The Weight of Our Past: The Connection Between Trauma, Obesity, and How We as Physicians Can Help

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Disclosures

Karen Smith, MD
I have no financial disclosures.
Helene Alphonso, DO
I have no financial disclosures.

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Learning Objectives

1. Discuss the physiology of psychological factors contributing to obesity.
2. Examine the effects of trauma on wellness.
3. Review the principles of Trauma Informed Care.
4. Evaluate the evidence linking trauma to obesity.
5. Identify common perceptions in medicine about obese patients.
6. Identify the perpetuating principles of trauma, addiction, and obesity.
7. Collate the principles of trauma and addiction to improve communication and empathy in working with patients suffering from obesity.

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Evolution and Parenting

Sugar in breast milk
Food as comfort
Food as love
Food as reward
Food as socialization

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Physiology of Trauma and Calories

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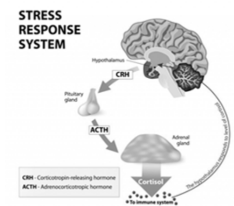
Cortisol

- Normally elevated cortisol will trigger a negative feedback loop to the Hypothalamus.
- Under stress the Hypothalamus continues to activate the HPA system and Cortisol levels stay elevated.



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Weight = Calories, right? High/low cortisol reactivity and food intake in people with obesity and healthy weight

- Thirty-six men and women with obesity (BMI: 33.00 ± 3.23 kg/m²), as well as 36 age- and gender-matched healthy weight controls (BMI: 21.98 ± 1.81 kg/m²) were categorized into high cortisol reactors (HCR) and low cortisol reactors (LCR)
- Obese HCR demonstrated a significantly higher food intake than LCR However, there were no significant differences between HCR and LCR in the healthy weight controls
- In conclusion, the magnitude of the cortisol reactivity to stress predicts stress induced food intake in people with obesity, but not in the healthy weight controls.

Benedict Herhaus, Enrico Ullmann, George Chrousos and Katja Petrowski. *Translational Psychiatry* (2020) 10:40

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Insulin Resistance

Elevated Cortisol contributes to Insulin Resistance and inhibits weight loss

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Leptin Resistance

Under stress the body becomes resistant to the satiety hormone Leptin while Ghrelin remains elevated which stimulates even more hunger.

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Increased Sympathetic Tone

- Trauma and anxiety leads to increased sympathetic tone.
- The Parasympathetic and Sympathetic nervous systems work inversely-when one is raised the other is suppressed.
- Digestion is only possible when the Parasympathetics are turned on.
- Overeating suppresses anxiety and trauma by activating the Parasympathetics.

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Food-Insecure Households are More Likely to have Adverse Childhood Experiences

Lack of reliable nutrition encourages overeating and binging when food is present as calorie storage is necessary to survive scarcity.

Adverse Childhood Experiences and Household Food Insecurity: Findings From the 2016 National Survey of Children's Health. *American Journal of Preventive Medicine* (2019) by Dylan Jackson, Mariana Chilton, Kecia Johnson, and Michael Vaughn

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PTSD is Not Uncommon

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Prevalence of Post-Traumatic Stress Disorder Among Adults

- Based on diagnostic interview data from National Comorbidity Survey Replication (NCS-R)
- An estimated 3.6% of U.S. adults had PTSD in the past year.
  - Past year prevalence of PTSD among adults was higher for females (5.2%) than for males (1.8%).
- The lifetime prevalence of PTSD was 6.8%.

National Institute of Mental Health

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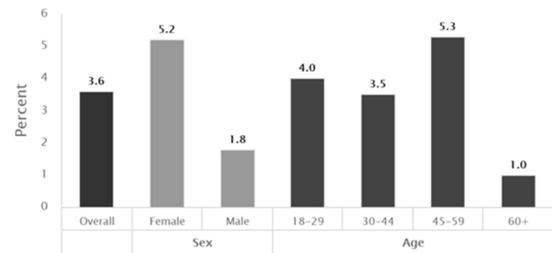

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Prevalence of PTSD in Veterans

- Gulf War Veterans
- 11,441 Gulf War Veterans sampled from 1995 to 1997. The prevalence of current PTSD in this sample of Gulf War Veterans was 12.1%. Further, the authors estimated the prevalence of PTSD among the total Gulf War Veteran population to be 10.1%.
- Operation Enduring Freedom/Operation Iraqi Freedom
- In 2008, 1,938 participants Operation Enduring Freedom and Operation Iraqi Freedom (Afghanistan and Iraq) Service members were sampled. The prevalence of current PTSD was 13.8%.

National Center for PTSD

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Evidence of the Link Between Trauma and Obesity

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Sexual Abuse Warning Signs in Children

- Eating disorders such as anorexia or bulimia
- Vague complaints of stomach pain or headaches
- Sleep problems
- Bowel disorders, such as soiling oneself (encopresis)
- Genital or rectal symptoms, such as pain during a bowel movement or urination, or vaginal itch or discharge
- Poor hygiene

- Weight as protection-reduce interest and increase defense
  - Force=Mass x Acceleration

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Association of Post-Traumatic Stress Disorder and Obesity in a Nationally Representative Sample

- **Obesity and Abuse: Theories Behind the Link**
- There are many theories about why childhood abuse can lead to adult obesity, including:
  - Childhood abuse reduces a person's sense of control, which leads to an increased risk of making poor health choices.
  - Women who gain weight to protect themselves are afraid of becoming thin and entering new relationships. "Patients will talk about that experience," says Pagoto. "Romantic relationships can generate a lot of anxiety and bring the trauma back up."
  - Childhood abuse leads to depression in adulthood, which is linked to high rates of obesity.
  - Childhood abuse results in feeling bad about your body, which makes it hard to make healthy choices.
  - Childhood abuse results in disordered eating patterns — binge eating may be more common among survivors of childhood abuse.

Pagoto et al. Obesity (2012) 20, 200-205.

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Association of Post-Traumatic Stress Disorder and Obesity in a Nationally Representative Sample

Obesity and Abuse: Persistent Problems

- Another barrier to success for people who were abused as children is that "the depression and trauma persist because they end up in these life situations that perpetuate the feelings," says Pagoto. She has often observed that morbidly obese patients who struggle with weight loss tend to be surrounded by less than supportive family members, who make it hard to lose weight.
- In an ideal world, says Pagoto, weight management strategies would treat the whole person, including the impact of past trauma and the way in which their current life is affected.

Pagoto et al. *Obesity* (2012) 20, 200–205.

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The Atlantic The Second Assault: Victims of childhood sexual abuse are far more likely to become obese adults. New research shows that early trauma is so damaging that it can disrupt a person's entire psychology and metabolism.

- One analysis of 57,000 women found that those who experienced physical or sexual abuse as children were twice as likely to be addicted to food.
- *Women said they felt more physically imposing when they were bigger. They felt their size helped ward off sexual advances from men.*
- *"If you think of the body as a clever organism, if it's exposed to something that's threatening, it protects itself by making sure there are plenty of calories on board." -Vincent Filetti, MD Kaiser Permanente*

December 15, 2015. Story by Olga Khazan

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Adverse Childhood Event Scale

Felitti et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. *American Journal of Preventive Medicine*. VOLUME 14, ISSUE 4, P245-258, MAY 01, 1998

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Questions 59-68 of ACES

- Some people, while growing up in their first 18 years of life, had a sexual experience with an adult or someone at least five years older than themselves. These experiences may have involved a relative family friend or stranger. During the first 18 years of life, did an adult or older relative, family friend or stranger ever:
  - Touch or fondle your body in a sexual way?
  - The first time, did this happen against your wishes?
  - The last time this happened, how old were you?
  - About how many times did this happen to you?
  - How many different people did this to you?
  - What was the sex of the person(s) who did this?
  - Have you touch their body in a sexual way?
  - Attempt to have any type of sexual intercourse (oral, anal, or vaginal) with you?

Felitti et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. *American Journal of Preventive Medicine*. VOLUME 14, ISSUE 4, P245-258, MAY 01, 1998

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Questions 59-68 of ACES

- Apart from other sexual experiences you have already told us about, while you were growing up during your first 18 years of life
- Did a boy or group of boys about your own age ever force or threaten to harm you in order to have sexual contact?
- As an adult, (age 19 or older) did anyone ever force or threaten you with harm in order to have sexual contact?

Felitti et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. *American Journal of Preventive Medicine*. VOLUME 14, ISSUE 4, P245-258, MAY 01, 1998

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Child Maltreatment's Heavy Toll: The Need for Trauma-Informed Obesity Prevention

- Childhood maltreatment is common, affecting 30% or more of the U.S. population.
- The study found that severe physical, sexual, and emotional abuse in childhood were associated with 28%–45% greater risks of adult obesity.
- Rodent and nonhuman primate models suggest that chronic stress, particularly social stress, can provoke overeating of highly caloric and palatable "comfort foods"—generally accompanied by increases in both body weight and adiposity
- Alterations to the gut microbiome offer another intriguing class of mechanisms, with evidence that adversity in early life and across the life span, negative affect, dysregulated eating, inflammation, and obesity are each linked to compromise of the human gut microbiota.

Mason et al. *Am J Prev Med*. 2016 May ; 50(5): 646–649.

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Association between childhood trauma and risk for obesity: a putative neurocognitive developmental pathway

- Results: In IMAGEN, a smaller frontopolar cortex (FPC) was associated with both childhood abuse CA and higher in male participants, and these findings were validated in UKB. Across seven data collection sites, a stronger negative CA-FPC association was correlated with a higher positive CA-BMI association.
- Using 7-T diffusion tensor imaging data (n = 156), we found that FPC was the third most connected cortical area with the hypothalamus, especially the lateral hypothalamus. A smaller FPC at age 14 contributed to higher BMI at age 19 in those male participants with a history of CA, and the CA-FPC interaction enabled a model at age 14 to account for some future weight gain during a 5-year follow-up.
- Conclusions: The findings highlight that a malfunctioning, top-down cognitive or behavioral control system, independent of genetic predisposition, putatively contributes to excessive weight gain in a particularly vulnerable population and may inform treatment approaches.

Luo et al. *BMC Medicine* (2020) 18:278
https://doi.org/10.1186/s12916-020-01743-2

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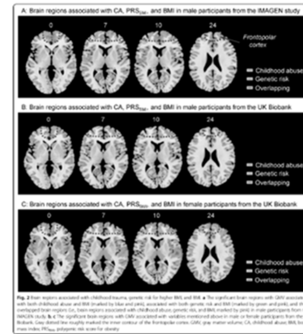

Why can't you have self control?

Luo et al. *BMC Medicine* (2020) 18:278

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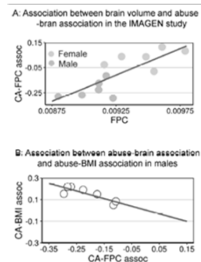
Association between childhood trauma and risk for obesity: a putative neurocognitive developmental pathway

Childhood Abuse leads to a smaller frontal cortex and higher weight.



Luo et al. *BMC Medicine* (2020) 18:278

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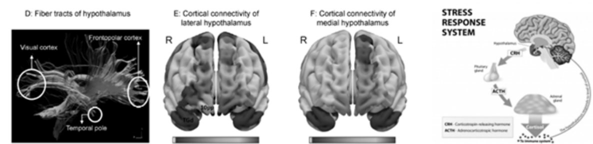
Association between childhood trauma and risk for obesity: a putative neurocognitive developmental pathway

Childhood abuse leads to less connectivity of the hypothalamus



Luo et al. *BMC Medicine* (2020) 18:278

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Association of Post-Traumatic Stress Disorder and Obesity in a Nationally Representative Sample

In the total sample of 20,013 participants, rates of obesity were 24.1% for persons without a lifetime history of PTSD and 32.6% among persons with PTSD in the past year.

PTSD is associated with obesity in both men and women, even when controlling for depression and other confounders such as antipsychotic medication.

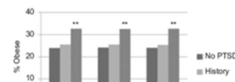

Figure 1 Prevalence of obesity by categories of PTSD in the total sample and stratified by sex. Data weighted to account for complex sampling frame and to represent national US adult population. $^{**}P < 0.05$. PTSD, post-traumatic stress disorder.

Sherry L. Pagoto, Kristin L. Schneider, Jamie S. Bodenlos, Bradley M. Appelhans. *Obesity* (2012) 20, 200–205.

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Child and Adolescent Abuse in Relation to Obesity in Adulthood: The Black Women's Health Study

- Participants were women enrolled in the Black Women's Health Study; an ongoing prospective cohort study begun in 1995.
- In 2005, 33 298 participants completed a self-administered questionnaire on early life experiences of abuse.
- The RR for BMI >30, a measure of overall obesity, was 1.29 (29% increased risk) for the highest severity of exposure to child/teenager physical and sexual abuse relative to no abuse. The RR for waist circumference >35 inches, which measures central obesity, for severe physical and sexual abuse relative to no abuse was 1.29 (29% increased risk.)

Renée Boynton-Jarrett, MD et al. *PEDIATRICS* Volume 130, Number 2, August 2012

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Associations of Child Sexual and Physical Abuse with Obesity and Depression in Middle-aged Women

- Data were obtained through a population-based survey of 4,641 women (mean age = 52 years) enrolled in a large health plan in the Pacific Northwest.
- Both child sexual and physical abuse were associated with a doubling of the odds of both obesity and depression.

Table 2

Associations of Childhood Maltreatment with Obesity and Depression.

	Obesity		Depression	
Childhood Maltreatment	*OR (95% CI)*	*p*-value	*OR (95% CI)*	*p*-value
Child sexual abuse				
Unadjusted	2.03 (1.63 – 2.52)	<0.0001	2.21 (1.68 – 2.90)	<0.0001
Adjusted for age, race[a]	1.84 (1.47 – 2.31)	<0.0001	2.14 (1.62 – 2.83)	<0.0001
Child physical abuse				
Unadjusted	2.24 (1.75 – 2.87)	<0.0001	2.42 (1.80 – 3.26)	<0.0001
Adjusted for age, race*	2.05 (1.59 – 2.63)	<0.0001	2.34 (1.72 – 3.18)	<0.0001

Note. OR = odds ratio, *CI* = confidence interval

[a]Age (40–49, 50–59, 60–65) and race (White non-Hispanic, Asian/Pacific Islander; other) modeled as categorical variables

Rohde et al . *Child Abuse Negl*. 2008 September ; 32(9): 878–887.

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The Weight of OUR Past

- Physicians can unknowingly traumatize patients struggling with obesity
- Become aware of your own microaggressions:
  - What are your automatic thoughts when you see an overweight person:
  - In a fast-food restaurant (of note you are in the fast-food restaurant)
  - Boarding a plane
  - Exercising
  - On TV/Films/Social Media

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What NOT to Do

- The patient, a 46-year-old woman, suddenly found it almost impossible to walk from her bedroom to her kitchen. Those few steps left her gasping for breath. Frightened, she went to a local urgent care center, where the doctor said she had a lot of weight pressing on her lungs. The only thing wrong with her, the doctor said, was that she was fat.
- “I started to cry,” said the woman, who asked not to be named to protect her privacy. “I said: ‘I don’t have a sudden weight pressing on my lungs. I’m really scared. I’m not able to breathe.’”
- “That’s the problem with obesity,” she said the doctor told her. “Have you ever considered going on a diet?”
- It turned out that the woman had several small blood clots in her lungs.

"Why Do Obese Patients Get Worse Care? Many Doctors Don't See Past the Fat" Gina Kolata. New York Times. September 26, 2016.

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What NOT To Do

- A 58 female went to an orthopedist because her hip was aching. She had lost nearly 70 pounds and, although she still had a way to go, was feeling good about herself. Until she saw the doctor.
- “He came to the door of the exam room, and I started to tell him my symptoms,” the patient said.
- “He said: ‘Let me cut to the chase. You need to lose weight.’”
- The doctor, she said, never examined her. But he made a diagnosis, “obesity pain,” and relayed it to her internist. In fact, she later learned, she had progressive scoliosis, a condition not caused by obesity.

"Why Do Obese Patients Get Worse Care? Many Doctors Don't See Past the Fat" Gina Kolata. New York Times. September 26, 2016.

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Weighing the Care: Physicians’ Reactions to the Size of a Patient

Subjects: A total of 122 physicians affiliated with one of three hospitals located in the Texas Medical Center of Houston completed the experiment.

Results: The weight of a patient significantly affected how physicians viewed and treated them. Although physicians prescribed more tests for heavier patients, $F(2, 107)=3.65$, $P<0.03$, they simultaneously indicated that they would spend less time with them, $F(2, 107)=8.38$, $P<0.001$, and viewed them significantly more negatively on 12 of the 13 indices.

Conclusion: This study reveals that physicians continue to play an influential role in lowering the quality of healthcare that overweight and obese patients receive. As the girth of America continues to increase, continued research and improvements in the quality of such healthcare deserve attention.

M R Hebl, J Xu. *International Journal of Obesity Relegated Metabolic Disorders*. 2001 Aug;25(8):1246-52.

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Medical Care for Obese Patients: Advice for Health Care Professionals

NATIONAL TASK FORCE ON THE PREVENTION AND TREATMENT OF OBESITY

- Some patients who are obese may delay medical care because of concerns about disparagement by physicians and health care staff, or fear of being weighed.
- Simple accommodations, such as providing large-sized examination gowns and armless chairs, as well as weighing patients in a private area, may make the medical setting more accessible and more comfortable for obese patients.
- Extremely obese patients often have special health needs, such as lower extremity edema or respiratory insufficiency that require targeted evaluation and treatment.
- Results from several studies suggest that patients who are obese are less likely to receive certain preventive care services, such as pelvic examinations, Papanicolaou (Pap) smears, and physician breast examinations, than those who are not obese.
- Results of a recent study about family physician attitudes regarding patients who are obese indicate that 38.5 percent attributed lack of willpower as one of the most significant contributors to their patients' obesity.
- It is not surprising, therefore, that 12.7 percent of women in one study reported delaying or canceling a physician appointment because of their weight concerns.

Am Fam Physician 2002;65:81-8.

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What TO Do

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TABLE 2

Adapting the Office for Obese Patients

Office supplies and equipment

Sturdy, armless chairs and high, firm sofas in waiting room
Sturdy, wide examination tables, preferably bolted to floor to prevent tipping
Extra-large examination gowns
Split lavatory seat and specimen collector with handle
Large adult blood pressure cuffs and thigh cuffs
Extra-long phlebotomy needles and tourniquets
Large vaginal speculae

Weight scales

Scales with adequate capacity for obese patients (e.g., >350 lb) are preferable.
Situate the scale in a discrete, private location.
If weight is related to patient's medical condition, ask whether patient wishes to discuss weight; weight need not be measured at each visit if unrelated to presenting complaint (e.g., sore throat).
If obtaining the patient's weight is appropriate, weigh patient privately and record weight without comment.

Information from National Association to Advance Fat Acceptance. Guidelines for health care providers in dealing with fat patients. Retrieved September 2001, from: http://www.naafa.org/documents/brochures/healthguides.html, and Health and weight at Kaiser Permanente: practice recommendations, 1999. Oakland, Calif., Kaiser Permanente Regional Health Education. Pamphlet.

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Keep Local Resources on Hand in a One-page Sheet

- Suicide Crisis Hotline
- Sliding scale therapy charities and local therapists that take insurance
- Substance Abuse Treatment
- Domestic Violence Hotline
- Grief Support Groups/Therapy
- Department of Human Services: Food stamps, some financial assistance for utilities and rent
- Texas Rehabilitation Commission: Unemployment, skills training and rehabilitation for those with physical or psychiatric impairment
- Transportation Assistance

You will not ask about trauma if you do not have a way to help. Show compassion for their experience and assure them there is professional support.

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What TO Do

- Do not discriminate against obese patients suffering from mobility impairment. Complete orders for mobility aids/handicap placards to prevent further isolation and continue to encourage physical activity.
- When weight loss is a goal, give patients tools to achieve them such as a Nutrition consult and/or Physical Therapy.
- Complete paperwork to aid with access to food such as food stamps.

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Breaking the Shame Cycle

Physician Behaviors

- Checking ourselves for unconscious biases, and consciously setting them aside
- Reflective listening. Let patient finish.
- Voicing acceptance.
- Modeling acceptance.

Scope of the Problem

- Multifactorial
- Multifaceted
- Complex
- BUT
- Sometimes learning something new only takes one significant interaction. Then a person can run with it.

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The Shame Cycle

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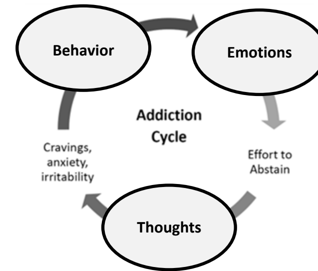
Cognitive Behavioral Therapy and Addiction



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12 Step Support

- Overeaters Anonymous
- Weight Watchers

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Who We Are, Revisited

- Karen Smith, physician, faculty member, community volunteer, international volunteer, international faculty, TAFP leader
  - ACES survivor
  - Adult abuse survivor
  - Now thriving
  - AND – 25 pounds down
- Helene Alphonso, physician, faculty member, community volunteer, church choir vocalist, Tae Kwon Do and Krav Maga martial artist
  - ACES survivor
  - Now thriving
  - AND – 12 months since my last panic attack

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Notes