

EVALUATING THE UNDERSTANDABILITY AND ACTIONABILITY OF AN
EDUCATIONAL PAMPHLET CREATED FOR CLIENTS WHO ARE OBESE WITH
UPPER EXTREMITY TENDINOPATHY

A Thesis submitted to the faculty at Stanbridge University in partial fulfillment of the
requirements for the degree of Master of Science in Occupational Therapy

by

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Certification of Approval

I certify that I have read Evaluating the Understandability and Actionability of an Educational Pamphlet Created for Clients who are Obese with Upper Extremity Tendinopathy by Bose Bustamante, Malia Ertel, Lana Ignacio, and Jihyun Lim, and in my opinion, this work meets the criteria for approving a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy at Stanbridge University.

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Abstract

The purpose of this project was to determine if a pamphlet that addresses the effects of obesity on tendinopathies and social participation is understandable and actionable. Participants were recruited through the thesis advisor's primary contacts. Seven therapists who have an advanced practice in hand therapy (CHT or HCT certification) surveyed the pamphlet using the Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P) through SurveyMonkey. Scores for understandability and actionability were calculated using the scoring system for PEMAT-P. Participants rated the pamphlet as 80% understandable and 76% actionable. Overall, hand therapists found the educational material understandable and actionable. A pamphlet that addresses upper extremity tendinopathies, obesity, and social participation is a time-saving tool that occupational therapists can use when addressing these topics with their clients. It gives clients basic information and action steps to improve their lifestyle. The use of visual aids should be included in future versions of the pamphlet to help increase the effectiveness of the pamphlet's information. Future studies should investigate if the pamphlet increases client knowledge on the topic.

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Evaluating the Understandability and Actionability of an Educational Pamphlet Created
for Clients who are Obese with Upper Extremity Tendinopathy

From 1975 to 2016, the global rate of obesity nearly tripled, with 13% of adults now considered obese (World Health Organization, 2018). Obesity is a risk factor for many chronic conditions, such as cardiovascular disease, metabolic impairments, cancer, and type II diabetes (Nielsen & Christensen, 2018). What is less known is that obesity is also associated with various upper extremity (UE) tendinopathies. The UE consists of the shoulder, arm, forearm, wrist, and hand, all of which are heavily involved in everyday activities. Tendinopathies are musculoskeletal conditions that affect tendons in the body, which commonly occur due to repetitive motions, or an injury to the tendon that fails to heal (Franceschi et al., 2013). When an obese person has tendinopathies, this can cause acute and chronic pain for clients, and therefore limited occupational performance (Kotowski & Davis, 2010). Most common UE tendinopathies include rotator cuff (RC) tendinopathy, lateral epicondylitis, medial epicondylitis, hand osteoarthritis (OA), and carpal tunnel syndrome (CTS; Franceschi et al., 2013; Visser et al., 2014). The lack of research investigating the effects of obesity on UE tendinopathies signifies how little is known about the relationship between obesity and tendinopathies.

Social participation is an important occupation that can be affected by obesity and tendinopathies. The American Occupational Therapy Association ([AOTA], 2014) defines occupations as meaningful daily activities that individuals, groups, or populations engage in. Furthermore, the AOTA (2014) considers social participation as being involved in activities with the community, family, or friends. Due to pain, inflammation, and increased risk for comorbid conditions like diabetes and metabolic impairments,

being diagnosed with UE tendinopathy greatly interrupts social participation (Abate, 2014; Kotowski & Davis, 2010; Gaida, Ashe, Bass, & Cook, 2009). Not being able to engage with others can lead to a drastic reduction in quality of life (Nossum, Johansen, & Kjekken, 2018; Riffer et al., 2019). UE tendinopathies, when combined with obesity, negatively influence basic self-care, functional mobility, education, work, and leisure (Nossum et al., 2018). Therefore, the association between obesity and UE tendinopathy and its link to social participation is a serious issue that calls for more attention.

Statement of the Problem

There are five research categories according to the AOTA research agenda: assessment/measurement, intervention research, basic research, translational research, and health services research (AOTA & American Occupational Therapy Foundation, 2011). Since our research worked to address the problem of obesity and its effect on UE tendinopathy, it falls under the intervention research category.

The literature review revealed that there is a lack of research connecting obesity, UE tendinopathies, and social participation. Most of the research addresses only two out of those three components (i.e., obesity and tendinopathy, or obesity and social participation). For example, the literature revealed that there is a connection between obesity and tendinopathy (Franceschi et al., 2013; Abate, 2014; Kotowski & Davis, 2010; Gaida et al., 2009; Redmond, Bain, Laslett & McNeil, 2009; Bodavula, Burke, Dubin, Bradley, & Wilgis, 2007; Visser et al., 2014; David et al., 2014; Riffer et al., 2019; Plastino et al., 2011), and obesity and social participation (Nossum et al., 2018). However, there was a severe lack of research that addressed the relationship of all three components. There was also a lack of supportive materials, like pamphlets, for clients to

use outside of therapy sessions. Therefore, this study sought to bridge the gap among obesity, UE tendinopathy, and supportive material. To do this, we created an educational pamphlet for adults with obesity and UE tendinopathy for hand therapy certified occupational therapists (HTCs & CHTs) to use in their practice. The purpose of this study was to (1) create an educational pamphlet for adults with obesity and UE tendinopathy and (2) have advanced hand therapists evaluate the pamphlet on its understandability and actionability.

Literature Review

Effects of Obesity on Tendinopathies

Franceschi et al. (2013) conducted a systematic review that examined the relationship between obesity and tendon diseases. Tendons attach muscles to bones which produce movement when the muscle contracts. Tendinopathies can cause tendons to wear down over time, and even more so if an individual is obese. If the connection between muscle and bone weakens, it can significantly impair the movement of an individual. RC tendinopathy was the most frequently observed condition in the systematic review. The risk of developing a RC tendinopathy increased in patients who had a body mass index (BMI) $\geq 30\text{kg/m}^2$, a general standard for being considered obese (Franceschi et al., 2013). BMI measures the amount of body fat in relation to height and weight (Franceschi et al., 2013). Lateral epicondylitis and medial epicondylitis, common tendinopathies of the elbow, were also investigated. Two studies found that patients with a BMI $\geq 30\text{kg/m}^2$ had a higher risk for occurrence of lateral epicondylitis. A cross-sectional study found a causal relationship between BMI $> 30\text{kg/m}^2$ and medial epicondylitis in women.

Although most articles included in this systematic review are observational studies, the evidence is clear: there is an association between obesity and tendon diseases.

Furthermore, several studies indicated that obese individuals frequently experience tendon degeneration, which can lead to pain and functional impairment (Abate, 2014; Kotowski & Davis, 2010; Gaida et al., 2009). There was a positive correlation between a person having a BMI over 35 and increased tendon degeneration and pain (Abate, 2014; Kotowski & Davis, 2010). Also, excess fat has been associated with an increased risk for a tendon injury (Gaida et al., 2009). This is because of the increased amount of tendon degeneration that occurs when an individual is obese. Out of all the identified risk factors for tendinopathies, obesity is one that is preventable or manageable in most cases (Gaida et al., 2009). Occupational therapy (OT) can help individuals manage issues caused by obesity, such as increased tendon degeneration and risk for tendinopathies. An occupational therapist can provide treatment for tendinopathies and also provide recommendations to help address the effects of obesity—such as tendon degeneration and functional impairment—in order to increase social participation in their everyday occupations.

Obesity can also increase the risk of different hand conditions. One study examined the correlation between obese adults that had diabetes and a hand disability (Redmond et al., 2009). The researchers measured grip strength, light touch perception, dexterity, and self-reported function, using a medical outcome questionnaire to assess the hand function of the participants. It was discovered that 47% of the participants in the study displayed more than one hand disability diagnosis, with CTS being the most frequent diagnosis (Redmond et al., 2009). The study concluded that being obese and

overall physical health had an effect on hand function, and so maintaining a healthy weight would help these participants improve dexterity, upper body strength, and manage pain (Redmond et al., 2009). Another study examined the relationship of CTS and its association with BMI among a group of individuals diagnosed with CTS. Those with a BMI greater than 35 demonstrated lower grip strength and higher symptom severity compared to cases within a BMI characterized as normal (Bodavula et al., 2007). This suggests that weight gain can cause both CTS and can exacerbate its symptoms.

In addition, research in obesity studies has been growing regarding the relationship between obesity and hand OA. A recent study investigated the effects of obesity by measuring BMI and adipose tissue distribution. This study found that there is an association between fat percentage, fat mass, waist-hip ratio, and hand osteoarthritis (OA) (Visser et al., 2014). These results recommend that individuals should be mindful of the implications of excess fat and its distribution throughout the body because it can increase the risk of developing OA. There is also evidence that obesity has a negative effect on both the strength of the tendon and the ability for the tendon to repair itself after damage (David et al., 2014). Although surgery can repair the tendon and therapy can be given to strengthening the tendon, obesity can inhibit the recovery process.

As well as physical impairments, obesity has been shown to contribute to psychological stress and metabolic impairments. Riffer et al. (2019) investigated the effect of obesity on psychological stress and metabolism. In the study, health-related quality of life, eating behavior, anger, BMI, body composition, and biomedical parameters of metabolism were measured in obese individuals who had excessive caloric intake. Researchers found a strong correlation between health-related quality of life in the

physical domain and BMI, body composition, and metabolism (Riffer et al., 2019).

Characteristics of obesity, such as poor nutrition and lack of physical activity, can result in different metabolic impairments. One of the metabolic impairments that can arise is Type 2 diabetes. According to Plastino et al. (2011), about a third of the population with type 2 diabetes have CTS. Type 2 diabetes can cause nerve damage to the hand and add more discomfort to those who already have hand injuries like CTS. Plastino et al. (2011) conducted an experiment that examined how insulin resistance increases the risk of CTS. Compared to the control group, the CTS group had a significant presence of glucose metabolism abnormalities. The participants with CTS also had significantly higher waist circumference measurements and BMI values. An individual whose body cannot optimally regulate oral glucose tolerance has a higher risk of developing CTS. The study suggests that educating clients about improving glucose metabolism with improved nutrition and engaging in daily physical activities can reduce their risk of developing CTS. If individuals decrease the overall amount of adipose tissue in the body as well as manage insulin resistance, it can result in a decreased risk of developing tendinopathies.

Barriers to social participation for obese clients

To identify specific barriers related to obesity that interrupts occupational performance for obese patients with UE tendinopathy, Nossum et al. (2018) conducted a cross-sectional qualitative study. In the study, 63 participants went through semi-structured interviews that focused on identifying occupational performance problems and the barriers causing these issues. The researchers found that the majority of problems were related to self-care, productivity, and leisure. Most barriers limiting occupational performance were found to relate to the participant's physical health, including difficulty

breathing and exhaustion during physical activities such as walking (Nossum et al., 2018). Appropriate physical health strongly determines whether an individual wants to participate in the community. If an individual is sleepy, the preference is to stay at home and rest. If the person tends to get social anxiety, the tendency is to stay in a place where there is no risk of experiencing anxiety. When an individual feels they have physical health barriers that limit performance, they may choose to minimize social participation rather than try to overcome the barriers they are experiencing.

Environmental barriers to social participation include narrow seats on public transportation and obese people lacking appropriately sized clothes (Nossum et al., 2018). Environmental barriers cannot be controlled by the individual, which can lead them to experience a sense of helplessness. For example, if seats are too narrow for obese patients to use, it discourages them from participating in their community because there are limited spaces for them to rest. If there are no appropriately sized clothes available to wear, an individual may look disheveled, which creates feelings of embarrassment when in public. The negative feelings can hinder a person's motivation to appear in public, decreasing their social participation and physical activity.

One of the most considerable barriers for those individuals with obesity is the lack of research for managing their tendinopathies (Maffulli, Longo, Loppini, & Denaro, 2010). While the tendinopathy may not be fully curable, being able to manage the symptoms enables the individual to continue to function in their everyday occupations (Maffulli et al., 2010). These reported barriers can be addressed within the practice of OT because the barriers are strictly related to the various domains of occupational performance. However, the role of occupational therapists (OTs) in the treatment of

obesity needs to be better understood. In the descriptive study conducted by Lucado, Taylor, Wendland, and Connors (2018), 43% of OTs surveyed were unsure if health promotion, wellness, and prevention practices were within the scope of OT practice. Currently, the evidence suggests that the majority of OTs treat obesity as part of a multidisciplinary team that includes nurses, psychologists, and dieticians, among others (Nielsen & Christensen, 2018). The primary intervention for obesity is to focus on physical activities, environmental adaptations, and dietary advice (Nossum et al., 2018; Lucado et al., 2018). Nielsen and Christensen (2018) found that most interventions are focused on weight loss, combining physical and behavioral treatment, instead of trying to improve all aspects of the person. OTs are equipped to address obesity and tendinopathies during treatment but do not have adequate research to help guide their practice. More research on obesity, tendinopathies, and its effects on social participation are needed so OTs can devise effective interventions.

The Role of OT

Since obesity impacts all areas of occupational performance, OTs can play a vital role in the health and well-being of individuals with weight problems. More specifically, CHTs can play an important role when addressing obesity. CHTs are in a unique position because of the hands-on treatment and face-to-face contact they have with their clients (Lucado et al., 2018). According to Nielsen and Christensen (2018), the effects of long-term treatment were more profound in interventions that required high client engagement and addressed the client's needs. Also, they found that OT played a role in maintaining weight loss for up to four years (Nielsen & Christensen, 2018). OTs can also help address lifestyle changes as they can educate clients regarding meal planning, relaxation

techniques, and coping skills (Nielsen & Christensen, 2018). OTs have the capability to address a wide variety of domains that usually require the expertise of multiple experts, including dietitians, mindfulness experts, and cognitive behavioral therapy (CBT) experts, which further emphasizes the importance an OT has for treating clients with obesity and UE tendinopathies.

Recharadt et al. (2010) explored the lifestyle choices of thousands of participants who were experiencing shoulder pain and were clinically diagnosed with chronic RC tendinitis lasting more than three months. The findings of this study indicated associations between numerous lifestyle factors and shoulder pain or chronic RC tendinitis. Lifestyle factors included carrying items that put stress on the shoulder, smoking, BMI, waist-to-hip ratio, waist circumference, carotid intima-media thickness, and type I diabetes mellitus (Recharadt et al., 2010). These findings suggest that creating a healthier lifestyle, such as losing weight or finding strategies to decrease the load on the shoulder while reaching overhead, lifting, and pulling, can reduce the chances of experiencing shoulder pain or possibly chronic RC tendinitis. Educating clients to shift their routine to a healthier lifestyle can help clients manage pain experienced because of tendinopathies.

Despite the potential positive impacts that OTs and CHTs can have, it has been found that CHTs often lack time during treatment, that patients sometimes lack interest, or patients struggle with the costs of such interventions (Lucado et al., 2018). Therefore, the purpose of the current thesis is to address the perceived barriers and improve client care by developing a convenient informational pamphlet that includes helpful resources

and intervention strategies for lifestyle changes. The use of the pamphlet will save OTs time during treatment while still addressing the client's needs.

Intervention Strategies

Exercise and Physical Activity

In terms of intervention strategies, there are various options connected to addressing different areas of occupations. The most commonly known strategy is increasing physical activity. For example, Yan et al. (2019) found out that 12-months of resistance training and aerobic training reduced participants' body weight, adipose tissue, and conversion rate to diabetes. It was also determined that having an active lifestyle can decrease tendon degeneration and can improve symptomatic tendinopathy, which also decreases musculoskeletal pain (Abate, 2014; Kotowski & Davis, 2010). One research study examined the treatments for tendinopathy, which include conservative management, eccentric exercises, and injections. Out of all the available treatments, performing eccentric exercises had the most beneficial clinical outcome, with no unfavorable effects (Maffulli et al., 2010). Eccentric exercises focus on stretching the tendon before adding a load of weight, which puts less tension on the tendon during the exercise (Maffulli et al., 2010). For example, when lowering the arm during a bicep curl, the bicep muscle and tendon are stretched in a controlled manner before shortening to bring the weight back towards the shoulder. Therefore, it is suggested that eccentric exercise should be used as one of the first treatment options for tendinopathies due to the increased benefits with minimal risks (Maffulli et al., 2010). Littlewood, Ashton, Chance-Larsen, May, and Sturrock (2012) also found that exercise is more effective when treating pain. They also found exercising can increase function for clients who have RC tendinopathies and can be as effective as surgical interventions. Home exercising has also been shown to relieve short-term shoulder pain and function. Abate (2014) suggested that obese individuals should engage in leisure sport activity; however, these individuals should be cognizant to not overload the tendons to where the symptoms increase

significantly in severity. Littlewood et al. (2012) determined common interventions for those with RC tendinopathies included stretching and resistance exercises that used TheraBands. The evidence suggests that maintaining an active lifestyle can decrease tendon degeneration and improve symptomatic tendinopathy (Abate, 2014).

Nutrition and Eating

Nutrition is a critical component in obesity intervention, and shown to have a similar degree of impact as physical training (Bales & Porter Starr, 2018). The literature consistently suggests that for greatest effect, nutrition management must be combined with the physical intervention (Bales & Porter Starr, 2018). OTs can use a variety of nutrition-related interventions in collaboration with nutritionists. For example, OTs can implement a behavior strategy called nudging with participants. Nudging involves modifying the environment to promote healthy-eating behavior (Walker, Chambers, Veling, & Lawrence, 2019). OTs can assist clients with buying and displaying healthy food in easily visible places, while safely putting away unhealthy food from their sight (Walker et al., 2019). OTs can also practice using smaller plates with clients to make the portion control easier (Walker et al., 2019). Using small plates can make meals appear bigger than perceived, and it also limits the amount of food a client eats in a single sitting.

Furthermore, in collaboration with a nutritionist, OTs can educate clients about necessary lifestyle changes like implementing a low-calorie, low-carbohydrate, and high-protein diet. These types of diets have been shown to be effective in weight management (Bales & Porter Starr, 2018; Looney & Raynor, 2013). In addition, OTs can work with a nutritionist in order to help address the nutritional needs. Nutrition can also be addressed

by changing the home environment. Kegler et al. (2016) conducted a randomized control trial where a health coach built a home environment profile to help guide participants to choose “healthy actions.” These actions included having “low-calorie beverages” available. Replacing high-calorie, sugar dense drinks with lower-calorie drinks like water or tea will discourage people from consuming unhealthier options. Another healthy action in the study was refraining from eating out (Kegler et al., 2016). When eating at a restaurant, people do not know what gets put into food. There is also no control over restaurant portions. This can translate into more abundant and higher calorie meals. Cooking at home gives people a better understanding of what ingredients go into the food. It also gives the client control over their portion sizes and what they put on their plate. Results indicated a significant decrease in energy consumption after 6 and 12 months (Kegler et al., 2016). This demonstrates how the home environment can positively influence eating habits.

Other Interventions

An intervention that combines the promotion of nutrition, physical activity, and social participation is community gardening. Mohamed, Azlan, and Talib (2018) conducted a quasi-experimental study with obese or overweight participants that compared the effect of community gardening combined with nutrition education (i.e., intervention) to a control group (i.e., no intervention). The community gardening was held three times per week, for a minimum of 30 minutes (Mohamed et al., 2018). The result revealed that community gardening increased the participants’ level of physical activity and decreased their body weight. It also promoted the participants’ vegetable intake significantly, and reduced their daily calorie ingestion (Mohamed et al., 2018).

Sleep is an occupation that is closely related to obesity but is rarely addressed (Lucado et al., 2018). A systematic review conducted by Coughlin and Smith (2014) revealed that sleep restriction or short duration of sleep is associated with weight gain and obesity. More specifically, the systematic review found that many cross-sectional and longitudinal studies have reported that decreased hours of sleep were related to increased BMI and obesity (Coughlin & Smith, 2014). Furthermore, numerous experimental studies have revealed the same result, arguing that sleep deprivation contributes to weight gain, as irregular sleep leads to the dysregulation of feeding hormones (Coughlin & Smith, 2014). As a result, reduced sleep is related to increased hunger, snacking, overeating, and cravings for carbohydrate-rich food (Coughlin & Smith, 2014). Therefore, interventions that address sleep hygiene can be an effective way for OTs to help clients with obesity and weight management.

Additional strategies such as self-monitoring, behavioral contracting, and self-reinforcements were found to have a significant effect on enhancing the participant's adherence to obesity management programs (Burgess, Hassmen, Welvaert, & Pumpa, 2016). A systematic review conducted by Burgess et al. (2016) examined adults with obesity and their adherence to lifestyle interventions with behavioral treatment strategies. Some of the effective behavioral therapy (BT) interventions from different studies included self-monitoring, which involved writing about their mood, habits, appetite, weight, and physical activity. Behavioral contracting and self-reinforcements are also useful in encouraging participation and making the client more accountable for their actions. Behavioral contracting is a strategy where the clinician and client agree on a set of behaviors the client will change (Kegler et al., 2016). Creating and signing a contract

can be an effective strategy for the client because the commitment is documented on paper. Having a signed document can be encouraging because it states clearly what the client should and should not do. Self-reinforcements are a means for people to reward or punish themselves (Burgess et al., 2016). Self-motivation is highly influential when trying to break unhealthy habits because it is the individual's drive that prompts them to continue changing their behavior. OTs can incorporate these BT interventions into their practice setting as a primary method of weight loss by educating clients and modifying activities to improve their adherence to obesity management programs.

Cognitive strategies

Treatments based on cognitive strategies are also useful. Both CBT and BT have also been found to be an effective strategy to combat obesity. A randomized controlled trial by Cooper et al. (2010) investigated the different effects of guided self-help, BT, and CBT treatments for women who are obese. Participants in the BT and CBT groups lost significantly more weight than those in the guided self-help group after 24 weeks (Cooper et al., 2010). CBT also helped participants accept their body shape. However, at the three-year follow up, the researchers found almost all participants had regained almost all their weight. This study demonstrates that BT and CBT can help people with initial weight loss. However, the treatment needs to be supplemented with physical activity and a balanced diet for the weight loss to be long-term.

Furthermore, CBT was also found to be effective in treating binge-eating disorder (BED), which is caused by stress and can contribute to weight gain (Ricca et al., 2010). BED is a clinical condition where an individual eats an unhealthy amount of food at one time. As people who have this condition regularly consume excessive calories, they are

more likely to be overweight. Ricca and colleagues conducted a randomized controlled trial study for individuals with BED with a three-year follow-up comparing the effectiveness of individual CBT (I-CBT) and group CBT (G-CBT). The interventions included nutritional advice, education about the role of diet and exercising, self-monitoring, and coping techniques to avoid binge eating. CBT interventions provided assignments for the participants to complete, such as daily monitoring of activities and food diaries. There was no significant difference between I-CBT and G-CBT groups. There were positive outcomes of BED recovery and diagnostic change rates (Ricca et al., 2010). Results imply that CBT is an effective intervention for individuals with BED. This can be generalized to using CBT for adults who are obese without BED because it addresses maladaptive thought patterns. Using either I-CBT or G-CBT works effectively to combat obesity and can be supplemented with other interventions.

Mindfulness is another useful strategy. Mindfulness involves responding to physical cues of satiety, being aware of what is being consumed, and meditation. Mason et al. (2016) used mindfulness strategies to have clients practice using their senses while eating, while Hardison (2018) focused on mindful-meditation and biofeedback. Using the five senses while eating can help the clients focus on what is being consumed instead of continuing to eat after they feel full. Studies found that participants who practiced mindfulness were able to reduce their sweets consumption for 12 months (Mason et al., 2016), and had lower anxiety levels (Hardison, 2018). Reducing the number of sweets decreases empty caloric intake and creates opportunities to eat nutritious snacks. Therefore, mindfulness may be a beneficial intervention to implement either before or alongside standard hand therapy.

Another effective cognitive strategy is a type of training called go/no-go training (GNG). With GNG, participants are instructed to press a “go” button when they see a picture of healthy food, and not press a button when they see a picture of unhealthy food that is high in sugar, salt, or fat (Walker et al., 2019). This simple cognitive training facilitates the pairing of “go” or “no-go” cues with healthy or unhealthy food choices, and therefore reducing the tendency of participants to choose unhealthy diets. Walker et al. (2019) found that GNG was found to be effective in many studies for reducing obese participants’ engagement in an unhealthy diet. This indicates that GNG is a potentially effective intervention strategy for obese patients with tendinopathy.

Motivational interviewing and cognitive reconstructing are also techniques that can direct a client’s mindset to healthier actions (Burgess et al., 2016). Motivational interviewing is a conversation between client and clinician, where the clinician guides the individual towards “self-motivational statements” that encourages action on the client’s part (Burgess et al., 2016). Instead of the clinician dictating what the client should do, the client finds their drive to create healthier changes. When motivation comes from within, clients can find it easier to make changes and stick to the changes over time. Cognitive restructuring has also been found to be a useful technique. This strategy requires the client to change negative, self-defeating thoughts that can hinder their ability to maintain healthy habits or stick to a treatment (Burgess et al., 2016). Dealing with obesity can have adverse effects on one’s self-esteem, making it harder for an individual to adhere to lifestyle changes for an extended period. Positive thinking can benefit clients by putting thoughts into actions and maintaining health-promoting habits. Changing negative thoughts to positive ones can help increase motivation to achieve a healthier lifestyle.

In summary, the literature supported the relationship between obesity and various tendinopathies, such as RC tendinopathy, lateral epicondylitis, medial epicondylitis, OA, and CTS. The literature also addresses intervention strategies to manage obesity, in which OTs have great potential to be a part of. In the behavioral domain, increasing physical activity and modulating nutrition were found to be effective. In the cognitive domain, mindfulness, GNG training, CBT, motivational interviewing, and cognitive restructuring yielded positive results. Additionally, other potential interventions included sleep management and community gardening (Coughlin & Smith, 2014; Mohamed et al., 2018).

Statement of Purpose, Hypothesis, and Research Questions

There are two main purposes for this study. The first purpose is to create an educational pamphlet intended for adults with obesity and UE tendinopathy and HTC and CHT. Second, to have HTCs and CHTs evaluate and survey the pamphlet on its understandability and actionability. Based on the results, the higher the score, the more understandable and actionable the pamphlet is to hand therapists. A higher score would be evidence that hand therapists would benefit from the availability of educational material addressing UE tendinopathies, obesity, and social participation to use in their practices.

Our research question was the following: Will HTCs and CHTs find an educational pamphlet, which includes obesity management tips, understandable and actionable in promoting occupational participation of obese patients with tendinopathy? The pamphlet addressed the link between obesity and tendinopathies and how it affects social participation. Of the practitioners that participated, 79% stated they found the

pamphlet to be understandable, while 75% of them found the pamphlet actionable in the hand therapy setting.

Theoretical Framework

The purpose of this study was to evaluate the understandability and actionability of an educational pamphlet created for obese patients with UE tendinopathy. We used CBT as the theoretical framework that guided the development of the information included in the pamphlet. Established by theorists such as Bandura, Beck, Ellis, and many more, CBT is a framework with a primary assumption that thoughts and behaviors are interrelated (Cole & Tufano, 2008). CBT argues that human behaviors are shaped and determined by underlying thoughts, and maladaptive thoughts lead to maladaptive behaviors (Cole & Tufano, 2008). Therefore, the focus of CBT is to address maladaptive thoughts in order to reduce maladaptive behaviors and cultivate self-regulation (Cole & Tufano, 2008).

That CBT as a framework considers both behavioral and psychological aspects holds significance for the current study. This is a unique characteristic of CBT not found in other theoretical frameworks, for instance the applied behavioral framework, or the biomechanical framework. Considering both behavioral and psychological aspects is beneficial because it leads to a holistic approach in designing treatment. This is particularly important for CHTs treating obese patients with UE tendinopathy because the population experiences serious occupational interruptions in both areas.

The primary behavioral interruptions for obese patients with UE tendinopathy are twofold: a decreased ability to engage in physical activities, and also a decreased motivation to participate in such activities. First, increased body weight itself can hinder

a patient's ability to participate in physical activity (Wiklund, Olsén, & Willén, 2011). Having a bigger body composition makes it more difficult for patients to have control over their body parts (Wiklund et al., 2011). Also, obese patients might not have access to certain types of physical activities because the required apparatus is not big enough to accommodate their bodies (Wiklund et al., 2011). Another contributing factor is pain. In many cases, when UE tendinopathy is combined with obesity, the person affected experiences acute and chronic musculoskeletal pain, which has a negative influence on their ability to engage in physical activities (Franceschi et al., 2013). Joseph et al. (2019) revealed that obese patients reported a significantly lower level of physical activity when compared to non-obese patients. With a limited ability to engage in physical activities, the level of impairment for obese patients with UE tendinopathy can get severe quickly. A sedentary lifestyle that increases the likelihood of weight gain, can worsen the symptoms of UE tendinopathies (Joseph et al., 2019; Franceschi et al., 2013). Eventually, it leads to the interruption of various occupations that involve physical activity, such as bathing, grooming, sexual activity, education, work, and leisure.

In terms of psychological interruptions, evidence suggests that obese patients feel increased discomfort about being in public than those who are not obese (Wiklund et al., 2011). They report feeling inadequate in many social situations, with the expectation of critical stares from others being the most challenging component (Wiklund et al., 2011). In response to a question asking if stares from others prevented participation in any occupation, one client with obesity answered, "That's what stops me. Not that I can't do it, but I don't want to stand there and be stared at" (Wiklund et al., 2011, p. 183). The

quote demonstrates that the fear of being judged and stared at is a psychological barrier that can interrupt the patient's engagement in occupations.

Stress is another psychological interruption for obese patients with UE tendinopathy that prevents participation in occupations. Elevated stress is related to greater consumption of foods high in sugar and fat, which facilitates weight gain (Snowdon, 2016). As mentioned, increased body weight prevents engagement in many occupations (Snowdon, 2016). Furthermore, stress is a risk factor for depression, anxiety, and low self-esteem, which could also lead to occupational disruption (Snowdon, 2016). The reduced sense of self is also associated with decreased engagement in self-care behaviors, such as proper weight management and maintaining healthy lifestyles (Snowdon, 2016).

Behavioral and psychological interruptions both play a significant role in the occupational disruption of obese patients with UE tendinopathy. For example, elevated stress facilitates weight gain, which then leads to decreased physical ability to engage in occupations. Therefore, a treatment that considers both behavioral and psychological aspects would not only yield a holistic outcome, but it will also have a more profound impact on the patients' progress. In summary, the purpose of using CBT as the framework is to make our approach holistic, and ensure our intervention—the educational pamphlet—considers both the behavioral and the psychological health of patients.

Methodology

This thesis project was split into two parts: (1) creating the pamphlet, and (2) conducting an understandability and actionability survey.

Creating a Pamphlet

Literature Review

The first step taken to create the pamphlet was to conduct an extensive literature review. Three systematic criteria were used to find the most relevant articles for the study. Articles had to be published within the last ten years, address a combination of obesity, tendinopathies, or social participation, and they had to be within the first three levels of evidence. There were no country exclusions. After finding a relevant article, we were required to do an article review, a document that outlined the study objectives, study design, subject inclusion and exclusion criteria, sample size, intervention used, outcome measures, results, and limitations of the study.

Once the article review was complete, we met with our thesis advisor to determine if the article was appropriate to be included in the literature review. If the article was appropriate, we discussed how the information could be applied to the purpose of the thesis project. Our review also established the need for the pamphlet, as we identified that no previous studies had linked obesity, tendinopathies, and social participation. If the article did not meet the criteria or was not deemed appropriate for the project, the process of finding an article and completing an article review was repeated. At the end of the literature review, 32 articles were included in the literature review as relevant to our research topic.

Organize Information

The information was organized into five categories: (1) how obesity affects UE tendinopathies, (2) how the comorbidity of obesity and tendinopathy influences social participation, (3) information about current treatment practices, (4) contact information of

the researchers, and (5) external references for participants to find more information. All informational content in the first three categories was based on the literature review outlined above. The content was written in lay language to help clients easily read and comprehend the information provided.

Design

Once the content of the pamphlet was determined, the design of the pamphlet was next. The pamphlet was created using Microsoft Publisher. It was a tri-fold design with information on both sides. Each panel of the pamphlet contained information from one of the five categories listed above.

Draft and Revise

After the content and design of the pamphlet were determined, a first draft was created. Our thesis advisor reviewed the first draft. The content of the pamphlet needed revisions and editing. The process of revising and receiving feedback continued until our thesis advisor determined the pamphlet was ready to be sent out and reviewed.

Conducting a survey

The purpose of conducting a survey was to determine the understandability and actionability of the pamphlet researchers created.

Participants

Participants in this study were those who completed the survey. Inclusion criteria stated that participants needed to have an HTC or CHT credential and be at least 18 years of age. Although it is more common for OTs to provide hand therapy services, physical therapists (PTs) can have hand therapy certifications also. PTs were welcome to participate in the study if they were referred. We excluded those who lack an advanced

hand therapy certification, such as an HTC or CHT credential, or if the participant was younger than 18 years old at the time of the study. Major demographic characteristics of participants—such as age, sex, ethnic or racial group, or level of education—were not collected.

Recruitment Procedures

We used snowball sampling. Our thesis advisor provided us with a list of contacts who met the study's criteria. These contacts were defined as our “primarily referred to” participants. Primarily referred participants were sent an email (see Appendix A) from handproject@my.stanbridge.edu containing information about the study, the pamphlet we created, and a SurveyMonkey link to access the survey. Although our thesis advisor was the initial referral source of potential participants, she was not asked to complete the survey.

Primarily referred participants had an option at the end of the survey to input emails of other HTCs and CHTs who may be interested in the study. We used emails provided by primarily referred participants to recruit more potential participants. These participants are “secondarily referred” participants.

Secondarily referred participants had the same option to input emails at the end of the survey to continue the referral process. Ideally, all participants would have provided at least one email that we could send the study to. The process of using a chain referral was used to create a “snowball effect,” potentially increasing the sample size. Responses to the survey were accepted until June 9, 2020. There was no monetary cost to participate in the study. There was a time commitment of 15 to 20 minutes to review the pamphlet and complete the survey on SurveyMonkey.

Survey Materials

The survey was a SurveyMonkey version of the Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P). The PEMAT-P is provided by the government and is part of the public domain for anyone to use. Participants were required to acknowledge their informed consent and answer three supplementary questions to determine their eligibility for the study.

The PEMAT-P is an assessment tool used to determine if clients can understand and make use of the information in education materials. PEMAT-P is divided into two sections, understandability and actionability. It has a total of 26 questions. First, the participant reviewed the educational material. Then, the participant read the given statement (such as “The material makes its purpose completely evident”) on the PEMAT-P. Finally, the participant chose to agree (1 point), disagree (0 points), or N/A if the statement was not relevant to the material. All responses related to the participant’s opinion of the pamphlet.

Once the participants completed and submitted their PEMAT-P survey responses on SurveyMonkey, we collected and organized the survey data to evaluate participant responses. Responses were categorized into two parts: understandability and actionability. Then, the categories were broken down into individual questions to determine which parts of the pamphlet were well-received and where the manual could be improved.

Storage Procedures

No personal information of the participants was known other than the participant’s email. All emails were stored on a secured Stanbridge email account

(handsproject@my.stanbridge.edu) and SurveyMonkey. We were the only people who had access to both accounts. There was a risk for primarily referred to participants' personal information to be revealed since the thesis advisor knows them personally. Survey responses were anonymous, so there was no risk of revealing any personal identifiers. All survey responses were stored in SurveyMonkey and were exported to a secure Stanbridge University email account (handsproject@my.stanbridge.edu). The data will be disposed of after two years.

Data Analysis

The PEMAT-P has an established method to calculate the scores for each response. Since the survey is divided into two sections, each survey response had two scores—understandability and actionability. The score for each section was totaled, divided by the total possible score, and multiplied by 100 to generate a percentage. The total possible score was the number of items that were rated. If any item was scored N/A, that question was excluded from the total possible score. A higher percentage indicates better understandability or actionability of the pamphlet.

Data for each question was compiled among all survey responses and converted to percentages. A bar chart was created to provide a visual aid to display results. This helped us to determine the strengths of the pamphlet and what needs to be improved.

Limitations

Recruiting participants through snowball sampling had its limitations. Snowball sampling is a non-probability sample method, meaning the selection of participants is not random. This presented selection bias when participants choose whose email to provide at the end of the survey. Selection bias was decreased by having primarily referred

participants refer to future participants, or secondarily referred participants. This ensures that we were not involved in recruiting secondarily referred participants and onward.

Secondarily referred participants and future participants were not informed of Dr. Wang's involvement in the study, so there were no preconceived perceptions of the study.

Participant characteristics may not be representative of all HTC and CHTs. The sample size was also small ($n = 7$). Therefore, results are not generalizable.

Ethical and Legal Considerations

There were ethical and legal considerations that needed to be considered for this research. The pamphlet did not have any information that can harm the patient.

Precautions and information on how to implement interventions safely, including health and environmental concerns, were included. The pamphlet also clearly stated that the information does not replace doctor-recommended medication or treatments. All recommendations provided were legal and appropriately cited, so clients who wanted further information could access reliable resources.

Ethics also influenced how we worded the pamphlet. As some of the information may be a sensitive topic for some, it was essential to keep the content in a neutral, informative tone. The educational pamphlet was provided directly to CHTs and HTCs, who also have to consider if the pamphlet is appropriate for their client. CHTs and HTCs would have to consider all types of populations when using the pamphlet with their clients. Some considerations included poor literacy, cognitive impairments, socioeconomic status, and people who have physical or mental limitations.

There were also ethical and legal considerations for survey distribution. Before taking the survey, participants needed to be aware of their rights. An informed consent

form (see Appendix B) was presented digitally at the beginning of the survey, giving an option for participants to either voluntarily participate or refuse to participate. This form stated that even after agreeing to participate in the beginning, participants could withdraw at any time. Additional consents from facilities or for the use of photographs were not needed in this research. Each question response had a “Not Applicable (N/A)” option. If the question did not apply to the pamphlet or if the participant did not want to respond to the question, they could select N/A. Also, at the end of the survey, participants were asked to input additional emails of therapists who have an advanced practice in hand therapy. This question was optional, so participants could still complete the survey if they chose not to provide any contact information of any other possible participants.

The survey is available for the public to use on the Agency for Healthcare Research and Quality website. It is important to note the wording and numbering of the questions on SurveyMonkey reflect what is published on the website to keep the integrity of the survey intact.

Results

The results for each SurveyMonkey question are presented in Appendices D, E, and F. The survey and pamphlet were initially sent out to 12 participants. Of the 12 participants, only seven individuals met the preliminary requirements and were included in our study. There were no secondary emails provided by the original participants to forward the survey.

Appendix D, E, and F provide detailed results of each understandability and actionability question. The pamphlet had a percentage score of 80% for understandability (see Appendix G). The only subcategory for understandability that had a lower score was

the use of visual aids. The use of visual aids scored 60%. For actionability, the pamphlet had a percentage score of 76% by the participants (see Appendix H). The results from the survey show that the pamphlet was both understandable and actionable from the CHT and HTC perspective.

Discussion

Survey results revealed that participating hand therapists found the pamphlet to be understandable and actionable. In terms of understandability (see Appendix D and E), most participants agreed that the pamphlet's content was focused, clear, and purposeful, with appropriate use of common language and an active voice. Overall, the participants were satisfied with the design, layout, and organization of the pamphlet. They agreed that the materials were successfully divided into smaller sections and maintained their logical sequence. On the other hand, scores for the use of the visual aids were relatively low. This is because the number of participants who chose "N/A" for this section was higher compared to the other sections. This indicates that the participants perceived the use of visual aids as an insignificant aspect of the pamphlet. Such responses were predicted and understandable. The pamphlet is primarily based on the written information, and visual aids were minimally involved. We wanted to ensure the pamphlet is concise and therefore portable, which resulted in a lack of space for the active incorporation of visual aids. However, since visual aids can make the delivery of the content more efficient, modification of the pamphlet to include more visual aids can be considered for future research. For example, some of the written content could be reorganized into a chart or a diagram. Also, helpful diagrams, such as a picture of a plate with recommended portion size, could be inserted as an additional guideline. Despite the lower scores in the section

of the visual aids, the fact that the overall pamphlet was determined to be understandable by hand therapists is an important implication for the study. It indicates that clarity and understandability of the pamphlet were considered to meet the professional standards of hand therapists, verifying the pamphlet's potential to be used as a supplemental intervention strategy. Furthermore, it also indicates that the pamphlet effectively delivered its content in a logical and well-organized manner.

In terms of actionability (see Appendix E), participants unanimously agreed that the pamphlet suggests at least one action that the readers can take. Also, the majority (85.71%) of participants agreed that the pamphlet successfully broke down suggested actions into manageable steps and provided a tangible tool to facilitate the actions. These responses indicate that the pamphlet can successfully serve the role of an effective behavioral guide that facilitates appropriate actions for the readers. In other words, the pamphlet can be used as a useful guide for clients to take necessary actions to increase their health and occupational participation. This result, again, supports the pamphlet's potential to be used as a supplemental intervention strategy. Since the pamphlet did not include calculations, graphs, tables, or diagrams, many participants chose "N/A" for questions evaluating these aspects. The main contributing factor for less involvement of graphs, tables, and diagrams was also the lack of available space in the pamphlet. The study primarily used written descriptions because it was thought to be better at accurately delivering the content in a limited space than simply presenting graphs, tables, or diagrams. However, because incorporating graphs, tables, or diagrams can contribute to visual variability of the content, increased inclusions of these items can be considered for

future research. For example, the pamphlet could include a graph of relevant statistics or a table containing behavioral strategies.

The primary role of OTs as health care professionals is to support client health and well-being by increasing engagement in occupations. Using an educational pamphlet that is both understandable and actionable can support OTs' role for the following three reasons. First, it would allow OTs to provide holistic care which also attends to the clients' well-being outside of therapy sessions. Second, the pamphlet would allow OTs to achieve the goal of improving client's well-being with greater convenience by reducing the time required for client education. This will allow OTs enough time to thoroughly address other therapy objectives. Also, the pamphlet will provide clients with continuous and immediate access to helpful guidelines, reducing possible risks caused by delay in communication between OTs and clients. Third, the pamphlet addresses obesity, UE tendinopathy, and social participation simultaneously, which no other research study has done before. This is a unique strength of the pamphlet that allows OTs to provide effective information for clients with obesity and UE tendinopathy. Specific therapeutic implications of the pamphlet will be further discussed under clinical implications.

Limitations

There were two limitations to the research. First, the sample size was small. The study included a total of 7 participants. This makes it difficult to generalize results. The main contributing factor for the small sample size was the difficulty of obtaining additional referrals from participants. None of the participants provided referral contacts at the end of the survey, and this hindered the snowball effect that was originally planned as a part of the recruiting measure. Another contributing factor was a time constraint,

which is an inevitable aspect of a thesis project. For future studies, reducing the time constraint and posting a recruitment announcement to various hand therapy organizations instead of relying on participants for further recruitment can increase the sample size.

The second limitation was the misleading wording of a qualification question in the survey. Hand therapists typically include both CHTs and HTCs. One of the qualification questions said, “Are you a certified hand therapist?” This question was meant to ask if the participant had a hand therapy certification, which could be either CHT or HTC. However, the way that the question was worded made the participants think that the question was asking if the participant is a CHT. As a result, some of the participants selected “No” to this question, which consequently disqualified them from the survey. This miscommunication was found in the early phase of the survey, and the question was changed to “Do you have advanced practice in hand therapy?” Following the change, no participant was disqualified due to this question. Future studies can review the survey with a professional in a relevant field before distribution will improve the clarity of questions and lead to more respondents.

Clinical Implications

A pamphlet that addresses UE tendinopathies, obesity, and social participation is a practical tool for hand therapists to use when addressing obesity’s effects on tendinopathies with their clients. As discovered in the literature review, lack of time was the most significant barrier for CHTs to address obesity during therapy sessions. A pamphlet created for clients that is easy to understand could reduce the time barrier. The pamphlet can also serve as a means to open up the conversation of how obesity impacts UE tendinopathies. This will give the client opportunities to ask the hand therapist

specific questions that pertain to their situation, such as “How can I use these strategies in my daily routine if I am a single parent working full time?”

Conversely, the hand therapist will also have the chance to guide and tailor the conversation based on the client’s individual needs. When the OT can provide their specialized insight in combination with tangible strategies that the pamphlet provides, it has the potential to increase client understanding. Subsequently, their motivation to change has the potential to increase since the hand therapist can tailor interventions based on the client’s personal lifestyle. Being aware of how these three factors—obesity, UE tendinopathies, and social participation—influence one another is essential to their progress in therapy and, ultimately, their participation in everyday occupations.

The pamphlet also provides clients with practical tips, as evidenced by the 76% actionability score. Considering that lack of client interest and economic limitations were additional barriers that prevented OTs from addressing obesity, providing clients with small action steps that fit into their daily routines can spark some interest in the topic. Implementing changes that do not interfere with current routines will enable clients to feel like change is possible. The client can reference the pamphlet as needed and take the steps that are outlined to improve their condition and increase their social participation.

In addition to providing clients with information, hand therapists can benefit from the pamphlet as well. The literature review revealed that 43% of OTs did not know if obesity fell within their scope of practice (Lucado et al., 2018). The pamphlet identifies that OTs certified in hand therapy are equipped to address obesity during therapy sessions. If a hand therapist is unsure if obesity is within the scope of OT, the pamphlet

can serve as a quick, informational reference for the OT so they can begin more in-depth research on the topic.

It is unclear if the pamphlet will become immediately available for therapists to use in their practice after this project has been completed. However, its use in practice will be beneficial because it addresses a significant concern for hand therapists—time. Generally, OTs need to have additional tools readily available when working with clients because session times are limited. Although CHTs and HTC's deemed the pamphlet understandable and actionable, investigating if the pamphlet increases client knowledge is another factor that can be explored by further research. It is important to note if client knowledge improves after reading the pamphlet because furthering client knowledge of their condition is essential to create long-term lifestyle changes.

Conclusion

The study had two main purposes. First, to develop an educational pamphlet for HTC's and CHTs and clients with a comorbidity of obesity and tendinopathy. Second, to determine the understandability and actionability of the pamphlet by surveying HTC's and CHTs. These purposes were formulated based on four important facts found by the review of the literature. First, the evidence suggested that obesity and tendinopathy are interrelated, revealing that obesity has negative impacts on the symptoms and prognoses of tendinopathy, along with social participation. Second, despite the existence of such a relationship, there is a lack of research that addressed the effects of obesity and tendinopathy on social participation. While there were articles that addressed two out of those three components, there were zero articles that addressed all three together. Third, there is also a severe lack of supportive materials that can be given to patients who have a

comorbidity of obesity and tendinopathy to increase social participation. Fourth, based on the literature review, advanced practice hand therapists are unaware of their role in addressing obesity within their scope of practice.

Therefore, this study sought to create an educational pamphlet that the hand therapists can provide to clients who have obesity with UE tendinopathy for additional support outside of therapy sessions. To test if the pamphlet qualifies as a supplemental intervention strategy that can be provided by hand therapists, the study surveyed CHTs and HTC's to determine its understandability and actionability. The intended outcome of this study was to have participants highly rate the pamphlet in both understandability and actionability, indicating that the pamphlet would be useful. The result of the survey supported the pamphlet's potential as a supplemental intervention strategy.

The effectiveness of the pamphlet has meaningful clinical implications for OT practice and clients with obesity and a tendinopathy. First, the pamphlet allows OTs to provide holistic care by providing patients with additional support that can be used outside of therapy sessions. Second, it reduces the time required for client education, allowing OTs to have additional time to fulfill other therapy objectives. Third, the pamphlet provides clients with convenient access to helpful information that can improve daily occupations. As discussed previously, obesity combined with tendinopathy negatively impacts social participation, a major occupation identified by AOTA, has been established through literature review (Abate, 2014; Kotowski & Davis, 2010; Gaida et al., 2009). It was also revealed that limited social participation could lead to drastic reduction in quality of life, contributing to increased pain, tendon degeneration, and low self-esteem (Nossum et al., 2018; Riffer et al., 2019). Therefore, by implementing healthy

lifestyle changes included in the pamphlet, OTs will be able to improve the client's symptoms, leading to better occupational experiences and social participation.

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Appendix A

Recruitment Email

Subject: Invitation to Participate in Stanbridge University Thesis Research

Body:

You are invited to participate in a research study conducted by occupational therapy students at Stanbridge University. The objective of this study is to evaluate the understandability and actionability of an educational pamphlet that connects obesity to tendinopathies, and how it impacts social participation. The information on the pamphlet we created was gathered through an extensive literature review.

You will be asked to review the attached pamphlet and complete a 26-question survey on SurveyMonkey that evaluates the understandability and actionability of the material. The link to the survey can be found at the bottom of this email. The survey is called the Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P). The estimated time to review the pamphlet and complete the survey is 15-20 minutes maximum.

The responses to the survey will be based on your clinical opinion. You (the participant) are not expected to implement interventions or impart any information on this pamphlet to clients. The results of the survey will be used to determine if clinicians believe this pamphlet is a useful resource for clients with obesity and tendinopathies.

Although not required, if there are other hand therapy certified occupational therapists or certified hand therapists who may be interested in this topic, you are encouraged to share this email. Receiving diverse feedback will help enrich our results, and any feedback would be greatly appreciated.

Participation in this research is voluntary and you have the right to withdraw at any point.

If there are any questions, please email handsproject@my.stanbridge.edu.

Thank you for taking the time to participate in our research!

Sincerely,
Bose Bustamante, OTS
Malia Ertel, OTS
Lana Ignacio, OTS
Jihyun Lim, OTS

UPDATE: The question "Are you a certified hand therapist?" has been changed to increase participant inclusion. If you have an advanced practice in hand therapy, you may now be eligible to participate in the study.

SurveyMonkey Link: <https://www.surveymonkey.com/r/MT5SR27>

Appendix B

Consent Form

Master of Science Occupational Therapy

STANBRIDGE UNIVERSITY RESEARCH CONSENT FORM

Description: You are invited to participate in a research study on the understandability and actionability of an educational pamphlet about obesity's effects on hand tendinopathies. You will be asked to complete a 26-question survey called the Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P) based on the pamphlet attached to this email. The PEMAT-P survey will be completed online from a website called *SurveyMonkey*. Results will be anonymously received and forwarded directly into a secured and password-protected Stanbridge university email. The results of the survey will be used to determine if clinicians believe this pamphlet is a useful resource for clients with obesity and tendinopathies. The findings of the study may be presented through school research colloquiums and/or other major conferences such as the American Occupational Therapy Association (AOTA).

Your Time Involvement: Your participation will take approximately 15 to 20 minutes maximum

Risks and Benefits:

There are risks and benefits to completing this survey. If you choose to participate, a risk you may experience is a loss of time. The estimated time to review the pamphlet and complete the survey is 15-20 minutes. A benefit will be contributing to research that can provide clinicians with additional educational material that can help clients who are obese and have tendinopathies.

Payment: Reviewing the pamphlet and completing the survey requires no monetary cost nor monetary compensation for the participant.

Participant Rights: If you have read and signed this form you are consenting to participate in this study. Participation in this study is voluntary and you have the right to withdraw at any point without penalty. Your alternative is to not participate in this study. You have the right to refuse to answer specific questions. Your identity will not be disclosed at any time as the results will appear solely and anonymously. The results of this study may be presented at professional conferences such as the American

Occupational Therapy Association (AOTA) or potentially published in scientific journals (E.g. American Journal of Occupational Therapy). All results will be disseminated without identifying individuals that participated in the study.

Contact Information: If you have any questions about this research, you may contact:

Faculty Advisor: Rebecca Wang, OTR/L, OTD, CHT

Phone: (888)-789-6208

Email: rwang@stanbridge.edu

Independent Contact: If you are in some way dissatisfied with this research and how it is conducted, you may contact the Stanbridge University Vice President of Instruction at VP.instruction@stanbridge.edu

Indicate Yes or No

I give consent for my identity to be revealed in any materials resulting from this study.

_____ Yes _____ No

Please keep a copy of this signed and dated consent form for yourself.

Signature

Date

Appendix C

Figure 1a

Pamphlet Side One



WHO CAN HELP?

Occupational Therapists

Certified in Hand Therapy:

- Specialist to alleviate symptoms from hand injuries.
- Helps clients develop lifestyle modifications to increase participation in meaningful activities.

Registered Dietitian/Nutritionist:

- Provide healthy meal plans.
- Determine vitamin and mineral deficiencies.

Talk to your healthcare provider for further community resources or primary physician to receive a referral for services.

References

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HAND INJURY AND OBESITY: DAILY LIFE STRATEGIES FOR STAYING HEALTHY AND ACTIVE

Figure 1b

Pamphlet Side Two



LINK BETWEEN OBESITY AND UPPER EXTREMITY INJURIES

Excessive body weight places more stress on many joints including the ones on your upper extremities (UE). The added stress on joints can result in different UE injuries such as hand osteoarthritis, carpal tunnel syndrome, and other tendinopathies and epicondylitis.

SOCIAL PARTICIPATION

Hand injuries can disrupt your engagement in essential activities like brushing your teeth, typing at work, or playing a sport/instrument that is meaningful to you.

Reducing excessive body weight has a positive impact on improving your health and social participation.

TIPS TO IMPROVE WEIGHT



Increase Daily Physical Activity

Physical activity is well-known to slow down, stop, and reduce weight gain. You can include physical activity throughout your day by following the action steps listed below.

- ◆ Park farther away from a store
- ◆ Use the stairs instead of elevator
- ◆ Engage in community activities (group yoga, community gardening)
- ◆ Find an enjoyable activity (walking your dog, swimming, sight-seeing)
- ◆ Stand to walk in place and stretch during TV commercials or working on a computer.



Healthy/Nutritional Eating

Nutrition is as impactful as physical activity in weight loss. It is important that you adopt healthy eating habits for your health.

- ◆ Consult with a nutritionist or dietitian for an appropriate meal plan.
- ◆ Find meal replacements (nutrition bars or shakes) with health professional.
- ◆ Keep a food intake journal. Add how satisfied you feel after each meal from a scale from 1-10 (10 being full).
- ◆ Use smaller plates or prepare meals in advance to ensure portions are controlled and balanced nutrition.
- ◆ Find recipes of your favorite shakes that includes fruits and vegetables.



Improve Sleeping Habits

Not getting enough sleep releases feeding hormones that contribute to weight gain.

- ◆ Set a specific bedtime schedule that results in at least 8 hours of sleep. (If you need to wake up at 6AM, set your bedtime at 10PM)
- ◆ Exercise can promote tiredness at night.
- ◆ Avoid caffeinated drinks before bedtime (coffee, tea, soda).
- ◆ Perform calming activities before sleeping (reading, meditation, yoga).
- ◆ Preset your phone and apps to night mode and enable blue light filter.



Thinking Strategies

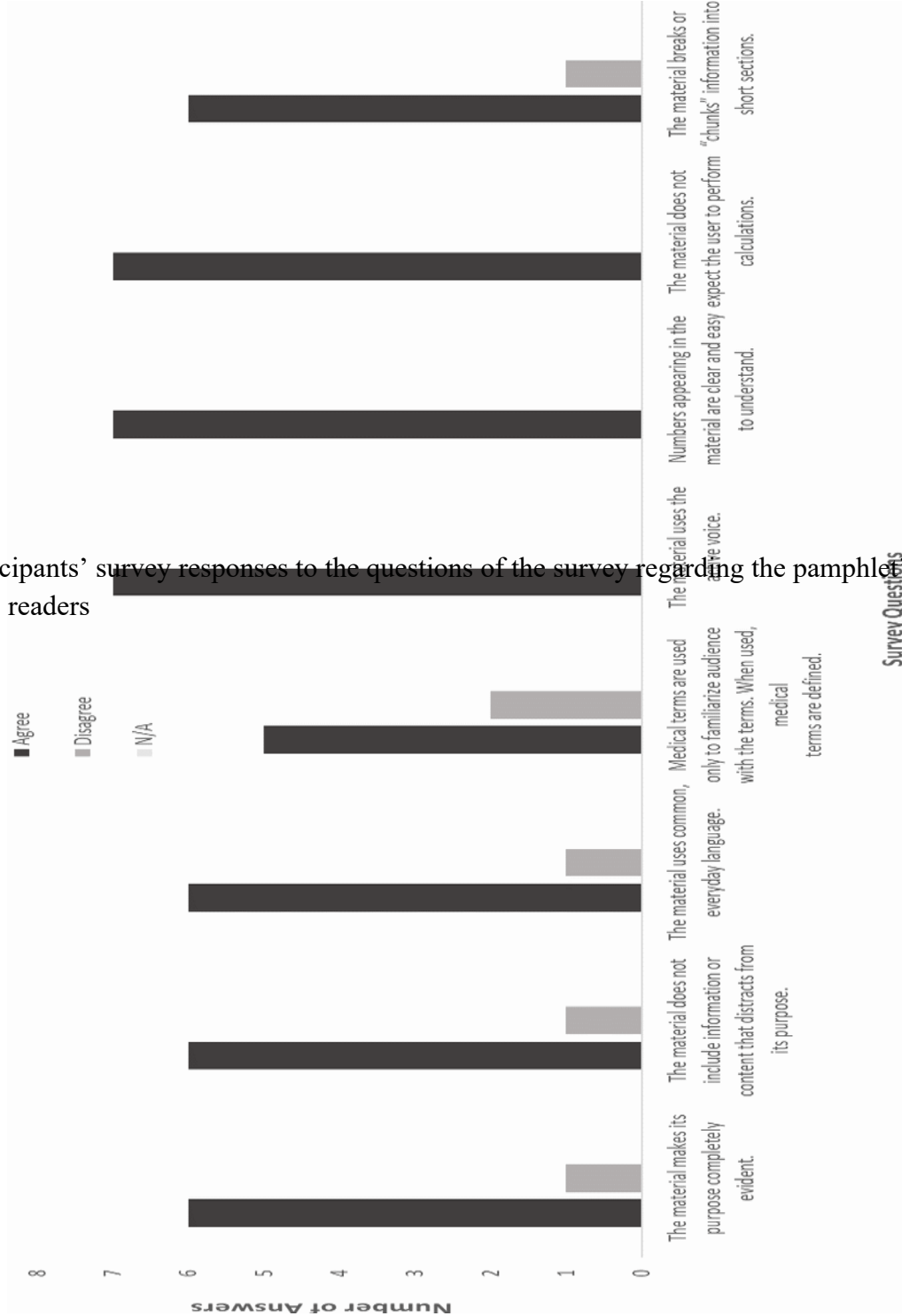
Changing your thought process helps manage cravings and temptation. It can also help with decreasing pain, anxiety, and stress associated with tendinopathies.

- ◆ Focus on the act of eating and enjoy the experience with all senses to increase satiety after eating a meal.
- ◆ Be aware of your body's feeling to distinguish between overeating and eating to satisfaction.
- ◆ Turn off distractions (using TV or phone)
- ◆ Think and identify nutritional options on the menu before ordering.

Appendix D

Figure 2a

Results for Each Understandability Questions 1-8

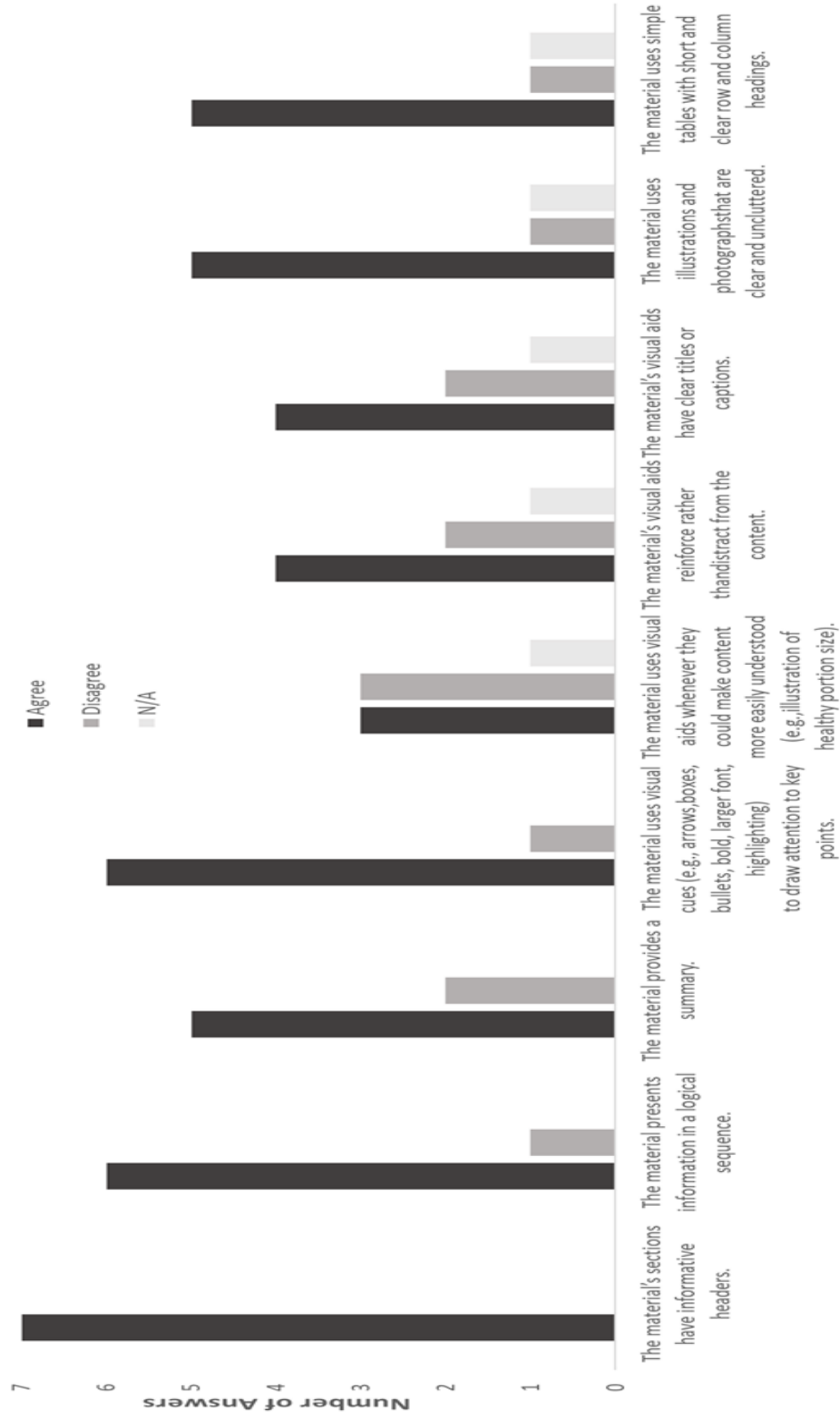


Note. Participants' survey responses to the questions of the survey regarding the pamphlet's understandability towards its readers

Figure 2b

Note. Participants' survey responses to the questions of the survey regarding the pamphlet's understandability towards its readers

Results for Each Understandability Questions 9-17

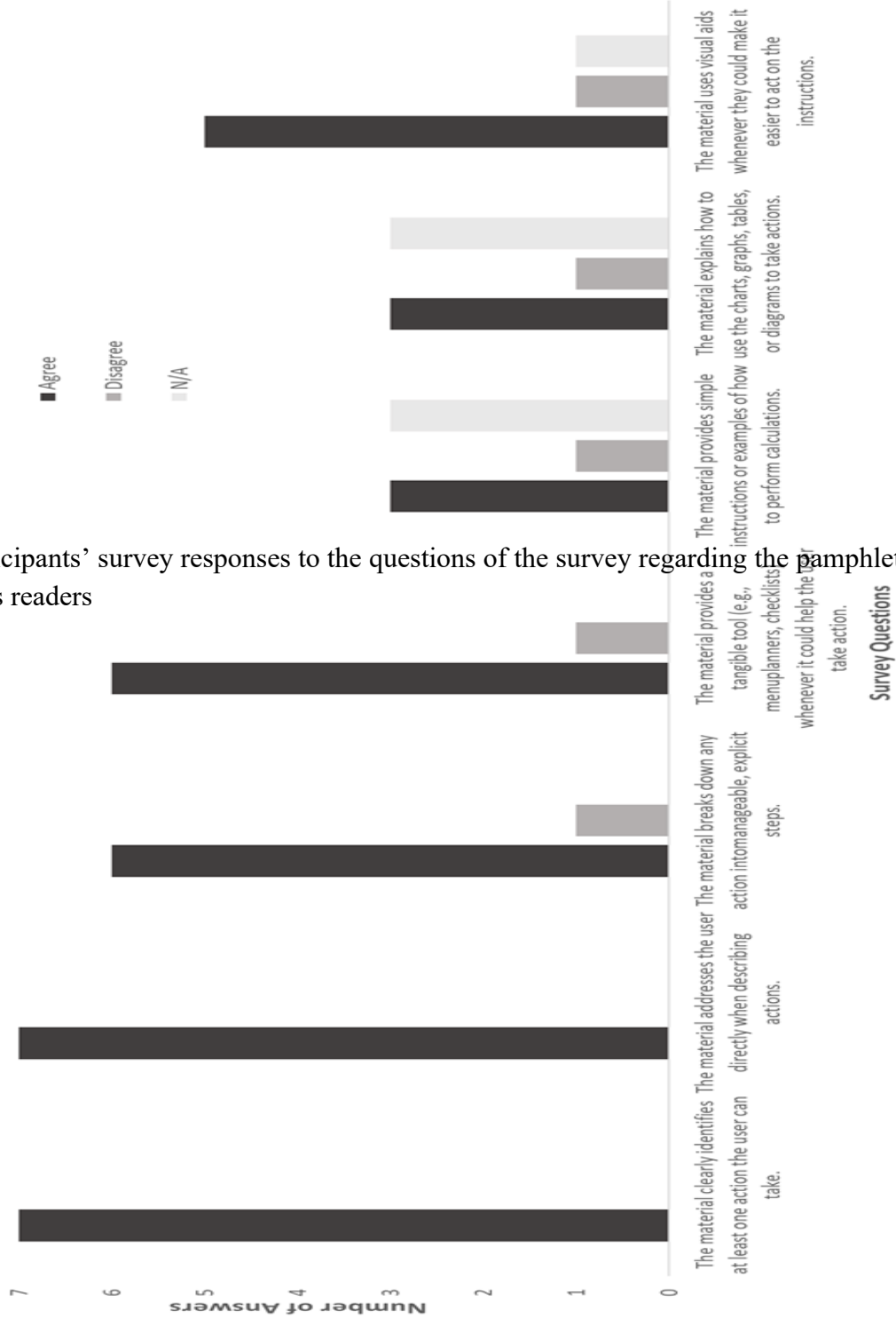


Survey Questions

Appendix E

Figure 3

Results for Each Actionability Question 18-24

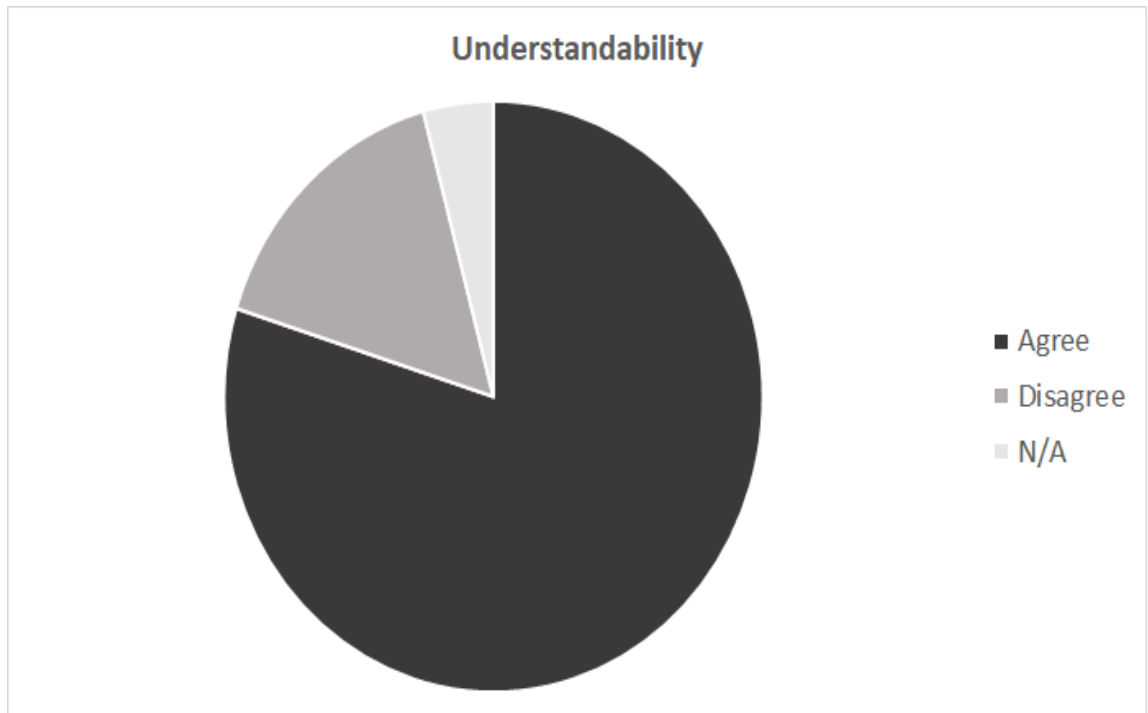


Note. Participants' survey responses to the questions of the survey regarding the pamphlet's understandability towards its readers

Appendix F

Figure 4

Pamphlet's Percentage Scores for Understandability

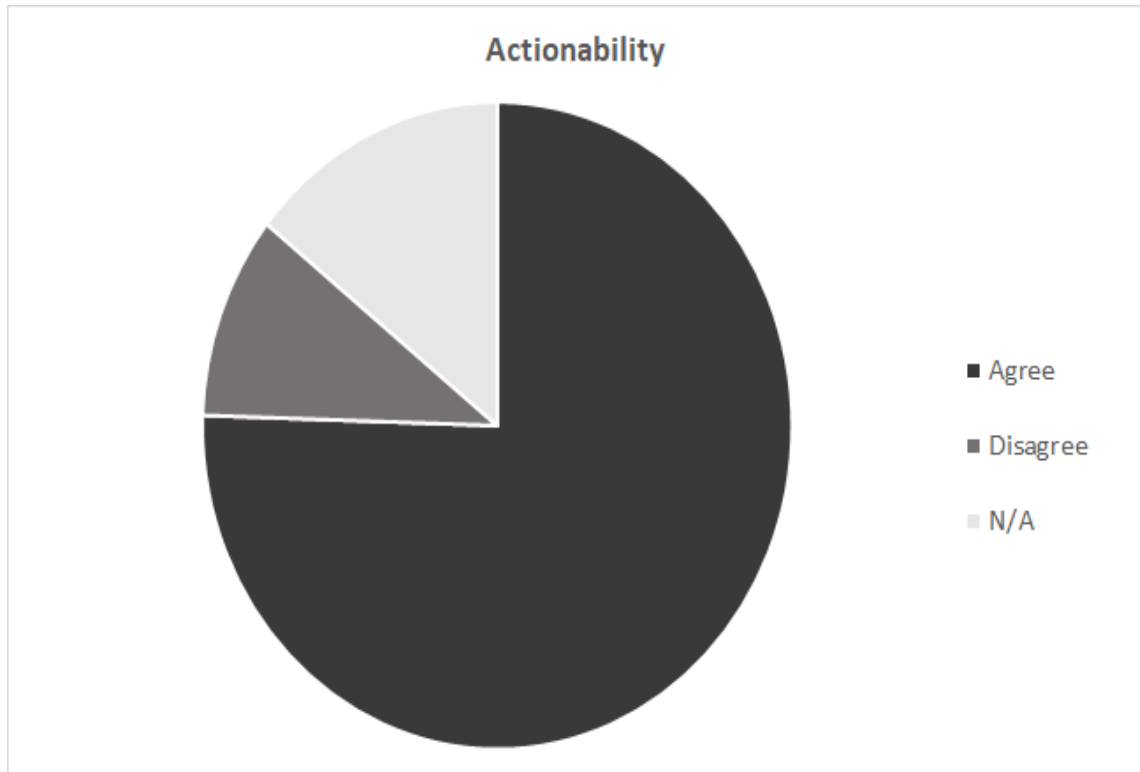


Note. According to the participants' responses, the percentage score was at 80% agree, 16% disagree, and 4% N/A regarding the pamphlet's understandability.

Appendix G

Figure 5

Pamphlet's Percentage Scores for Actionability



Note. According to the participant's responses, the percentage score was at 76% agree, 10% disagree, and 14% N/A regarding the pamphlet's actionability.