

Abstract

Obesity and reduced active leisure involvement are prevalent problems among core members with developmental disabilities living at L'Arche Tahoma Hope. As a result, core members may be less likely to participate in meaningful activities. Due to a variety of factors, L'Arche experienced difficulty with ways to increase everyday active leisure. A dance DVD and accompanying manual were created to help ameliorate the prevalence of obesity among core members and provide a fun, active leisure option. The content of the dance DVD includes: warm-up, stretching, dance routines with strengthening and aerobic components as well as a cool-down. L'Arche will be able to use the dance DVD and manual at their convenience, as a copy of each is provided at each one of the four houses.

Purpose Statement

The purpose of this project was to provide a DVD with several dance routines and an educational resource manual for the staff at L'Arche Tahoma Hope to promote flexibility, strength and aerobic endurance in order to increase active leisure involvement and reduce obesity among its core members.

Background

In the United States, obesity is a startling health related trend that has gained mass attention on national and local levels. According to the World Health Organization (WHO), obesity is defined as having the ratio of height to body weight, also known as body mass index (BMI), >25 and morbid obesity is defined as having a BMI >30, which is about 100 pounds overweight (WHO, 2011). In the United States, obesity rates have nearly doubled in the last 20 years, with 30.9% of Americans being directly affected (Clark, Reingold, & Salles-Jordan, 2007). There are many complex factors that have contributed to the rise in obesity, including sociocultural, environmental, behavioral, genetic, biomedical, and iatrogenic factors (Forhan et al., 2010). Because these contributors to obesity are multifaceted, there is no simple answer for remediating the obesity epidemic.

Consequences of Obesity

Obesity has far reaching consequences on physical, emotional, economic and social aspects of health and wellness. Physical consequences are both acute and chronic and include: cardiovascular disease, diabetes, musculoskeletal disorders and some forms of cancer (WHO, 2011). In addition, sleep apnea, hypertension, stroke, gallbladder disease, back pain, and overall activity limitations are also correlated with obesity. Economically speaking, it is estimated that \$92 billion in medical costs are related to obesity and \$25 billion due to job absenteeism (Clark et al., 2007). In addition, many individuals who are obese experience severe prejudices because of their condition. This can manifest in ways such as reduced job opportunities, housing attainment, loss of educational opportunities, reduced access to healthcare and wellness services, and societal stigma resulting in social isolation (Clark et al., 2007).

Functional implications for obesity can include decreased range of motion, decreased mobility, and pain which could inhibit one from completing activities of daily living (ADL) such as dressing, bathing, and toileting. Other barriers that obese individuals face include limitations in participating in community opportunities such as driving a vehicle to get to their destination of choice, inability to be a passenger on a plane due to small seats, difficulty attending a movie or concert, and needing assistance in a store, i.e. instrumental activities of daily living (IADL). In addition, obesity can result in increased mortality rates (Forhorn & Law, 2009). It is apparent that obesity not only has physical effects, but also reduces a person's ability to participate in meaningful activities in all aspects of their life.

Importance of Physical Activity

Research has indicated the value of physical activity through the medium of exercise and physically active leisure-time pursuits. When referring to physical activity, the WHO defines it as, "any bodily movement produced by skeletal muscle that requires energy expenditure" (2012). Exercise, however, is a subcategory of physical activity in that it is purposeful, structured, and repetitive for the purpose of improving or maintaining physical fitness (WHO, 2012). In general, physical activity reduces the risk of stroke, hypertension, coronary heart disease, diabetes, cancer, and depression. In addition, physical activity decreases falls and increases bone health and functional mobility (WHO, 2012). Remaining physically active can support participation in meaningful occupations while maintaining health and wellness. An individual with an unconditioned body will expend more energy in an attempt to overcome physical barriers when participating in activities. When the tasks become too difficult, it becomes easier to give up on the activity because it is disheartening to participate in an activity that is too difficult. Therefore, an unconditioned individual may not participate in activities because of the difficulty, thus

reinforcing their inactivity. A conditioned individual will be able to overcome physical barriers to participation more easily.

Obesity and Developmental Disabilities

Many studies have indicated that those with developmental disabilities (DD) have a higher obesity rate than those of the general population (Melville et al., 2008). In fact, a study done by the Analysis of National Health Interview Survey from 1997-2000 found that 34.6% of adults with DD were obese (Gellar & Crowley, 2009). Many factors contribute to this high obesity rate including: high rates of physical inactivity, tendency to live more sedentary lifestyles, lack of control over food choices and intake, decreased communication skills, low frustration tolerance, and residence in enabling home/community environment as well as a stressful environment (Gellar & Crowley, 2009; Haverkamp, Scandlin, & Roth, 2004). Additionally, the results of another study indicated that those with DD tend to not initiate and engage in exercise independent of a structured group (Pitetti & Tan, 1992).

Health Disparities

There are many intertwining factors that contribute to health disparities among those with DD compared to the general population. Those with DD have an increased risk for developing obesity, and receive inadequate health care despite having many health care needs (Haverkamp, Scandlin, & Roth, 2004; Melville et al., 2008). These health disparities may be due in part to reluctant and/or unprepared care providers providing routine, emergency and dental visits to those with DD. Also, fewer providers are accepting Medicaid, a major source of medical coverage for those with DD, thus limiting health care options (Haverkamp, Scandlin, & Roth, 2004). Individuals with mental retardation (MR) have four to six times more avertible causes of

death than those in the general population (Havercamp, Scandlin, & Roth, 2004). It is apparent that those with DD are at a disadvantage compared to the general population for receiving health care, thus increasing health disparities and increasing risk for obesity.

For those with DD, research has shown the specific benefits of participating in physically active leisure. Such benefits include: skill development, social interaction, implementation of adapted behaviors, decreased mortality rates, increased self-esteem, enjoyment, self-efficacy, self-concept, physical fitness, perceived societal acceptance, as well as social support (Peterson et al., 2008). One study found that those with DD were more likely to participate in health-related exercise longer when they had improvement in their fitness level (Lynnes, Nichols, & Temple, 2009). This study suggests that an individual who is conditioned will more likely stay with a demanding activity than an unconditioned individual. Another study, from Cowley et al., found a link between physical fitness and the ability to participate in functional activities (2010). In addition, participating in active leisure helps ease the effort of completing ADL and IADL such as walking, getting up from a chair, stamina to do dishes, and other such activities that require energy expenditure (Cowley et al., 2010).

Definitions

According the Developmental Disabilities Assistance and Bill of Rights Act (Public Law 98-527) as cited by Larsen et al., a developmental disability is defined as a “severe, chronic disability [that is] likely to continue indefinitely” (2000). The disability must result in limiting three or more major life areas including: self-care, language, initiation, ability to live independently and capacity for economic autonomy (Larson et al., 2000). In addition, these limitations must be apparent in the individual by age 22 and require care, treatment and services

for an extended period or indefinitely. The American Association on Mental Retardation defines mental retardation as “significantly sub-average intellectual functioning existing concurrently with related limitation in two or more ... applicable adaptive living skills...” (Larson et al., 2000). Although mental retardation (MR) has a slightly varied definition from DD, it was estimated in 1995 that 1.9% of the US population had DD and/or MR (Larson et al., 2000).

Programs for Obesity

Currently, the Centers for Disease Control’s Division of Nutrition, Physical Activity and Obesity funds 25 states to set up local preventative programs, with Washington State being one of them (CDC, 2009). These programs are meant for the population as a whole, and not strictly for those with DD. The Washington Department of Health has contributed to this effort by coordinating nutrition and physical activity efforts and works with local communities to implement the 2003 Washington State Nutrition and Physical Activity Plan (CDC, 2009). An example of a community-level project in Washington is Active Community Environments, which are places where people of all ages and abilities can accessibly enjoy walking, bicycling, and other forms of recreation (CDC, 2009). At the local level, the Tacoma Pierce County Health Department is currently collaborating with local agencies for ways of developing obesity prevention plans. However, they have yet to come to a consensus on the issue.

Specifically for those with DD, the Puget Sound area has a few organizations involved with active leisure, recreation and physical activity. These organizations include: Outdoors for All, Metro Parks Tacoma Specialized Recreation, Seattle Parks and Recreation, Young Men’s Christian Association (YMCA), Wild and Scenic Institute, and L’Arche Tahoma Hope. Although research has indicated the benefits of active leisure involvement for those with and without DD (Cowley et al., 2010; Peterson et al., 2008; Pitetti & Tan, 1992), the literature shows that those

with DD participate in fewer leisure and recreational pursuits (Cowley et al., 2010; Forhan & Law, 2009; Lynnes, Nichols, & Temple, 2009; Pitetti & Tan, 1992). In addition, research has revealed that there is a correlation between participation in physical activity and self-efficacy and social support for those with DD (Peterson et al., 2008).

Although there are programs available for those with DD to partake in leisure pursuits, it doesn't appear to be enough given the current obesity rates. Although the research indicates that those with DD are less likely to participate in active leisure independently, the research does support that enjoyment, social support and self-efficacy play vital roles in overcoming barriers to physical activity involvement (Hagberg, Lindahl, Nyberg, & Hellenius, 2009; Peterson et al., 2008). These findings proved to be foundational for creating a sustainable program aimed at ameliorating obesity and increasing active leisure participation among adults with DD at L'Arche Tahoma Hope, which was the home organization for this project.

Target Population

L'Arche Tahoma Hope in Tacoma, Washington is an international organization that serves those with DD by providing a communal type living environment as well as opportunities to cultivate food crops on their farm. Residing at L'Arche in Tacoma, Washington are 16 core members who stay in one of the four houses. The core members' ages range from 30-75 years, and they have a variety of abilities. Each house has a core leader, whose role is to promote a healthy living environment, attend to safety and provide accommodations for the core members' physical and emotional needs. L'Arche is rooted in their faith in God and believes in achieving sustainability by providing meaningful work for their core members. Many of the core members work on the farm, while others leave to volunteer or work at other jobs around the community.

However, because many jobs in the community have been cut, more and more members are faced with free time.

The key player at L'Arche who will directly benefit from this project will be the activity coordinator. The activity coordinator position was recently created to provide meaningful activities for the core members on a daily basis. The activity coordinator played a crucial role in project development and implementation, due to her close ties with the core members and strong background in dance.

Project at L'Arche

After visiting L'Arche and partaking in activities with core members, it became apparent that motivating core members to participate in physical activity would be challenging. Physical activity programs had been implemented previously, however, they were not sustainable because of lack of time from the activity coordinator to implement and coordinate physical activity programs. In addition, core members did not wish to participate in the physical activity programs. In spring of 2011, a field day was implemented that focused on physical activity and was successful in terms of participation among residents. After consulting with the activity coordinator, it became apparent that physical activities needed to be enjoyable, and appear fun to the core members in order for them to participate. Additionally, a product that was an active leisure option that was easily accessible with little oversight required by the core leaders and the activity coordinator was desired.

One activity that the core members seemed to consistently enjoy was dancing. A few times monthly, various core members would go to dances hosted in the community. Given that core members enjoy dancing and participate in various community held dances, this was a

logical starting point for implementing a physical activity program. Evidence supports the use of dancing as a medium for increasing physical activity among those with DD (Cluphf & O'Connor, 2001; Stanish, McCubbin, Draheim, & Mars, 2001). One study's intervention was able to increase the cardiovascular endurance of those with DD via aerobic dance (Cluphf & O'Connor, 2001). Another study compared the use of a video and a dance teacher for increasing physical activity among those with MR. The results indicated that the use of a dance video was successful for increasing physical activity among its subjects (Stanish et al., 2001). The previous stated studies have had encouraging outcomes for utilizing dance in order to combine physical activity with enjoyment.

Overview of Project

An aerobic dance DVD as well as a resource manual was created for L'Arche Tahoma Hope staff, specifically for the activity coordinator, in order to provide active leisure options to its core members and help to ameliorate obesity. Dance was used as a medium for increasing physical activity because it was expressed by L'Arche that its core members enjoy dancing as a leisure and recreational pursuit. The content of the DVD (simply called the Dance DVD) was planned jointly by the Occupational Therapy Student (OTS) and the activity coordinator. Combining the OTS's knowledge of body mechanics, kinesiology and grading of activities with the activity coordinator's knowledge of dance ensured a comprehensive DVD that meets the needs of L'Arche. The resource manual was designed to give supplemental information and guidelines to adapt dance moves. In addition, a fitness challenge competition between the four houses at L'Arche was implemented to give extrinsic motivation for using the Dance DVD among the core members.

The DVD has five sections including: warm-up, stretching, two dance routines (one focuses on strength while the other focuses on cardiovascular endurance) and a cool-down. Each section has a specific theme so that it is more engaging to the core members.

The content of the manual is divided into five sections. The first section introduces the purpose of the Dance DVD and manual, as well as providing a definition of occupational therapy. The second section includes information on the current trends of obesity, consequences of obesity and importance of physical activity. The third section discusses the content of the Dance DVD. The fourth section gives general and specific suggestions for modifying and adapting the dance moves presented in the Dance DVD. The last section of the manual is for reference citation.

In addition to the Dance DVD and manual, the OTS and activity coordinator worked closely to develop a 'fitness challenge' between the four houses. The purpose of implementing a fitness challenge between the houses was to provide extrinsic motivation for using the Dance DVD. The competition, which went for one month, was structured as follows: each core member from the houses had a personal fitness goal that they wanted to reach at the end of each week for one month. Upon receiving these goals, the OTS made large posters for the houses to hang in a visible spot, as a way to keep track of each core members' progress, and provide motivation. Each house then received the Dance DVD after receiving an introduction from the OTS on the contents and purpose of the DVD. The core leaders tracked the number of times each core member completed the Dance DVD, as well as other fitness tasks that were outside the scope of this project. The core leaders were responsible for encouraging the core members to participate, as well as grade the dance moves per suggestions in the Dance DVD. At the end of one month, the activity coordinator tallied each household's participation rate. The household with the

highest participation rate received a trip to the YMCA and take-out dinner, which was provided from the University of Puget Sound Occupational Therapy Department. Additionally, gift cards and certificates were given to core members for participating. After the competition, house leaders were asked to complete a feedback form to inform the OTS on ways the Dance DVD could be improved, as well as information they would like to have in the future that would be provided in the manual.

The Dance DVD provided core members at L'Arche a way to participate in active leisure in order help reduce obesity rates and increase health and wellness and overall quality of life. The Dance DVD and manual are accessible at any time the core members want to use them.

Procedure for Future Implementation

In order to create the Dance DVD and manual, and support the activity coordinator for implementing a fitness challenge in the future, the following steps were taken:

- A formal and informal needs assessment was conducted with L'Arche. This was done through interviews, visiting the site, and spending time with core leaders and core members. This aided in clarifying the needs of L'Arche and how the needs could be met. Also, spending time within the organization to understand its culture aided in forming a product idea.
- On-going meetings were held with the activity coordinator to address L'Arche's needs and brainstorm ideas for a product.
 - What has been tried?
 - Why did it not work?
 - What do the core members like to do?

- What are barriers to participation?
- The OTS and activity coordinator concluded that because the core members enjoy dancing, and cannot always get to places in the community to take part in dancing, a Dance DVD would help fulfill this need while providing an active leisure option.
 - Planned and implemented 'fitness challenge' using the Dance DVD
- A literature review was conducted to gain more knowledge in the following areas:
 - Obesity trends in the U.S.
 - General population
 - Those with disabilities (specifically DD)
 - Reasons for obesity epidemic
 - Physical exercise and its importance
 - Health disparities for those with DD compared to general population
 - Intrinsic and extrinsic motivating factors for increasing participation in physical activity
 - National and local programs to aid in preventing/treating obesity among all populations
 - Utilizing dance to increase physical activity for those with DD
- Once the DVD and manual were established as a product, the OTS educated herself on the use of *iMovie* for editing the DVD.
- The OTS and activity coordinator planned the dance routines of the DVD and components of fitness challenge.
 - Outline of DVD:

- Warm-up, stretching, strength-based dance routine, cardio-based dance routine, cool-down, credits
- Fitness challenge:
 - Fitness goals established for core members
 - Large chart made of each core members' goals and distributed to each house
 - After accomplishing their fitness goal, core members received a sticker for that day to help track progress and provide encouragement.
- The music was chosen from royalty free websites to avoid copyright infringement.
- A camera was rented from the University of Puget Sound's (UPS) library and the dance routines were recorded.
- The DVD was edited via *iMovie* in the Technology Center at UPS using Mac computers.
- The DVD was then distributed to each house at L'Arche, and completed the Dance DVD together in case the house leaders had questions.
- After receiving the DVD, the fitness challenge began and was implemented for one month.
- Prizes were purchased for the fitness challenge and certificates were made for those who participated.
- After one month, the goal sheets were gathered to determine the winner of the fitness challenge, and prizes were distributed.
- Feedback forms were distributed to the house leaders regarding the content of the DVD and input for the manual contents to support use of the Dance DVD.

- The manual was compiled as supplemental information to the Dance DVD.
- After completion, the manual was distributed to L'Arche.

List of Skills and Knowledge Needed

Skills and Knowledge
Ability to build rapport and establish a working relationship with key players
Ability to utilize expertise and resources of others involved with the project
Ability to collaborate effectively with key players
Ability to capitalize on strengths and minimize weaknesses of core members
Knowledge about health benefits of exercise
Knowledge regarding those with DD
Ability to plan adaptive dance routines
Ability to film dance routines
Ability to edit DVD using <i>iMovie</i> software
Ability to navigate a <i>Mac</i> computer
Ability to look up credible resources for adaptive dance exercise
Ability to find creative ways to incorporate dance DVD into routine of core members

Materials/Supplies/Equipment

Materials/Supplies/Equipment	Amount Needed	Cost	Where to Get it
Video Camera w/ Tripod	1	\$0.00	Technical Center, UPS
DVDs	5	\$10.00	UPS Bookstore
Mac computer w/ iMovie software	1	\$0.00	Technical Center, UPS
Manuals	5	\$100.00	Kinkos
Prize Incentives (movie tickets, Subway gift cards)	1	\$100.00	UPS
Total Costs: \$210.00			

Description of Final Product

The final product created was four Dance DVDs as well as four accompanying manuals that were distributed to each house at L'Arche. Additionally, the fitness challenge was planned and implemented successfully.

Outcome

The outcome of this project is that L'Arche now has an inexpensive, active leisure option that is meaningful to their core members. Additionally, the four houses participated and completed a one month fitness challenge, using the Dance DVD as one option for fitness. The following were the goals of this project.

Goal 1:

Upon reading the manual and implementing the fitness challenge, the staff at L'Arche Tahoma Hope will be educated about the benefits of physical activity for the core members as well as strategies for encouraging the core members to participate in using the Dance DVD.

Objective 1:

After the staff has read various parts of the manual, the staff will state three benefits of physical activity for the core members at L'Arche.

Objective 2:

After the staff has implemented the fitness challenge, the core leaders will state at least three strategies they used for involving their core members in participating in the fitness challenge.

Goal 2:

Upon receiving the DVD, the activity coordinator and core leaders will be able to effectively implement a one month fitness challenge competition among the houses using the Dance DVD.

Objective 1:

After receiving an in-service, the core leaders will use the dance video at least twice weekly for one month with the core members.

Objective 2:

After receiving an in-service, the core leaders will track the core members' participation and progress using a provided progress sheet.

Implications for Occupational Therapy

Although physical activity and exercise are important aspects to physical and psychological well-being, active leisure is not unique to occupational therapy. This project chose dance as the medium for increasing physical activity, which is an activity that is intrinsically motivating and meaningful to the core members at L'Arche. The core members were in need of more active leisure opportunities given their physical state and barriers to participation which included lack of transportation, reduced income, and dependence for initiating and participating in leisure activities. In addition, social participation is important in order to prevent feelings of isolation and promote community togetherness. Many of the core members go into the community simply to go to dances. By providing the opportunity to dance without leaving their home (which can be difficult due to transportation issues), the Dance DVD helped fulfill a desired occupation. In addition, providing an incentive for participation not only served as motivation, but promoted a team dynamic among the houses and friendly competition, i.e. social

participation. Aerobic dance as a meaningful leisure pursuit promotes physical fitness as well as social participation, all of which are of interest to occupational therapy.

Model and Application of the Framework

The person-environment-occupation (PEO) model describes the interaction and influence of these three components and how they either hinder or promote occupational performance. A good fit is described as the person, environment, and occupation acting in harmony with one another. In addition, the person will be able to thrive in his/her environment and have a satisfying occupational performance, which is the actual doing of the activity. Likewise, a poor fit occurs when there is a disconnection between the person's abilities and the demands of the occupation or environment (Brown, 2009). When a just right fit occurs, the abilities of the person are congruent to that of the challenge of the activity within the context of the environment. Thus, the person will have a flow experience, where time goes unnoticed because the person is so absorbed in their occupation (Csikszentmihalyi, 1990). Any disruption or disconnect within the PEO will result in an interference in the person's occupational performance (Brown, 2009).

The PEO model informed this project because it provided guidance in finding the 'just right challenge' for the core members at L'Arche. Additionally, the PEO model aided this OTS in analyzing the strengths and weaknesses of the core members, and to modify and adapt their environment and activity in order to support them in being successful. Examples of this include providing ways to modify the dance moves, providing ideas on time of day to do the Dance DVD, and giving incentives to the core members to increase participation.

Application of the OT Practice Framework

The goals of this project are reflective of the Occupational Therapy Practice Framework (OTPF) and will be of interest to the occupational therapy community. The purpose of the OTPF is to define scope of practice and service delivery for occupational therapists. Various areas of occupation that are included in the scope of practice of the OTPF are self-care, care of others, activities in the community, rest/sleep, education, work, play, leisure and social participation (American Occupational Therapy Association [AOTA], 2008). The OTPF considers how an individual performs various occupations while considering various contexts in which the occupation takes place. The OTPF advocates for client-centered service delivery and increasing quality of life by providing opportunities for individuals to take part in meaningful activities.

This project addressed the areas of occupation leisure and social participation. Leisure is defined as the nonobligatory activities that are intrinsically motivating to the person that are done during free time, while social participation is defined as how a person interacts appropriately with those around them (AOTA, 2008). In addition, this project addressed performance skills, which are the motor, process and interaction skills of the core members as well as performance patterns, which is how the dance routine will fit into their schedule (AOTA, 2008). Other domains in the OTPF addressed in this project include: context (the location where the Dance DVD for the fitness challenge took place), activity demands (demands required of the person to complete the dance routine) and client factors (body function and structures) (AOTA, 2008). The OTPF has been a vital source for constructing the dance program, so that the line does not become blurred between the role of occupational therapy and other disciplines in its implementation. Because leisure and social participation are in the OTPF's domains, and

implementing a client-centered approach is a process advocated by the OTPF, this project was within occupational therapy's scope of practice.

Limitations

Although this project has had positive outcomes for L'Arche, some limitations were encountered. One limitation was that communication with L'Arche at times proved difficult, due to the busy schedule of the staff. Also, feedback was limited from house leaders about the ease of using the Dance DVD as well as input for the content in the manual that would ease implementing the Dance DVD. Another limitation was that the novelty of the Dance DVD faded, making the dance routines less desirable to complete by the core members towards the end of the fitness challenge.

To avoid these limitations in the future, a specific schedule for phone/in-person check-ins should be put in place in the planning phase of the project, so as to increase accountability and ease communication between the OTS and L'Arche. Additionally, increasing feedback from the staff could come about by physically congregating with them and facilitating a small group feedback session immediately after the fitness month, as opposed to weeks afterwards. Unfortunately, preventing loss of interest in any sort of exercise DVD is difficult due to its repetitive nature. However, the benefits and downfalls of using a DVD were weighed before embarking on this project, and it was determined that the pros outweighed the cons. By providing more dance routine options in the Dance DVD, there would be prolonged interest in its utilization.

Sustainability and Future Steps

By creating a Dance DVD and accompanying manual, L'Arche will not have to assume future costs for sustaining the product. Because each one of the four houses has a copy of the Dance DVD and manual in an accessible area (suggested area is by the television), the likelihood of using the product increases.

This project could be expanded upon in multiple ways. One way would be to create another DVD with more dance routine options. Another way would be to combine a Research student's and Policy, Advocacy and Leadership student's work and measure quality of life, and/or obesity trends among core members after implementing a dance program, via another dancing DVD or an instructor-based dance class.

Acknowledgment

It has been a pleasure working with L'Arche Tahoma Hope. I am truly grateful that they were able and willing to work with me. I would like to specifically thank Siri Carlson for her creative ideas and collaboration with me on the Dance DVD and for getting the core members excited about the project. I would also like to thank my chair-person, Martins Linauts, PhD, PT, for his fresh perspective and encouragement while editing my drafts. I would also like to thank Tatiana Kaminsky PhD, OTR/L, and Lucretia Berg, MSOT, OTR/L, for being compassionate cheerleaders throughout this process.

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