. A., Rothman, A. J., Baldwin, A. S., & Jeffery, R. W. (2006). The impact of self -efficacy on behavior change among overweight participants in a weight loss trial. *Health Psychology*, 25, 282-291.
- Markowitz, S., Friedman, M. A., & Arent, S. M. (2008). Understanding the relation between obesity and depression: Causal mechanisms and implications for treatment. *Clinical Psychology: Science and Practice*, 15(1), 1-20.
- Mauri, M., Simoncini, M., Castrogiovanni, S., Lovieno, N., Cecconi, D., Dell'Agnello, G., Quadrigli, M., Rossi, A., Donda, P., Fagiolini, A., & Cassano, G. B. (2008). A psychoeducational program for weight loss in patients who have experienced weight gain during antipsychotic treatment with olanzapine. *Pharmacopsychiatry*, *41*(1), 17-23. Doi:10.1055/s-2007-992148.
- Moran, J. D., & Fuller, J. R. (2017). Rational emotive behaviour therapy (REBT) and on psychological adjustment after bariatric surgery. *Obesity Health*. Retrieved 7th July, 2017 from https://jryanfuller.com/weight-loss-rebt-rational-emotive-behvavior-therapy-bariatric-surgery-psychological-adjustment/.
- Ness-Abramof, R., & Apovian, C. M. (2006). Diet modification for treatment and prevention of obesity. *Endocrine (Review) 29* (1), 5–9. doi:10.1385/ENDO:29:1:135.
- Peeters, A., Barendregt, J. J., Willekens, F., Mackenbach, J. P., Al Mamun, A., & Bonneux, L. (2003). Obesity in adulthood and its consequences for life expectancy: A Life-Table analysis. *Annals of Internal Medicine*, 138, 24-32.
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviour. *American Psychologists*, 47, 1102-1114.
- Puepet, F. H., Zoakah, A. I., & Chuhwak, E. K. (2002). Prevalence of overweight and obesity among urban Nigerian adults in Jos. *Highland Medical Research Journal*, 1(1), 13-16.
- Puhl, R., & Brownell, K. D. (2001). Bias, discrimination, and obesity. *Obeservers Review*, 9 (12), 788–805. doi:10.1038/oby.2001.108.
- Schwimmer, J. B., Burwinkle, T. M., & Varni, J. W. (2003) Health-related quality of life of severely obese children and adolescents. *Journal of American Medical Association*, 289(14), 1813-9.
- Senbanjo, I. O., & Adejuyigbe, E. A. (2007). Prevalence of overweight and obesity in Nigerian preschool children. *Nutrition and Health*, *18*(4), 391-399.
- Subramanyam, V., Jayashree, R., & Rafi, M. (2003). Prevalence of overweight and obesity in affluent adolescent school girls in Chennai in 1981 and 1998. *Indian Journal of Pediatrics*, 40, 775–9.
- Sweeting, H. N. (2007). Measurement and Definitions of Obesity in Childhood and Adolescence: A field guide for the uninitiated. *Nutritional Journal*, *6*(1), 32. Doi:10.1186/1475-2891-6-32.

- Taylor, S. E. (2009). *Health Psychology*. (7th ed.). McGraw-Hill, New York.
- Wadden, T. A., Sarwer, D. B., Fabricatore, A. N., Jones, L., Stack, R., & Williams, N. S. (2007). Psychosocial and behavioral status of patients undergoing bariatric surgery: What to expect before and after surgery. *The Medical Clinics of North America*, *91*, 451-469.
- Wang, L. M., Pbert, L., & Lemon, S. (2014). Influence of family, friend and coworker social support and social undermining on weight gain prevention among adults. *Obesity*, 22(9), 1973-1980. Doi:10.1002/oby.20814.
- Wardle, J., & Cooke, L. (2005). The impact of obesity on psychological wellbeing. *Best Practice & Research Clinical Endocrinology & Metabolism*, 19(3), 421-40.
- Whitlock, G., Lewington, S., Sherliker, P., Clarke, R., Emberson, J., Halsey, J., Qizilbash, N., Collins, R., & Peto, R. (2009). Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies. *Lancert*, *373*(9669), 1083–96. doi:10.1016/S0140-6736(09)60318-4.
- Zachary, B. (2003). Prevention of obesity and diabetes. *Diabetes Care (Review) 26*(11), 3172–3178. doi:10.2337/diacare.26.11.3172.