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Multidisciplinary Approaches to the Treatment of Bariatric Patients

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Abstract

Bariatric care focuses on the treatment and prevention of obesity as a chronic disease. It encompasses a wide range of obesity interventions from diet and exercise to weight loss surgery. Due to the continuing rise in obesity, all health care professionals will encounter bariatric patients, and thus, it is important for all health-care professionals to be aware of bariatric considerations. There are many negative implications to increased obesity that affect both physical and psychological health. This thesis will present the rise and rates of obesity in America today, along with the health risks and morbidity statistics for those who fall into this category. It will then introduce the field of bariatrics—its origins, goals, and various approaches as well as the pros and cons to each. The thesis will then investigate the various healthcare professionals involved in the field of bariatrics and the role each one plays in obesity treatment. It will conclude with a discussion of the importance of implementing a multidisciplinary approach to bariatric treatment in order to provide optimal and holistic care.

Keywords: obesity, bariatrics, multidisciplinary approach, occupational therapy

Multidisciplinary Approaches to the Treatment of Bariatric Patients

The field of bariatrics is extremely widespread, with many aspects to treatment and the ability to serve those in all stages of life to varying degrees. The underlying goal in bariatrics is addressing the causes, prevention, and treatment of obesity. This is done through various approaches to weight loss and management including dieting, exercise, behavioral therapy, pharmacotherapy, and surgery. While all of these approaches are viable treatment options, the focus is typically on implementing behavioral change strategies prior to more extreme measures such as medications or surgery. The purpose of this thesis is to present the role of each of the healthcare professionals involved in the treatment and prevention of obesity. Every healthcare field is able to contribute within its own specialty toward treating bariatric patients, and this thesis will discuss the individual roles of each specialty. Obesity has long-lasting and significant effects far beyond the physiological response, and all health care professionals are able to positively impact these effects by utilizing a multidisciplinary approach to provide holistic treatment for bariatric patients.

Obesity

Health Implications

The number of overweight and obese individuals of all ages in America is continually rising at an alarming rate, with two-thirds of adults and nearly one-third of children currently fitting into one of these categories (Campaign to End Obesity, 2014). Many of these individuals find it extremely difficult to lose weight on their own and are constantly engaging in popular new diets or “get skinny quick” techniques. These attempts, however, often do not produce lasting results after cessation and in some cases

can even lead to increased overall weight. If the rising rate of obesity continues as it has been, by 2030, fifty-one percent of the population will be obese. As of twenty years ago, no state documented an obesity rate over 15 percent, yet today there are 41 states with obesity rates over 25 percent. Obesity in children and adolescents has increased alarmingly as well, almost tripling in number since 1980. Obesity is linked to more than 60 chronic diseases including cardiovascular disease, diabetes, musculoskeletal disorders, cancer, asthma, and obstructive sleep apnea. Out of the 572,000 Americans who die of cancer each year, close to one-third of these cases are linked to excess body weight, improper nutrition, and/or lack of physical activity. More than 75 percent of all U.S. hypertension cases are also directly linked to obesity, and roughly two-thirds of U.S. adults suffering from type two diabetes are overweight or obese (Campaign to End Obesity, 2014).

Psychosocial and Societal Implications

Obesity not only has health implications, but it also contributes to psychosocial and societal problems. Among these issues are the rising costs of healthcare for preventable health issues, which can result in restricted access to health care, absence from work, less education, fewer housing and work opportunities, and reduced social participation due to a societal stigma. There is also a correlation between obesity and increased mortality rates (Campaign to End Obesity, 2014). Due to the substantial contribution of obesity to serious comorbidities and other issues discussed, obesity is seen as not only a chronic medical ailment but also a disease state (Walsh & Vocke, 2015). Obesity has serious, well-documented and researched consequences, and it is such

a major issue in America today that nearly all health-care professionals will encounter it at some level during their careers.

Treatment Approaches in Bariatrics

Exercise

Typically, the series of approaches to weight loss in bariatrics begins with diet, exercise, behavior therapy, and anti-obesity drugs. For many, diet and exercise alone can help keep weight under control and maintain overall health and wellness. Exercise is often one of the most effective approaches to battle obesity and its results, with typically very few adverse reactions or consequences. In some cases, exercise has also been shown to reverse some of the previous effects of obesity on the body (Gondoni, 2013). Many do not realize that a drop of 5% to 10% body weight in an obese individual can greatly increase cardiometabolic benefits, decrease blood pressure, and reduce cholesterol levels. This weight loss can also improve conditions for those with diabetes and help prevent diabetes development in those not currently affected. In short, if overweight individuals are able to attain weight loss there will be substantial overall positive health outcomes. Overweight and obese individuals can benefit from utilizing the services of a personal trainer or exercise physiologist to help guide them into an effective fitness plan. This can help with motivation as well, since it provides a source of accountability and continual feedback in order to achieve optimal results (Walsh & Vocke, 2015).

Diet

Diet is yet another approach to bariatric care that can be effective at a relatively low cost and with virtually no side effects or negative long-term consequences. While there continue to be many approaches to dieting, the underlying goal of all weight control

centers around energy balance—calorie intake compared with calorie expenditure. Many patients meet with a registered dietician who assists in creating and implementing an appropriate diet plan for each individual case. There are countless diet plans available that follow many different approaches including very low to moderate fat, high protein, low carbohydrate, and low glycemic index. A low-fat (20%-35%) diet protocol is the most researched of all weight loss methods. Following a low fat diet plan has been shown to yield increased weight loss when compared with the suggestions for a typical lifestyle approach. Findings suggest a low fat approach is an effective strategy for both short and long-term weight control with proper adherence. As always, however, long-term adherence is the greatest challenge to any diet plan, and this approach is not exempt. Very-low-fat (10%-20%) diet approaches are different from low-fat plans in that instead of including all foods they focus on cutting out high amounts of refined carbohydrates. There is limited research on the efficacy of this dietary approach, but when compared with other plans it has been found to have an increased attrition rate and decreased adherence. Thus, even though it may be effective in promoting weight loss, if individuals find adherence difficult, it will not yield significant long-term results. Moderate-fat (35%-45%) approaches to weight loss and maintenance are many times associated with a Mediterranean diet, but this is not necessarily accurate as it varies depending on the specific foods consumed. Studies do suggest better long-term adherence and effectiveness of this approach as opposed to low-fat diet plans (Makris & Foster 2011).

A high-protein diet plan is slightly more variable since there is not a standard definition for this approach, although protein intake exceeding 25% total energy or 1.6g/kg per day of body weight is typically viewed as high. Some studies show increased

weight loss and improved body composition with a high-protein diet as compared to a low-fat diet protocol. There is, however, some concern with regard to the overall safety of a high protein diet plan as it puts increased stress on the kidneys and liver. A low-glycemic index diet refers to an approach focusing on consuming foods that do not cause a blood glucose rise greater than 55 on the glycemic index. Individuals following this diet plan must avoid foods such as white bread, processed cereal, and crackers. The focus instead should be on minimally processed foods such as whole wheat bread, steel-cut oats, and sweet potatoes. The goal of this approach is to consume sufficient calories as well as nutrients while avoiding excessive spikes in insulin and blood glucose levels. There is limited research on the effects of this diet approach on weight loss and maintenance, and the results are mixed. Overall, it seems that each diet approach has proven effective in some cases and each has differing areas in which it plays a beneficial role. One of the most important aspects, however, is adherence since this is ultimately the best marker of long-term success and not simply the specific diet plan or approach (Makris & Foster 2011).

Diet and Exercise

While diet and exercise each contribute to weight loss and management individually, there have also been studies showing the added benefit of a combined lifestyle of healthy eating and regular exercise (Philippou, Andreou, Menelaou, Hajigeorgiou, & Papandreou, 2012). While both methods of weight loss produced a decrease in total body mass as well as visceral abdominal mass, the group implementing the combined approach displayed a superior positive improvement in fat mass relative to the diet only group. Implementing exercise into a healthy eating plan leads to reduced

body fat and increased lean muscle mass, which is beneficial for overall long-term health and wellness. Exercise also helps directly with creating the negative energy balance necessary for weight loss, thus helping individuals enjoy even greater results from their diet plan (Philippou et al., 2012). Another study focusing on obesity interventions for postmenopausal women uncovered similar findings. Lifestyle interventions such as diet and exercise were effective in improving body weight and adiposity in the participants, but there were increased positive results in those following a combined approach (Foster-Schubert et al., 2012). Based on these findings, it seems a combined approach of dieting and exercise is the most effective way to both stimulate maximal weight loss and promote overall wellness.

Behavior Therapy

Behavior therapy is yet another modality used in the bariatric treatment process. When applied to weight management, behavior therapy involves instructing and guiding clients on how to alter diet, physical activity, and psychological patterns that contribute to chronic obesity. The protocol for this type of therapy involves “setting specific goals for behavior change that specify what an individual will do, and when, where, how and for how long he or she will engage in the behavior” (Wadden, Webb, Moran, & Bailer, 2012, p. 1163). Another crucial element to behavioral therapy is self-monitoring, which involves the patient maintaining detailed records of all relevant behaviors such as nutrition and exercise. Regular self-monitoring is a dependable marker of both short- and long-term weight loss. Behavioral therapy also considers other factors such as genetics, metabolism, and hormones that influence body weight in addition to poor behavioral patterns (Wadden et al., 2012). Behavioral therapy has also been used as a treatment of

binge eating patterns that would otherwise be detrimental to post-surgical success. One study, which implemented a ten-week group behavioral intervention plan, showed positive improvements in binge eating symptoms as well as depressive symptomatology and emotion regulation abilities. This treatment method also resulted in an increase in participants' motivation to alter maladaptive eating habits (Leahey, Crowther, & Irwin, 2008).

Medications

Anti-obesity medications are another option that can be implemented in weight loss and maintenance. This approach is typically taken after lifestyle intervention has not proven effective. Over the past 70 years, there have been many different anti-obesity drugs used for the treatment and management of obesity, but that number has reduced over the years due to the majority of these drugs being removed from use as a result of serious adverse side effects. Although some of the medications that were removed from the list of viable options were more effective than some currently in use, their negative side effects outweigh their increased effectiveness in weight loss. Although pharmacologic treatment is a possibility, there are potential risks associated with many of these medications. Thus, this option should only be implemented after lifestyle modifications such as those discussed above have proven ineffective (Kang & Park, 2012).

Five common weight loss medications currently approved and in use are bupropion-naltrexone combination, liraglutide, lorcaserin, orlistat, and phentermine-topiramate combination. Bupropion-naltrexone combination helps to decrease appetite and dampen the pleasure involved in eating. It is contraindicated for use by those with a

history of seizure disorder or anorexia as well as those currently taking an opiate medication. Side effects include nausea, headaches, and constipation. Lorcaserin is a selective serotonin receptor agonist. Side effects include nausea, headaches, fatigue, and dizziness. Orlistat works by decreasing the breakdown of triglycerides in the body and thus lowering hydrolysis and absorption of dietary fat. Side effects may include increased flatulence, oily spotting, greasy loose stools, fecal urgency, or incontinence. Phentermine-topiramate combination helps to suppress appetite and stimulate early satiety. Side effects may include cognitive slowing, glaucoma, and acidosis. Liraglutide causes decreased appetite and stimulates a reduction in energy storage. Side effects may include nausea, vomiting, and diarrhea. It is important to know the mechanism by which each medication works as well as the side effects and contraindications for each in order to determine which medication would prove most effective for each individual patient (MacDaniels & Schwartz, 2016).

Bariatric Surgery

The lifestyle modifications listed above such as diet, exercise, and behavior therapy along with anti-obesity drugs are all viable methods for bariatric treatment depending on the patient's current condition and the effectiveness of these methods. This type of professional therapy for severe and chronic obesity, however, often yields limited short-term success and poor long-term success. Weight loss surgery, on the other hand, when combined with the lifestyle changes previously discussed, typically results in more significant and long-lasting weight loss than conventional treatment, leading to improvements in quality of life and obesity related diseases (McGraw & Wool, 2015). This improvement in quality of life also includes positive advances in psychological

factors such as depression, self-esteem, and disturbed eating patterns, since individuals who are exceedingly obese have a higher probability of psychosocial disturbance.

Multiple studies of individuals seeking weight loss surgery have shown increased indications of depression, decreased self-esteem, and increased distress as compared to less obese individuals seeking other bariatric treatment options (Fabricatore, Wadden, Sarwer, & Faith, 2005). Findings indicate that bariatric surgery improves patients' psychological profile, particularly in the short-term and in conjunction with proper psychological evaluation and support throughout the process (McCarthy, 2015).

Eligibility criteria. Although weight-loss surgery is an excellent option for many and often has excellent long-term success, this procedure is not fitting for every overweight or obese individual. The criteria for eligibility for weight loss surgery are as follows:

- BMI of 40 kg/m² or greater *or* a BMI of 35 kg/m² to 39 kg/m² (about 100 lb overweight for men and 80 lb over weight for women) with one or more associated medical comorbidity (eg, diabetes, sleep apnea, hypertension)
- Acceptable surgical risks
- An ability to participate in treatment and long-term follow- up
- An understanding of the surgical procedure and the lifestyle changes that will need to be made (McGraw & Wool, 2015).

Another important criterion is the inability to attain a healthy weight loss maintained over a period of time with previous weight loss efforts (American Society for Metabolic and Bariatric Surgery, 2016). These guidelines are important since although bariatric surgery can be effective, there are also many serious potential risks and it is

important for individuals to ambitiously pursue lifestyle change as a means to healing before employing this treatment method.

Types of bariatric surgeries. Three of the most popular types of bariatric surgeries currently performed in the United States are laparoscopic adjustable gastric banding, laparoscopic sleeve gastrectomy, and Roux-en-Y gastric bypass. Each of these methods has associated benefits and risks that must be contemplated when choosing the most appropriate treatment option for the individual patient. Some risks associated with these treatments include gastric erosion, gastroesophageal reflux, stricture, or leakage, internal hernia, and anastomotic leak (McGraw & Wool, 2015). Overall, both short and long-term risks associated with these types of surgery include excessive bleeding, blood clots, infection, bowel obstruction, ulcers, and stomach perforation (Mayo Clinic Staff, 2017). Again, although there can be long-term success from bariatric surgery it is important to consider the risks and implications of each of these procedures before making the decision to begin the process.

Post-Bariatric Surgery Considerations

All bariatric treatment methods, especially weight loss surgery, require a strong support system for long-term success. Some options for this type of accountability include support groups, family support, dietary counseling, cognitive-behavioral therapy and motivational support, dietary education support, and support for depressive symptoms. Obesity is a lifetime struggle, and as a chronic disease it should be treated as such and approached with a mindset of constant lifestyle choices to facilitate overall health and well-being – especially weight loss and maintenance. After weight loss surgery, it is especially important for patients to continue with regular visits to both their

physician and support systems such as those listed above for optimal results (Aguilera, 2014). Exercise is an important factor in maintaining a healthy lifestyle post-bariatric surgery. Postoperative exercise is linked to increased weight loss at 12 and 24 months after weight loss surgery although the long-term weight loss benefits remain to be proven. There are not necessarily specific general exercise guidelines for the postoperative bariatric surgery patient, but implementing a daily walking program and using technology to track activity levels is one simple idea patients may use to kick start their healthy lifestyle (Livhits et al., 2010). All of these methods and interventions are dependent on the individual and how his or her body responds to both the surgery and the associated lifestyle changes.

There are many options for the treatment of chronic obesity, and education is the key to determining the best course of action and the most effective treatment plan for each individual. Some believe that weight loss surgery will be a quick and easy option for them to lose weight without putting in work or having to implement a drastic lifestyle change. As discussed above, however, there are specific criteria in place for eligibility for bariatric surgery, and it is a rigorous process with many associated risks. The safest and best health promoting option is a combination of diet and exercise, perhaps in conjunction with behavioral therapy to work toward the goal of a holistic lifestyle change toward healthier habits. In addition, as previously discussed, pharmacologic treatment is a viable option but one that should only be implemented if lifestyle modifications have proven ineffective as there are risks associated with some of the prescribed medications (McGraw & Wool, 2015).

Bariatric Care and Various Health Professions

It is important for all health-care professionals to be aware of bariatric considerations, since more and more overweight and obese individuals are present in the healthcare system. Professionals in every health care field experience overweight and/or obese clients. Some, such as bariatricians and bariatric surgeons, specifically focus on this area and treat many extreme cases. Others, such as nurses, dietitians, physical therapists, and occupational therapists engage with this group of patients at varying periods in their weight loss or management journey. Most health care settings utilize a team approach to bariatric treatment involving professionals in the disciplines listed above as well as others such as social workers, case managers, and pharmacists. This approach is highly effective since the patient receives care from every possible angle and in every possible area due to the wide range of specialists involved in the treatment process. Due to the side effects, complexity, and cost of bariatric surgery, the focus is typically on other treatments initially, with surgery as a last option if other treatments do not prove effective or lasting. There are many forms of treatment that are much safer and overall healthier for the patient than surgery. Treatments that are especially important to consider are those which take a more holistic approach that focuses on serious lifestyle modifications (The American Occupational Therapy Association, Inc., 2015).

Occupational Therapists

Occupational therapists serve a unique role in bariatric care with a focus on helping individuals with obesity alter their lifestyle, participate in significant activities, and control their weight. Professionals in this field emphasize areas such as health promotion, disease prevention, remediation, adaptation, and maintenance. These

professionals supply assistance to those obtaining specified bariatric care, or to individuals possessing other medical issues with obesity as their secondary diagnosis, with the goal of enhancing their functional capabilities. Some areas on which they focus are as follows:

- Instruction in body mechanics for the client and/or caregiver to maintain safety for all participants during physical activities and transfers
- Activities of daily living such as bathing, dressing, and toileting, with particular attention to areas requiring sufficient reach and flexibility
- Home modifications to promote activity participation and improve environmental access and safety.
- Home modifications to aid in relaxation and the formation of sleep routines or instruct in proper positioning to increase comfort and facilitate restorative sleep periods (The American Occupational Therapy Association, Inc. 2015).

This is just a small sampling of all the areas in which occupational therapists work with patients and/or their caregivers to help create a safe, healthy, and restorative lifestyle.

Lifestyle modifications. One of the most significant roles of occupational therapists in the field of bariatrics is their contribution to lifestyle change in their patients. These practitioners are trained to take note of a wide variety of elements that make up an individual including psychosocial, environmental, spiritual, and cultural influences. All of these areas play a part in shaping an individual's abilities and attitude when it comes to lifestyle change, and thus, occupational therapists are distinctively competent to help and support patients in creating and applying a personalized, planned method of lifestyle change. Research suggests that weight loss is accomplished more successfully when an

individual seeking health care is supported using a structured program than when an individual implements solely a self-help approach. Occupational therapy practitioners are able to supply significant and effectual intermediations that aid in causing client involvement in adapting daily life behaviors, responsibilities, and habits that play a role in chronic disorders such as obesity by implementing “analysis and understanding of performance patterns related to daily life activities” (Reingold & Jordan, 2013, p. 702). One way this is carried out is through the use of virtual reality technology that aids in increasing physical activity for both adolescents and individuals in mental health facilities as well as assists in modifying physical activity for obese children and increasing their knowledge concerning proper dietary decisions (Reingold & Jordan, 2013).

Equipment modification. Occupational therapists use a wide variety of adaptive equipment to help their patients meet their independence goals. Some of the basic equipment necessary includes transport devices, lateral transfer devices, lifts, furniture, and scales. Each of these pieces of equipment must be specifically chosen to suit the needs of a bariatric patient, and there are many necessary precautions that must be taken to ensure the safety of both the patient and staff. Some considerations include handrails on the scale, strategic placement of bariatric chairs, and mechanical lifts (Klein, 2006). It is important that health care professionals realize the many challenges they face due to the increased number of overweight and obese patients. Some of these challenges can include increased staffing requirements, increased space requirements to accommodate bariatric beds or chairs, and increased physical challenges. There may also be adverse effects on patient care due to the added complications that accompany a bariatric patient.

These may include difficulties in running diagnostic tests, assessment, tending and bandaging wounds, obtaining suitably sized compression hosiery, or performing physiotherapy or occupational therapy evaluations. There is a definite demand for clear and thorough planning and leadership in creating an optimal care delivery model for supplying the necessities for bariatric patients (Lumley, Homer, Palfreyman, Shackley, & Tod, 2015).

Each individual has a unique body shape, and these differences in weight distribution bring with them specific concerns in bariatric care as relates to rehabilitation and mobilization. Many times self-mobilization is very difficult or impossible for bariatric patients, and in most cases patients are primarily transferred by trained staff. In order to establish a safe mobilization process, one must implement the following steps: bariatric risk assessment, moving and handling assessment, and equipment provision (Rush, 2005). Other factors to consider when beginning mobilization include the patient's ability to assist, level of cooperation, comorbidities, weight bearing ability, respiratory compromise, and upper body strength. Having a specific procedure in place for executing transitions both decreases risk of injury to all parties involved and yields an overall smoother transition whether the patient is moving within the facility or from a facility to home (Scott, Pokorny, Rose, & Watkins, 2010).

Safety is the number one priority in all patient transfers, and it is of increased concern for bariatric patients. The highest number of injuries occur due to insufficient equipment or staffing requirements. The bariatric population is among the weakest in proportion to their relative body mass, and this situation causes the health care professionals involved in their treatment to rely on their ingenuity and resourcefulness in

order to safely carry out many tasks that are made more difficult by the excess weight carried by the patients. Proper equipment is a major key in this area as well, and professionals must ensure that their equipment is not only high quality, but also built specifically for the needs of this special patient population. Even simple additions such as shower chairs and grab bars can not only increase a patient's safety but also give him or her a higher sense of autonomy. Specially designed air mattresses with alternating pressures are also very important in the prevention and/or healing of pressure ulcers that are very likely to form in bariatric patients. Although this equipment may have a higher price tag than its conventional counterparts, the savings in potential cost due to injury from using improper equipment make the investment well worth it (Carlson, 2008).

Individualized considerations. Occupational therapists always work in close conjunction with their patients when assessing needs, setting goals, and creating and executing weight loss interventions. This allows the therapist to create individualized plans or programs that will satisfy the patient's specific goals and aspirations regarding the particular areas of occupation that are being compromised. Depending on the patient's needs, the therapist's focus may be on areas such as prevention, remediation, adaption, and maintenance when designing a program in either short- or long-term situations. By considering each patient's individual situation, the practitioner is able to design the appropriate strategies to help their patients create healthy habits which will in turn allow them to achieve and maintain their goals. Some other strategies may include community health promotion programs, education classes, and home adaptation recommendations. Occupational therapists may also provide resources such as home adaptation preparation, caregiver training, and adaptive equipment information (Reingold

& Jordan, 2013). The widespread role the field of occupational therapy plays in treating and managing the obesity epidemic today should not be understated, and this field is continually advancing as pertains to this issue. This focus is moving from simply diet and exercise considerations to a holistic evaluation of behavior modifications based on an individual's everyday occupational responsibilities. These advancements in thinking are working to permeate society through the implementation of healthier policies as well as increased community action initiatives (Haracz, Ryan, Hazelton, & James, 2013).

Treatment for children. Occupational therapists also work with children suffering from obesity with the goal of treating this upcoming generation in order to decrease the continually growing obesity epidemic. One method is through nutritional health education so that children can be well informed about food choices and their effects both short- and long-term. One study on this topic explored the option of presenting this material in a game format as implemented by an occupational therapy nutrition education program. The underlying idea behind this study was that occupational therapists can modify play to heighten children's knowledge of nutritional concepts and thus counteract childhood obesity. The study included 200 participants ages 8-10 years old. Data collection involved a semi-structured interview, direct and structured observation, a focus group, and a comparison of two interactive games, one a board game the other a video game. The games were centered on the food pyramid, and both were evaluated separately and then combined. Results of this study showed this approach is effective for the type of learning that is desired. If occupational therapists are able to educate children on obesity topics through play, these ideas will hopefully become

engrained in our culture as a whole with the goal of stopping the spread of obesity in all ages (Munguba, Valdés, & da Silva, 2008).

Motor adaptation. Another role of occupational therapists in addressing childhood obesity is improving the decreased motor adaptation that occurs in obese children. This loss of optimal motor adaptation due to excess weight is likely to cause impairments in a child's everyday activities such as school, play, sports, or other extracurricular activities. When compared with their non-obese peers, obese children display movement impairments such as slower walking speed, increased steps per minute, and decreased stability. These impairments decrease the child's capability to recover quickly from a loss of balance that could potentially result in a fall. Thus, these children are at higher risk of sustaining a fracture, since their excess body weight typically leads to decreased bone mass and strength as a result of their lower levels of physical activity (Gill, 2011).

Findings also suggest that obesity may contribute to a reduction in cerebellar functioning, and when combined with reduced levels of physical activity, can lead to a reduction in cognitive functioning as well. The therapist's role, then, is to improve the obese child's motor adaptation to decrease risk of injury. Before becoming involved, the therapist must assess the level of intervention necessary to increase motor adaptation at the subtask, task, and routine stages and then implement the appropriate strategies established on the identified needs of the particular child. The therapist will then begin working with the child to improve motor adaptation habits, focus on tasks and subtasks of motor adaptation that necessitate constant practice, and practice element skills recognized as significant contributing influences on deficiencies in motor adaptation. The emphasis

of occupational therapy involvement should be to utilize positions and occupations significant to obese children as a setting for increasing motor adaptation (Gill, 2011).

This motor engagement approach in occupational therapy intermediation is set apart in several ways from strategies implemented by other allied health professionals and from other activity curriculums. Instead of performing exercises in de-contextualized settings, the intervention approach discussed above uses meaningful behaviors to help children learn proper motor engagement techniques. The occupational therapist's approach focuses on those areas of motor adaptation that are most relevant to the individual child's occupational responsibilities and everyday activities thus improving performance in those particular areas. While community activity programs have attained remarkable achievements toward reducing obesity in young children, they fail to cover issues regarding ways for obese children to minimize chances of injury while they are in the process of losing weight. Occupational therapy interventions, on the other hand, not only use meaningful tasks to improve movement adaptation but also to improve safety. Thus, these interventions should be used in addition to the approaches implemented through community activity programs to provide optimal care for children with obesity (Gill, 2011).

Obesity prevention. Occupational therapy interventions have a major focus on preventative measures, which is crucial to counteract the continual staggering rise in obesity in individuals of all ages. Many are aware of the steps necessary to prevent obesity such as healthy eating, portion sizes, physical activity, weight tracking, and limited technology, but following these principles is not an easy task for many (National Institutes of Health, 2012). For some, due to genetic or functional limitations, these

principles may become even more difficult to follow or may not yield satisfactory results.

Occupational therapists are able to work with individuals on all aspects of the spectrum to meet their goals and cultivate a happy and healthy lifestyle. Research has shown both the success and cost-effectiveness of occupational therapy interventions in the prevention of declines in health. Some workplaces have hired occupational therapists to lead group classes on obesity prevention in order to save the company tremendously in health care costs by maintaining the well-being of their employees (Reingold & Jordan, 2013).

Occupational therapists play a vital role in education, treatment, and prevention of obesity, and practitioners in this line of work will only become more invaluable in bariatric treatment as the field continually develops and grows.

Physical Therapists

There are many other fields that play a role in the treatment of bariatric patients, and one group of practitioners who work especially closely with occupational therapists are physical therapists. While occupational therapists focus mainly on the lifestyle changes that must be made to return to a healthy and productive quality of living, physical therapists are more focused on the structural and physiological aspects of obesity. Some common examples include treatment for joint pain due to excess weight, as well as post-surgical rehabilitation care. It is important for physical therapists to have knowledge of the restrictions and possible complications following bariatric surgery, as this information will be invaluable in providing optimal postsurgical rehabilitation (Heskin, 2017).

Post-surgical rehabilitation. Following weight loss surgery, the patient should slowly resume everyday activities and begin implementing healthy habits such as

walking as soon as possible. Since walking is low-stress, it allows the patient to be physically active while allowing the incision site to heal. Once able, the patient should also begin integrating a strength training routine into his or her exercise program under the instruction of the supervising therapist. This program should begin with exercises performed with a high number of repetitions at a very low resistance. Resistance should be progressed slowly, following the supervising doctor's recommendations. Building lean muscle mass will not only aid in strengthening and stabilizing the joint, but also cause a rise in daily caloric expenditure. Another benefit is increasing the patients' activity tolerance. Hydration is also another key aspect of postsurgical care that can often be overlooked. Bariatric surgery causes a significant decrease in gastric volume, and thus drinking adequate fluids to counteract those being lost can prove difficult. Patients must consume slow, consistent quantities of water during exercise with a maximum of 64 ounces of water each day. Knowledge of these recommendations and concerns allows physical therapists to ensure each of their bariatric patients receives optimal care and enjoys maximum benefits from weight loss surgery (Heskin, 2017).

Joint pain. Physical therapists often treat patients who suffer from joint pain or who have had joint replacement due to any number of factors including obesity. Excess weight causes stress on the joints which can eventually lead to joint pain and arthritis if the individual is chronically overweight or obese. Over time, this strain on the joints may lead to the need for a joint replacement, most likely of the hip or knee. One study investigating causes of joint replacement surgery concluded that obesity correlates strongly with the need for a total joint replacement amongst adults under 60 years of age, which confirmed earlier similar findings among the elderly population as well.

Physical therapists play a role in rehabilitation after total joint replacements to help their patients regain mobility and build strength in order to assist them in returning to physical activity. Physical therapists can also assist bariatric patients by prescribing an exercise routine for weight loss to help prevent the need for future surgeries (Harms, Larson, Sahmoun, & Beal, 2007).

Bariatricians and Bariatric Surgeons

Bariatricians and bariatric surgeons are another group of health care professionals who are clearly involved in treatment and care for bariatric patients. Bariatricians, also known as bariatric physicians, are doctors who specialize in non-surgical weight loss interventions such as many discussed previously. Bariatric surgeons, on the other hand, specialize in conducting weight loss surgery. Both of these practitioners play important roles in the treatment of obesity, although bariatric surgeons typically are involved with patients possessing more serious and chronic conditions that would require surgery. Bariatricians, on the other hand, typically treat those who are willing and able to make lifestyle changes to combat their weight concerns. Neither of these approaches takes as holistic an approach as occupational therapists; however, by working in conjunction with other health care professionals these doctors can provide patients with optimal care throughout the treatment process and beyond (Seidler, 2010).

Registered Dieticians

Registered dieticians are another group of health care professionals who play a major role in the treatment of obesity, both prevention and management. Their main goal is to provide weight management advice pertaining chiefly to dietary guidelines. A main component of their training and experience focuses on weight management, as this is one

of the most frequently dealt with issues in their practice. Findings reveal that dieticians are among the top choices for expert advice concerning obesity for the general population, they are thought of by professionals as the most effective suppliers of weight management guidance, and they are the individuals to whom medical experts most often refer their overweight clients (Campbell & Crawford, 2000). Registered dieticians may also work with other practitioners such as occupational therapists or bariatricians to provide a combined approach to weight management.

Registered dieticians are also involved in the treatment of childhood and adolescent obesity. They are notably the group to which other health care professionals most often refer overweight children. Some of the treatment methods utilized in this process include weight control recommendations, eating interventions, activity interventions, and medication interventions. Most children and adolescents are treated using the first three methods listed above, with medication intervention utilized mainly for adolescents on rare occasions with an emphasis on herbal remedies. When treating children and adolescents, dieticians work alongside others such as pediatricians and pediatric nurse practitioners to support wholesome, maintainable eating and activity behaviors with minimal usage of extremely limited diets or medication to regulate weight. Motivation plays an important role in this process as well in order to continue the implemented behavioral modifications. It is important for all health care professionals to be well educated on motivational techniques for keeping both patients and their families motivated and meeting their goals (Barlow, Trowbridge, Klish, & Dietz, 2002).

Pharmacists

Pharmacists offer a key contribution to bariatric care, providing not only weight loss medications, but also inpatient counseling at times. Most often, pharmacists counsel patients concerning their prescribed antiobesity medications. Many times, however, this type of counseling does not occur as frequently as would be ideal due to the pharmacist's decreased confidence in his or her effectiveness. Another area in which pharmacists counsel patients is diet and exercise guidelines, and reports show higher levels of confidence in this area of counseling due to its perceived increased effectiveness (Dastani, Brown, & O'Donnell, 2004). Counseling is one of the most crucial facets of pharmaceutical intervention, and thus pharmacists must be properly trained for this role so that they will have sufficient knowledge and skill to provide optimal care. Proper counseling regarding prescribed antiobesity medications has been shown to increase patient adherence and thus result in weight loss. One barrier to overcome in this process involves increasing patient awareness of the pharmacist's ability to provide obesity counseling. Spreading this knowledge within the community allows individuals to form a sense of trust in the abilities of their local pharmacist and begin to view him or her as a primary source for health advice on certain medical issues, especially obesity (Awad & Waheedi, 2012).

Collaborative approach. Obesity is most often treated by several professionals at once, and pharmacists can play a crucial role in this team. This approach significantly enhances the quality of patient care provided and positively affects health outcomes. By utilizing this diversified approach to bariatric care, each practitioner is able to focus on a particular aspect of care and thus provide the patient with optimal care in every aspect of

treatment. The pharmacist's role in this combined approach is typically to provide medication information and assist patients with joining medication assistance programs (Conrad, Dubin, & Uwaifo, 2013). A collaborative approach may also increase patient motivation due to more frequent visits with various health care professionals and in turn increase positive outcomes. There are some barriers present in the implementation of pharmacy centered lifestyle management services such as limited knowledge, training, time, and supplies along with minimal patient demand and overall poor views of pharmacist capability. It is important, then, to overcome these issues by increasing pharmacists' education in this area and then integrating this model into general patient knowledge (Jordan & Harmon, 2015).

Social Workers

Increasing awareness. The field of social work addresses bariatric care as well through many different facets. Social workers contribute in ways such as supporting the formation of new policies to encourage healthier lifestyles and supplying information to the public and in schools to increase awareness (University of New England, 2017). The National Association of Social Workers also contributes as a group to fight obesity through research as well as certain pieces of the policies that surround this intricate public health matter (STOP Obesity Alliance, 2017). Social workers also contribute to care for those undergoing bariatric surgery. Cross-addiction, replacing "gaps" in one's life with overeating, gambling, alcohol, etc., can be an issue patients face postsurgery, and this is one area social workers are equipped to address. Frequent meetings will decrease the risk of developing this harmful behavior pattern. Body image issues are another major concern in bariatric patients throughout the surgery process. Many have unrealistic

expectations of how their body will change after weight loss surgery, and social workers are able to work through these expectations to develop a healthy body image through forming realistic expectations. This is very closely tied with overall mental health, which can be a concern due to the significant physical, psychological, and relational changes that can be brought about by bariatric surgery. Social workers aid patients in making a smooth transition after surgery and are able to refer out to other mental health professionals when necessary (Bariatric Surgery, 2017).

Family influence. One of the primary focuses of social work is in the area of childhood obesity with a focus on treating the children and working with the families. Social workers understand many aspects of the underlying issues that contribute to childhood obesity such as culture, family lifestyle, and decreased physical activity both in school and at home. The systems theory considers the entire family in the plan for change, since this multi-faceted approach will ultimately be more effective and produce longer lasting change for not only the child but the entire family unit (Eliadis, 2006). Children are more positively impacted and respond more readily when they see their parents lead by example in healthy habits such as diet and exercise. Therefore, it is crucial to have the parents actively involved and supported as they make lifestyle changes for the entire family (Pappas & Dietrick, 2015). The family's culture is also important to consider in order to be sensitive and to understand the norms and expectations that may exist. It is also important to recognize the family's place in the surrounding community, encouraging them to be advocates for both themselves and others when it comes to increasing health awareness and implementing healthier practices in the community as a whole. Most importantly, social workers must adhere to a strengths-based approach. This

places the emphasis on the child's inherent strengths and encourages building upon these positive aspects in order to facilitate healthy change. By taking this approach, the social worker builds up the child and enables him or her to take control and become a problem solver. Social workers who combine all these approaches in conjunction with the interventions of other health care professionals will experience success in treating and managing obesity (Eliadis, 2006).

Case Managers

Bariatric patients also utilize case managers at times in order to ease the process of bariatric treatment. Case managers can help individuals by providing advice regarding challenging circumstances, determining a plan of action for any necessary interventions, and following up with the clients' progress concerning whatever intervention was set in place. Case managers often work in close contact with other professionals such as social workers and psychologists (Snagajob, 2017). Throughout the weight loss process, case managers can prove very helpful to patients seeking advice on any aspect of their treatment plan or those interested in accountability and guidance throughout the process, particularly for those undergoing bariatric surgery. The case manager can assist in coordinating visits with the various health professionals necessary to begin the weight loss journey. Following surgery, patients can be assigned a case manager for as long as a year to aid in recognizing possible complications and to go over treatment strategies and medications (American Health, 2013).

Psychologists

Emotional wellness. The field of psychology is an extremely crucial contributor to every aspect of the weight loss process through many different facets. Overweight and

obese individuals have an increased rate of psychological issues of varying degrees, and thus it is important for psychologists to work closely with other health care professionals to provide not only physical but also emotional wellness. Obese patients often present with concerns such as depression, stress, anxiety, impulsivity, low self-esteem, and poor quality of life. Some individuals describe encountering social isolation, unsatisfying relationships, and occupational issues. Studies show the intensity of these psychological disorders correlates with the individual's level of obesity. A study of obese individuals did report, however, that all participants experienced familial support and were satisfied with the love and communicative relationships formed within this family unit. These findings show the importance of loving, respecting, and communicating with obese individuals in the same manner as any other person since they have the same needs for love and acceptance and require even more support to face their condition with a positive attitude and make life changes. Psychologists must be mindful of these considerations when treating bariatric patients and always show genuine support and empathy for these individuals (Abilés et al., 2010).

Eating disorders. Eating disorders are another major issue faced by psychologists treating bariatric patients. As discussed earlier, obesity is often coupled with issues such as social isolation, bullying, and discrimination that can cause many different psychological disturbances, among which are high levels of eating disorders. The top three disorders manifested among the obese population are emotional eating (EE), binge eating disorder (BED), and night eating syndrome (NES). EE is comprised of consuming food as a reaction to negative emotions, typically involving excessive eating. This is viewed as a learned response, many times used as a distraction from whatever issues

initially triggered the emotional response. BED is defined as “recurrent binge eating in the absence of appropriate compensatory behaviors and/or extreme dietary restraint” (McCarthy, 2015, p. 34). Up to 30% of patients requesting weight loss surgery present with this disorder that is associated with a loss of control over behavior. NES is a mixture of sleep, eating, and mood conditions defined by the ingestion of 25% of calories following the evening meal, or by nighttime consumption of food at least twice a week upon waking. This disorder results in decreased adherence to a weight loss program and, thus, should be addressed prior to bariatric surgery. Some even view obesity itself as an eating disorder of its own kind, presenting it as the opposing issue to anorexia nervosa (McCarthy, 2015).

Evaluating patients. Considering the many psychological issues faced by bariatric patients, psychologists play an integral role in both clinical and surgical treatments. In the clinical setting, psychologists may incorporate cognitive, behavioral, and motivational interviewing treatments as an effective means of facilitating weight loss. When treating surgical patients, a focus on roles in assessment, education, and intervention helps to produce the most desired outcome (Bean, Stewart, & Olbrisch, 2008). For patients seeking weight loss surgery, evaluations are performed to assess the individual’s psychosocial indicators of post-surgery success based on perceived ability to adjust to the many changes that will be present after the surgery is performed. These evaluations aid in areas such as patient selection, selection of the operation to be performed, and selection of the appropriate therapies necessary for long-term success (van Hout & van Heck, 2009). There is not a standard number and type of evaluations psychologists must complete with a patient before the patient is admitted for bariatric

surgery, and thus there is some variability within the responses for those who are accepted for surgery and those who are not. There are, however, roughly 15% of requests that are either delayed or denied due to psychological concerns. These may include noteworthy psychopathology such as psychosis or bipolar disorder, and unmanaged depression. Two other important concerns on the part of the patient involve insufficient knowledge of both operative risks and postoperative requirements, the last of which is the most common. Psychologists clearly have many issues to consider when treating bariatric patients in all stages of the journey to a healthier physical and emotional state, and without their intervention, other health care professionals would not be as effective, thus hampering the overall positive outcomes desired by their patients (Walfish, Vance, & Fabricatore, 2007).

Conclusion

Bariatric care is a very intricate study, involving many different approaches focusing on the multitude of aspects involved in the weight loss process. All those working in the health care field will continue to have bariatric patients in their care, and understanding the many different approaches to treatment as well as the various interventions available depending on the patient's needs will enable all such individuals to be treated with utmost effectiveness. Occupational therapists play a major role in obesity prevention as well as treatment, and their innovative and practical approaches to bariatric care contribute significantly to helping address this epidemic. Overall, however, each specialty plays its own unique and crucial part in the treatment process, and by working together a team is formed which will greatly impact not only the lives of each patient but also the entire world.

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