Health Promotion Benefits of Nutritional Labelling and Nursing Care to Prevent and Reduce Obesity

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Abstract

Obesity is a global health challenge, with 39% of the adult population considered overweight and 13% considered obese as measured in 2016 (World Health Organization (WHO), 2018). The obesity rate in Bermuda was 34.4% in 2014. It is associated with many comorbidities such as cardiovascular disease, Type 2 Diabetes mellitus, musculoskeletal disorders and cancer (Bernews, 2017). In the United States, recent efforts have been made to provide the public with clearer information (kilocalories, portion size, salt, sugar and fat content) of the nutritional qualities of fast food and in restaurants.

Bermuda residents are lacking nutritional information on locally produced foods and in restaurants and thus are unable to make informed food choices. The addition of nutritional labelling and caloric details to locally-produced bakery foods and on restaurant menus (including take-away food) could be beneficial. Consequentially, there are potential opportunities for Health Promotion by healthcare professionals. Nursing diagnoses may provide patient-centred guidance for positive changes in food choices and nutrition that reduce the risk of obesity.

KEY WORDS: *Obesity, nutrition, food labelling, nursing diagnoses*

Introduction

Obesity is preventable according to the World Health Organization; however, there needs to be a wake-up call to the alarming reality that this condition has tripled since 1975 (WHO, 2018). In 1975, the rate of obesity in the United States was 12.1% (Metrocosm, 2016). In 2016, 39% of adults globally, 18 years and over were overweight (39% of men and 40% of women) and 13% (11% of men and 15% of women) were obese (WHO, 2018). Bermuda's Ministry of Health STEPS to a Well Bermuda Survey, conducted in 2014, found that 34.4% or approximately 21,940 adults were considered to be obese, and it is the main public health challenge for Bermuda (Bernews, 2017).

The United States Institutes of Health adopted the Body Mass Index (BMI) classification and added waist size cutoff points in 1998 (National Heart Lung & Blood Institute (NHLBI), 1998). The formula for BMI is calculated in pounds and inches: Divide weight in pounds (lbs.) by height in inches squared and multiply by a conversion factor of 703. For example: a person with weight = 150 lbs. and height = 65" would be calculated as: [150 divided by (65") squared] x 703=24.96 BMI (Centers for Disease Control (CDC), 2017). An example of Body Mass Index (BMI) classes is shown in Table 1.

***Table 1*: The BMI Chart for a 5' 9" Person, Independent of Sex**

Weight Range:	BMI:	Classed as:
125 lbs. to 168 lbs.	18.5 to 24.9	Healthy weight
169 lbs. to 202 lbs.	25.0 to 29.9	Overweight
203lbs. or more	30 or higher	Obese
271 lbs. or more	40 or higher	Morbidly Obese

In addition to this classification scheme, the combination of *overweight* (BMI between 25 and 30) and *moderate obesity* (BMI between 30 and 35) with a large waist circumference, ≥40 inches for men and ≥35 inches, for women, was added because abdominal girth is thought to increase risk of health challenges (NHLBI, 1998). Ethnicity should be considered as a variable in the BMI classes. For example, for a specific BMI, Asians might have very different levels of fatness and a unique fat distribution compared to Caucasians. This is why the abdominal fat distribution is so important in distinguishing between the range of overweight and obesity in terms of health risk within different populations (Seidell, & Halberstadt, 2015).

Being overweight or obese may cause a deterioration in health, contributing to high global incidences of cardiovascular diseases (heart disease, peripheral vascular disease and stroke), renal disease, Type 2 Diabetes mellitus, musculoskeletal disorders (osteoarthritis) and some forms of cancer, i.e. breast, ovarian, prostate, liver, kidney and colon (CDC, 2015). Seidell and Halberstadt (2015) state that obesity has a more pronounced impact on morbidity than on mortality because of the diseases and health conditions noted above. The Bermuda Ministry of Health has projected a 10-year cost of obesity estimated at $15.8 million in direct costs for medical care, such as physician's visits, diagnostic testing, prescription drugs, etc., based on insurance claims from 2013-2017 (Bernews, 2017). This affects ALL Bermuda residents, because as healthcare costs rise, the healthy population will be equally responsible for these costs.

Prevention and Reduction of Obesity Rates

How can Bermuda prevent and reduce the numbers of overweight and obese people on the island? There are no simple solutions to this question, but a sustainable approach is needed for success. This article will explore the idea that the addition of nutritional labelling and caloric details on local bakery foods and restaurant menus (including take away items), combined with Health Promotion, will help people make informed decisions about good nutrition. The goal is to reverse the trend of unhealthy food choices. Early detection of obesity is necessary, followed by a combination of lifestyle changes that involve behaviour modification, a healthy diet and more physical activity, which are shown to result in a good health-care outcome (Seidell, & Halberstadt, 2015).

Nutritional information is an important tool for maintaining healthy lifestyles. The United States Department of Agriculture (USDA, 2019) has enacted a series of nutritional guidelines and labeling requirements. The most recent legislation is designed to address the rising obesity rates, detailed at www.ChooseMyPlate.gov. United States legislation, enacted in 2018, Section 4205, of the U.S. Patient Protection and Affordable Care Act (ACA) (US Congress 2010), increases the awareness of healthy food choices available for everyone (Restrepo, & Minor, 2018). In Bermuda, promoting greater awareness of nutritional and caloric content in locally-produced foodstuffs will help prevent diseases and other conditions in adults who are considered overweight or obese (BMI of 25-35).

Reducing the number of calories consumed per day is a simple, uncomplicated way to achieve weight loss. If a person can decrease the number of calories from their diet by 500 calories per day, then in one week, they could potentially lose 1 pound of weight, in that 3,500 calories equals 1 pound (Mayo Clinic, 2017). Recommendations include reducing calories while eating a higher protein/low-carbohydrate diet, managing portion control and making minimally processed plant-based foods such as vegetables, fruits, whole grains, beans and seeds/nuts the mainstay of your food choices. Also, physical activity of at least 150 minutes of intense exercise per week which can be accomplished with 30 minutes of exercise 5 days per week (Mayo Clinic, 2017). The U.S. National Heart, Lung and Blood Institute's website provides healthy lifestyle recommendations such as heart-healthy eating, following *Choose My Plate* guidelines, behavioural therapy to try and identify emotional triggers that result in overeating, a commitment to regular exercise and a goal of 8 hours of sleep per night for the reduction of adverse health conditions related to being overweight or obese. Therefore, with a 10% body weight reduction, associated disease risk factors will decline (NHLBI, 2019).

Background on Nutritional Labelling

The U.S. Department of Agriculture issued the first dietary recommendations in 1894, but at that time, certain vitamins and minerals had not been discovered (Davis, & Saltos, 1999). Over the years, our knowledge about nutrition evolved, including establishing the correlation between nutritional deficiencies of vitamin C causing scurvy and vitamin B-1 causing beriberi (Smith, Collene, & Spees, 2018). With the knowledge of updated nutrition models, the health-care community is able to teach people about the risk factors for heart disease, diabetes, and cancer. In 1956, a food guide by USDA about the *Basic Four*, described choosing foods from four food groups: fruits & vegetables, meat, milk and grain products. From the 1970's to the 1990's, USDA researchers shifted the focus, guiding people away from over-consumption of cholesterol, saturated fat, sugars and sodium, which increase the risk of heart disease, stroke and other chronic diseases (Davis, & Saltos, 1999). The United States passed the Nutrition Labeling and Education Act of 1990, requiring nutrition labels to add information on high fiber, low fat, etc. (USA Congress, 1990). In 1992 the *Food Guide Pyramid* was revealed (USDA, 1992), expanding the Basic Four in a colourful graphic to making it easily understood by children and adults with a minimal high school education (Davis, & Saltos, 1999). The updated *My Pyramid* in 2005 added "Steps to a healthier you" suggesting the benefits of exercise along with nutrition (USDA, 2011). The current nutrition guide, *Choose My Plate*, published by the USDA in 2012 replaced the *Food Guide Pyramid* with a simplified representation of proportions of 5 food groups (USDA, 2019).

The Harvard T.H. Chan School of Public Health provides a website, https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/, that illustrates how the *Choose My Plate* was enhanced to become the "Healthy Eating Plate" with supplemental information such as encouraging drinking water, tea or coffee (with little or no sugar), recommending whole grains, healthy oils like olive and canola oil, and discouraged consuming French fries, limiting red meat and cheese, etc. A graphic image of someone running encourages us to "Stay Active!" (Harvard T. H. Chan School of Public Health, 2019). A variation of the *Choose My Plate* nutrition guide, *EatWell Plate,* is promoted by the Ministry of Health in Bermuda (Government of Bermuda, 2019).

The U.S. Nutrition Labeling and Education Act (USA Congress, 1990) required packaged foods to disclose ingredients, nutrient and calorie content on labels. In 2003, the Menu Education and Labeling Act (MEAL Act) was introduced that required chain restaurants to disclose nutrition information (USA Congress, 2003). The U.S. Food & Drug Administration rule in 2016 approved a new food label that went into effect in July, 2019, incorporating added sugars and calories per serving as noted in larger type (USFDA, 2016). The new label (Figure 1) was aimed at helping people become more aware of serving sizes, of how much added sugar they are consuming and the calories per serving.

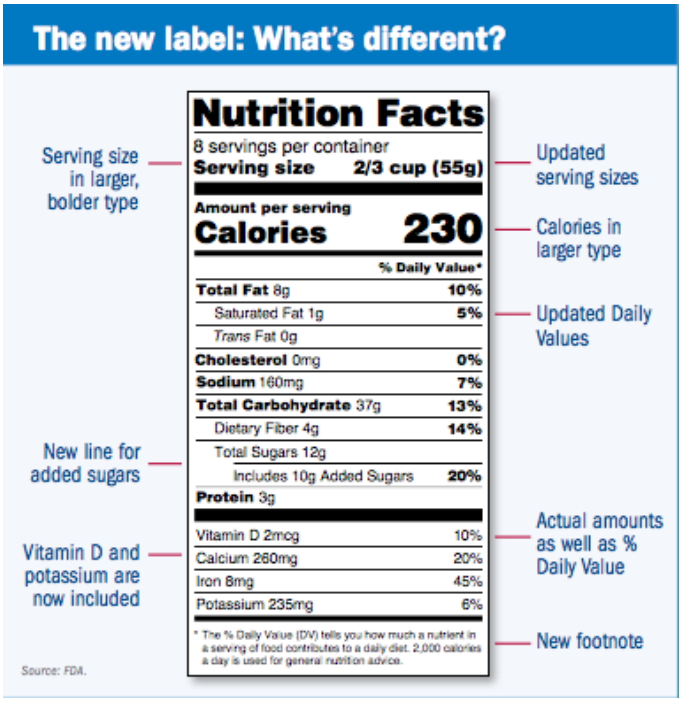

Figure 1: The 2020 U.S. FDA Nutrition Label

Further information can be found at https://www.fda.gov/food/food-labeling-nutrition/changes-nutrition-facts-label. Four distinct benefits of the enhanced label will allow consumers to improve their food choices and accrue health benefits.

Listed are benefits of including the additional nutrition information related to preventing obesity.

1. **Servings per container and serving size**: Important to teach people about serving sizes, servings per container in order to learn about portion control.

2. **Calories:** In bold, larger type to get your attention and avoid consuming too many calories per serving and the caloric impact of consuming the entire packaged item.

3. **Added Sugars**: contributes to Type 2 Diabetes risk, cardiovascular disease

4. **Vitamin D, Calcium, Iron and Potassium and the percentage of daily value:** important information for clients to be aware of bone health (Vitamin D and Calcium), lowering blood pressure (Potassium) and Iron as a key component of hemoglobin (CDC, 2019).

Weight Gain from Eating in Restaurants

In 2006 an article in the *American Journal of Public Health* suggested that if consumers ate just one restaurant meal per week, they would potentially gain approximately 9 lbs. annually, because the general public is not informed about caloric content of these foods and underestimate the caloric content. Their findings suggested that if nutritional information and caloric content are easily accessible, consumers prefer the healthier menu items over the less-healthful menu items (Burton, Creyer, Kees, & Huggins, 2006).

In 2018, food labelling mandated in the ACA (US Congress, 2010) went into effect, requiring nutrition information for foods at chain restaurants with 20 or more locations nationwide and vending machine items. It likewise required the calorie content posted of all standard items on the menu in a font and format similar to that of food items' name or price. Additionally, in order for consumers to understand the food in the context of a total daily diet, these establishments were required to post on the menus or on a sign near the self-service foods that 2,000 calories a day is used for general nutrition advice, although calorie needs vary.

Both the United States Food & Drug Administration and the U.S. Food, Drug and Cosmetic Act require that calorie and other nutrition data be provided in 'covered establishments' -further defined as chain restaurants or similar retail food establishments. The main goal of the menu labels is to provide nutritional information that will help consumers make informed decisions (USA FDA, 2019). The new national menu labelling laws concluded that calorie information on menus can help Americans to better assess the healthfulness of restaurant foods and adjust their food choices and behaviour (Restrepo, & Minor, 2018). Restaurant menus with calories provided alongside each item (Figure 2) can help consumers make informed choices if they are knowledgeable about total number of calories they need per meal/day.

Figure 2: Calorie Labels on Menu

More information related to calorie labels on menus is found at (https://www.wdwinfo.com/news-stories/quick-service-restaurants-add-calorie-counts-to-menus/)

A recent American Heart Association (2018) article supports menu labelling and quotes Dan Wainfan, Vice President Health and Wellness of Aramark, a major American food service corporation, about menu labeling being "just one part of the larger effort to address the obesity issue" (pg#). He believes the public needs to be provided with information and tools to feel empowered to change their behaviour.

Value of food Labelling in Bermuda

Bermuda could benefit from menu labelling in restaurants and for take-away foods and could choose to add a nutrition label to homemade (cookies, popcorn) and bakery items (banana bread, Portuguese doughnuts) that are sold in grocery stores, convenience stores, and gas stations. The minimum nutritional information should be servings per container or package, serving size, calories, total fat, total sugars, and total sodium. This information would inform people who are at risk for diabetes and cardiovascular disease on how to reduce calorie intake per day in order to reduce their weight.

As an example of how labelling could be useful in affecting consumption habits, I used a personal banana bread recipe and nutritional data available from two web sites (https://www.dietaryguidelines.gov/current-dietary-guidelines/2015-2020-dietary-guidelines; https://nutritiondata.self.com) to calculate the nutritional parameters in a loaf (Table 2).

Table 2: Nutritional Content of a Loaf of Banana Bread and an Estimate Per Average Slice, with Percentages of Recommended Daily Intake Per Slice (Natural Sugars in Banana Are Not Counted.

		Total	Total fat	Sat. fat	Protein	Cholesterol	Sodium	Added sugars
Ingredient	**Measure**	**Calories**	(g)	(g)	(g)	(mg)	(mg)	(g)
Butter (tbsp)	12	1200	132	84	0	360	1080	0
Sugar, white (cup)	1.5	1161	0	0	0	0	3	300
Flour, white (cup)	2	880	3.2	0.8	32	0	0	0
Eggs	2	140	9	9	12	370	140	0
Low-fat milk (cup)	0.5	74.5	1.3	0.7	4.0	7.2	62.5	11.0
Salt (tsp)	0.75	0	0	0	0	0	1770	0
Baking soda (tsp)	1	0	0	0	0	0	1280	0
Banana (cup)	1.5	300.0	1.1	0.5	3.8	0.0	3.5	(41.3)
Total loaf (~1kg, ~7 slices per loaf)		3755.5	146.5	95.0	51.7	737.2	4339.0	311.0
Average slice (143g)		537.0	20.9	13.6	7.4	105.4	620.5	44.5
Daily recommended intake (USDA)		2000	60	20	56	300	2300	37.5
Av. Slice, % of daily recommendation		**26.9**	**34.9**	**67.9**	**13.2**	**35.1**	**27.0**	**118.6**

For the purpose of this article, three packaged slices of a locally produce banana bread were weighed, and calculated estimates of the nutritional parameters per average slice (~143g) and the percentages of recommended daily intake determined, based on a 2000 calorie per day diet. The estimate total calories in a slice of banana bread could be over 25% of daily calorie s, 67% of saturated fats and nearly 120% of the recommended quantity of added sugars. A consumer who purchases a single slice of banana bread would benefit from a nutritional label that shows the approximate calories, saturated fat and sugar content, and recommends '2 servings per slice'. The health benefits of adding caloric and nutritional information to processed foods is not a new idea, as the United States government has been refining these details for over five decades (Institute of Medicine, USA, 2010). The FDA published the final rule for adding nutritional labelling to restaurant and fast-food menus on December 1, 2014 and the compliance date was May 7, 2018 (USA FDA, 2018). Bermuda should produce legislation to mandate

nutritional labelling on restaurant menus, take-way foods and locally produced foodstuffs to support healthy food choices, as one tool to tackle our high obesity rate.

Nursing Diagnoses and Management

Nurses have their own nursing diagnoses, which classifies health issues within the nursing domain, based on the North American Nursing Diagnosis Association International (NANDA-I). A nursing diagnosis is defined as "a clinical judgment concerning a human response to health conditions/life processes, or vulnerability for that response by an individual. It can be problem focused or a state of Health Promotion or potential risk" (Potter, Perry, Stockert, & Hall, 2017). Following the nursing diagnosis, a patient-centered plan of care is developed for each client, which is implemented and finally evaluated. It is an evolving evidence-based process, which involves critical thinking and regular assessment for positive outcomes. This article has focused on two Health Promotion nursing diagnoses described below:

(1) Readiness for Enhanced Nutrition *related to* a desire to comprehend food labels and select healthy food choices in restaurants to reduce daily caloric totals *as evidenced by* Bermuda's 34.4% obesity rates. A nurse starts with an assessment of the client's baseline knowledge about healthy food choices (Gulanick, & Meyers, 2014). This establishes a starting point for teaching the client about how to read a food label to understand more about serving sizes and caloric content. It also provides an opportunity for the nurse to learn more about any health condition the client has that may require reducing saturated or trans fats, sodium or sugar in their diet. The rationale for this action is to teach clients about the recommended serving size and the number of servings in the food item. Another important assessment would be understanding any potential barriers for improving the client's nutrition, such as the client's work or travel schedule, frequency of eating out, lack of culinary skills, and ability to afford fresh fruits and vegetables.

Another important consideration for Bermuda is to assess cultural aspects that promote eating 'traditional' foods that are high in fat, sugar, and carbohydrates, including fried fish and chicken, macaroni & cheese, Portuguese doughnuts, banana and ginger breads, and snowballs. None of these foods are labelled with nutritional or calorie details, servings sizes, or servings per piece. Often, people expect large portion sizes and do not appreciate the impact on daily calorie intake. Nurses can teach clients about better food choices including vegetables and salads, steamed, broiled, baked, roasted or grilled entrees that feature lean meats, chicken or seafood. Another teaching opportunity would be to assist the client in making healthier food choices when eating fast food, which is less expensive, very convenient, filling, and often not a healthy choice. Moderation is a learned behaviour. Nurses can assist clients with developing skills toward healthy eating by reviewing the *Choose My Plate* recommendations (Gulanick, & Meyers, 2014).

(2) Imbalanced Nutrition: More than Body Requirements *related to* unhealthy dietary patterns *as evidenced by* being overweight with BMI 25-30 or moderately obese with BMI 30-35. During annual physicals, a nurse conducts the assessment of a client's weight, height and waist circumference in order to calculate the BMI (Gulanick, & Meyers, 2014). The rationale for this action is informative to the client who may have been estimating their weight and BMI and is unaware that if their waist circumference is more than 40 inches (male) and 35 inches (female), then they are at a higher risk for obesity-related complications and diseases (NHLBI, 1998). For clients with an unhealthy BMI, a nurse can provide a referral to a registered dietician to conduct a baseline nutritional assessment, documenting their daily food intake, estimation of calories, feelings at time of eating, location of meals, snacking patterns, and social considerations. This assessment considers the environmental factors that influence obesity more than genetics or biological factors. A food diary will help identify poor dietary habits or misunderstandings about portion control as well as the use of food as a coping mechanism. This establishes a starting point for the client's lifestyle change that includes enjoying food but eating less, avoiding oversized portions, encouraging a higher consumption of vegetables, fruits, whole grains and low-fat dairy products in consultation with a registered dietician. Clients should be encouraged to drink water and avoid beverages with added sugars and calories (USDA, 2019).

Opportunities for Health Promotion

Nurses who are involved with outpatient facilities, schools, or community healthcare programmes are in a position to educate the public about good nutrition and healthy food options. Annual physical assessments of height and weight can be used to calculate the BMI so that nurses can teach clients to strive to maintain their BMI below 24.9 and to monitor their waist circumference according to sex.

Thus, nurses need to be knowledgeable about nutrition in order to refer clients to a registered dietitian and other community support groups for a detailed assessment of dietary requirements in order to prevent the onset of chronic diseases associated with obesity such as type 2 diabetes, cardiovascular disease, stroke, arthritis and cancers (Potter et al., 2017).

Conclusion

Nurses play a vital role in health promotion, illness prevention, and chronic disease management, related to the international rise in obesity rates, through health assessment screening and nutritional counseling (Sargent, Forrest, & Parker, 2012). Nurses can effectively re-teach basic health education if overweight or obese clients are at risk for comorbidities prevalent in Bermuda or recommend a registered dietician for detailed consultation. Therefore, the addition of nutritional labelling on bakery foods and restaurant menus (including take-away orders) is a starting point towards allowing residents of Bermuda an opportunity to make informed decisions about healthy food choices. Thus, positive expected outcomes can be achieved when clients are able to interpret food labels when purchasing food items, choose healthier options from menus, embrace eating a nutritious diet, and successfully maintain a BMI below 24.9.

References

American Heart Association (2018). Major restaurants now required to show calories on the menu. Retrieved from https://www.heart.org/en/news/2018/05/07/major-restaurants-now-required-to-show-calories-on-the-menu

Bernews (2017). One of every three adults in Bermuda is obese. Retrieved from http://bernews.com/2017/10/one-every-three-adults-bermuda-obese/

Burton, S., Creyer, E.H, Kees, J. and Huggins, K. (2006). Attacking the obesity epidemic: the potential health benefits of providing nutrition information in restaurants. *American Journal of Public Health*, *96* (No.9), 1669-1675.

Centers for Disease Control and Prevention (2015). The health effects of overweight & obesity. Retrieved from https://www.cdc.gov/healthyweight/effects/index.html

Centers for Disease Control and Prevention (2017). How is BMI calculated? Retrieved from http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html

Centers for Disease Control and Prevention (2019). Learn how the new nutrition facts label can help you improve your health. Retrieved from http://www.cdc.gov/nutrition/strategies-guidelines/nutrition-facts-label.html

Davis, C., & Saltos, E. (1999). Dietary recommendations and how they have changed over time, pp. 33-50. *In*: America's eating habits: changes and consequences. *USDA/ERS Agricultural Information Bulletin* (AIB-750). Retrieved from https://www.ers.usda.gov/webdocs/publications/42215/5856_aib750_1_.pdf?v=5536.4

Government of Bermuda (2019). Eat well Bermuda: dietary guidelines for Bermudians. Retrieved from https://www.gov.bm/eat-well-bermuda-dietary-guidelines-bermudians

Gulanick, M., & Myers, J. (2014). *Nursing Care Plans* (8th ed.). Philadelphia, PA: Elsevier Inc.

Harvard T.H. Chan School of Public Health (2019). The healthy eating plate. Retrieved from https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/

Institute of Medicine (USA) (2010). Committee on Examination of Front-of-Package Nutrition Rating Systems and Symbols; Wartella EA, Lichtenstein AH, Boon CS editors. Washington (DC) National Academies Press (US). Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK209859/

Mayo Clinic (2017). Low-carb diet: Can it help you lose weight? Retrieved from https://www.mayoclinic.org/healthy-lifestyle/weight-loss/in-depth/low-carb-diet/art-20045831

Metrocosm (2016). Watch how fast the world became obese. Retrieved from http://metrocosm.com/map-world-obesity/

National Heart, Lung, and Blood Institute (1998). Obesity education initiative. The practical guide: identification, evaluation, and treatment of overweight and obesity in adults. Retrieved from http://www.nhlbi.nih.gov/files/docs/guidelines/prctgd_c.pdf

National Heart, Lung and Blood Institute (2019). Overweight and Obesity. Retrieved from https://www.nhlbi.nih.gov/health-topics/overweight-and-obesity

Potter, P.A., Perry, A.G., Stockert, P.A., & Hall, A.M. (2017). *Fundamentals of Nursing*. St. Louis, Mo: Elsevier.

Restrepo, B., & Minor, T. (2018). New national menu labeling provides information consumers can use to help manage their calorie intake. Retrieved from: https://www.ers.usda.gov/amber-waves/2018/october/new-national-menu-labeling-provides-information-consumers-can-use-to-help-manage-their-calorie-intake/

Sargent, G.M., Forrest, L.E., & Parker, R.M. (2012). Nurse delivered lifestyle interventions in primary health care to treat chronic disease risk factors associated with obesity: a systemic review. *Obesity reviews international association for the study of obesity, 13,* 1148-1171, DOI:10.1111/j 1467-789X.2012. 01029.X

Seidell, J.C., & Halberstadt, J. (2015). The global burden of obesity and the challenges of prevention. *Annals of Nutrition & Metabolism, 66* (suppl 2): 7-12, DOI:0.1159/0003/5143

Smith, A.M., Collene, A.L. & Spees, C.K. (2018). *Wardlaw's Contemporary Nutrition*. New York, NY: McGraw-Hill Education.

Smith, Dr. S.R. (2020) Consultation on banana bread nutritional table.

United States Department of Agriculture (1992). The Food Guide Pyramid. *Home and Garden Bulletin* No. 252.

United States Food & Drug Administration (2016). Food Labeling: Revision of the Nutrition and Supplement Facts Labels. Retrieved from: https://www.federalregister.gov/documents/2016/05/27/2016-11867/food-labeling-revision-of-the-nutrition-and-supplement-facts-labels

United States Food & Drug Administration (2018) Menu labelling rule-key facts for industry. Retrieved from http://www.fda.gov/media/116000/download

United States Food & Drug Administration (2019). FDA's implementation of menu labeling moving forward. Retrieved from https://www.fda.gov/food/food-labeling-nutrition/fdas-implementation-menu-labeling-moving-forward

United States of America Congress (1990). Nutrition Labeling and Education Act of 1990, H.R. 3562, 101st Cong. (1990). Retrieved from https://www.congress.gov/bill/101st-congress/house-bill/3562

United States of America Congress (2003). Menu Education and Labeling Act of 2003, H.R.3444, 108th Cong. Retrieved from https://www.congress.gov/bill/108th-congress/house-bill/3444?s=1&r=93

United States of America Congress (2010). Patient Protection and Affordable Care Act of 2010, H.R. 3590., 11th Cong. Retrieved from: https://www.congress.gov/bill/111th-congress/house-bill/3590

United States Department of Agriculture. (2011). A brief history of USDA food guides. Retrieved from https://www.choosemyplate.gov/eathealthy/brief-history-usda-food-guides

United States Department of Agriculture (2019). ChooseMyPlate guideline. Retrieved from https://www.choosemyplate.gov

World Health Organization (2018). Obesity and overweight: key facts. Retrieved from https://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight