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The Benefits and Accessibility of Integrative Exercise in Geriatric Populations

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## 1. Introduction

There are many physical and mental benefits of conventional exercise and they have been well-studied. However, integrative exercise practices aim to encompass more than physical fitness. There is also a spiritual/ethical component when taking into account aspects such as meditation and mindfulness. By examining a number of different health domains, we can study whether the benefits of yoga and tai chi extend beyond the benefits of exercise more broadly. While the short-term physical fitness benefits of other cardio and strength training may exceed those of integrative practices, yoga and tai chi appear to be equally as beneficial in the long run. Yoga and tai chi also seem to be better as a therapy for other health conditions such as stroke and cancer treatment. In terms of mental health, many forms of exercise have been shown to combat anxiety, stress, and depression but studies conducted on yoga show that it may have implications as an effective treatment for other mental disorders such as schizophrenia and PTSD. Finally, while well-being and mindfulness are higher following many forms of exercise, other forms of mindfulness, such as body-awareness, are specific to the integrative practices. The present study examines how benefits, such as these, specific to integrative exercise can be applied to geriatric populations. We also investigate the accessibility and awareness of these forms of exercise in the West Michigan community and propose how to implement these forms of exercise to better the lifestyle of elderly populations.

To introduce the practice of yoga, there are eight main branches. The first branch, Yama, deals with ethical standards and integrity. The second, Niyama, has to do with self-discipline and spiritual observances. The third, Asana, are the poses practiced in yoga while the fourth, Pranayama, is the breath control. The fifth branch, Pratyahara, means to withdraw from the external world. Dharana follows Pratyahara and it means concentration. This is followed by

Dhyana, which is the act of meditation. Samadhi is the final limb of yoga and it is a form of self-transcendence when the meditator merges with their point of focus (Carrico, 2007). Although these are the aspects of a comprehensive practice, when studying the health benefits of a yoga practice, researchers are typically focusing on Asana, Pranayama, and Dhyana- the poses, the breathing, and the meditation.

Tai chi and qigong are similar to yoga in that they are forms of integrative exercise focusing on the connection between the mind and the body. In fact, it has often been called “meditation in motion.” An article in Harvard Women’s Health Watch state that “There is growing evidence that this mind-body practice, which originated in China as a martial art, has value in treating or preventing many health problems.” It is unique to other forms of exercise in that you do not need any baseline level of physical fitness to begin a practice. “In this low-impact, slow-motion exercise, you go without pausing through a series of motions named for animal actions — for example, "white crane spreads its wings" — or martial arts moves, such as "box both ears." As you move, you breathe deeply and naturally, focusing your attention — as in some kinds of meditation — on your bodily sensations. Tai chi differs from other types of exercise in several respects. The movements are usually circular and never forced, the muscles are relaxed rather than tensed, the joints are not fully extended or bent, and connective tissues are not stretched. Tai chi can be easily adapted for anyone, from the most fit to people confined to wheelchairs or recovering from surgery.” A few basic concepts in Chinese philosophy are useful in understanding the reasoning behind the movements. “Qi” is an energy force that flows throughout the body. During a tai chi practice, the flow of Qi is thought to be unblocked. Yin and Yang are two opposing elements in the universe and the practice is believed to keep these in

harmony. A tai chi class typically involves three components- a warm up, tai chi exercises, and qigong or breathwork which can be completed standing, sitting, or lying down.

Before examining the applicability of yoga and tai chi to geriatric populations and the implications of these practices in West Michigan, it is important to review the current research on the benefits of these practices on a variety of aspects of life. To start, Ross and Thomas (2010) conducted a comparison study involving the general health benefits of yoga and exercise. After comparing 81 studies they found that yoga appeared to be equal to or superior to exercise in nearly every domain besides those involving physical fitness. The physical benefits of exercise derive from the down-regulation of the hypothalamic-pituitary-adrenal axis (HPA) and the sympathetic nervous system (SNS). Ross and Thomas (2010) showed that yoga was more beneficial than or equal to exercise on nearly all measures. Those where exercise was superior to yoga were measures of energy expenditure, VO<sub>2</sub> max, and metabolic equivalents. However, a number of other studies have shown that yoga may be superior regarding the health-related aspects of physical fitness. They also acknowledge that further studies needed to be conducted to examine the health benefits of different domains of yoga. This implies that there is some aspect of yoga that differs between individual's practices and dictates the extent of health benefits gained from the practice.

In a study conducted by Tran et al. (2001), ten healthy, untrained volunteers between the ages of 18 and 27 committed to practicing yoga at least twice a week for eight weeks. These yoga sessions consisted of pranayama, asana, and supine relaxation. In the end, isokinetic muscular strength increased by up to 31% ( $p < .05$ ), muscular endurance increased 57% ( $p < .01$ ), flexibility increased significantly, and maximal oxygen uptake also increased. From this, researchers concluded that a regular hatha yoga practice (a branch of yoga practice that

emphasizes mastering the body along with the mind) can elicit improvements in health-related aspects of physical fitness.

Other studies, such as the one done by Sherman et al. (2005) have examined yoga compared to exercise (and a self-care book as a control) in the treatment of chronic low back pain. This study also found that the yoga treatment group had reduced lower back pain at 12 weeks than both the conventional exercise group and the self-care book group.

On the other hand, there is much support for mental and physical health benefits as a result of exercise in general. Penedo and Dahn (2005) show that exercise and physical activity are associated with better quality of life and health outcomes. While this may be true in some circumstances, it is important to consider the practicality of general forms of exercise for all demographics of people including those with a low baseline level of physical fitness. In this case, integrative exercise is more practical due to the fact that it is so adaptable.

In terms of mental health, Mellion (1985) looked at exercise therapy and the reduction in anxiety and depression symptoms. They found that, for patients with anxiety and depression, exercise provides a sense of mastery and control and these positive effects spill over into their everyday life. Taylor, Sallis, and Needle (1985) also conducted a similar study and found many of the same benefits-particularly with depression. However, an important finding from this study showed that there are also negative psychological effects associated with vigorous exercise. Contrary to a yoga or tai chi practice, when someone participates in vigorous exercise, particularly if it is competitive, that exercise can lower self-esteem and induce symptoms of eating disorders and instill an unhealthy sense of competition.

While there may not be many studies on the effects of general exercise on the treatment of mental disorders such as schizophrenia, the effects of yoga have been

researched. Duraiswamy et al. (2007) looked at yoga therapy as an add-on treatment for the management of schizophrenia and found that those in the yoga therapy group had significantly lower psychopathology than those in the control group and they had greater social and occupational functioning and quality of life. Other studies, such as the one conducted by Vancampfort et al. (2010), showed that even after a single session of yoga, patients with schizophrenia showed lower levels of state anxiety, decreased psychological stress, and increased subjective well-being. However, they conclude by saying that these differences do not differ significantly from those that participated in aerobic exercise indicating that these findings may be applicable more broadly.

In addition to this, Sciarino et al. (2017) examined the effectiveness of yoga as a complementary and as an alternative treatment for post-traumatic stress disorder (PTSD). They conducted this research based on the empirical observation that there are few benefits of traditional exercise in those that have PTSD. While no hard conclusions were drawn, they concluded that there are implications for yoga improving the symptomatology of PTSD. This further points towards the conclusion that there is a mindfulness aspect of the practice that goes beyond that of general exercise.

There have also been studies conducted on the management of symptoms of chronic illnesses with mindfulness-based exercises. For example, Lin et al. (2018) examined yoga as a form of management for cancer treatment-related toxicities. They found that “low-intensity forms of yoga, specifically gentle hatha and restorative, are feasible, safe, and effective for treating sleep disruption, cancer-related fatigue, cognitive impairment, psychosocial distress, and musculoskeletal symptoms in cancer patients receiving chemotherapy and radiation and cancer

survivors.” This also implies that it may be more effective than simple exercise due to the breathing aspect of the practice and the restorative nature.

Further, Jayasinghe (2004) conducted an in-depth review of the history and science of yoga and examined it in the context of cardiac health. He believes that, "benefits of yoga in the modification of cardiovascular risk factors and in the rehabilitation of the post-myocardial infarction patient are areas of significant importance.” Yoga is an unconventional form of exercise and it is a suitable choice for incorporating into a comprehensive cardiac rehabilitation program due to its adaptability and relaxing nature.

In addition, Zeidan (2010) examined the effects of meditation on mood and cardiovascular health. The results showed that “The meditation intervention was more effective at reducing negative mood, depression, fatigue, confusion, and heart rate, when compared to the sham and control groups.” This provides further support for the idea that the meditation and concentration aspect of an integrated yoga practice may be the root of many of, not only the mental health benefits, but potentially even some of the physical health benefits.

The practice of yoga has implications for stroke rehabilitation, as well. Lazaridou, Philbrook, & Tzika (2013) examine yoga and the mindfulness aspect of the practice to determine whether it is a suitable form of treatment following a stroke (including treatment of the negative emotions that follow). They found improvements in cognition, mood, balance, and stress levels but concluded that modifications to different yoga practices make comparison studies difficult.

An additional study by Woodyard (2011) examined many of the same variables already discussed but also looked at yoga in the context of its ability to increase quality of life. It did, in fact, find that, in addition to providing support for the other benefits of yoga, it increased overall well-being and quality of life. A comprehensive review study conducted by Jahnke et al. (2011)



shows that many of the findings discussed are applicable to tai chi as well as yoga. For example, the study showed positive increases in nine outcome categories- bone density, cardiopulmonary effects, physical function, falls and related risk factors, quality of life, self-efficacy, patient reported outcomes, psychological symptoms, and immune function. This is sufficient evidence to support the idea that the mind-body connection that is the focus of integrative exercise functions similarly in both of the presently studied practices (yoga and tai chi.)

An important factor to take into consideration when researching the benefits of these forms of exercise is the distinction between a comprehensive practice and a sporadic practice. A comprehensive integrative practice would be defined as one that incorporates multiple of the eight branches of yoga or, in the case of tai chi, both a physical practice and qigong. In other words, it is one that has a spiritual and ethical component that goes beyond practicing asana (the poses) just for exercise. Mindfulness, in the sense of a benefit of exercise, is defined as a “mental state achieved by focusing one's awareness on the present moment, while calmly acknowledging and accepting one's feelings, thoughts, and bodily sensations.” It is an aspect of mental health that encompasses many of our responses to challenges and changes of everyday life. This can be achieved through a practice when the practice is comprehensive and practiced on a regular basis.

To summarize the findings on tai chi, yoga, and general exercise, in terms of physical fitness, some studies show that exercises such as cardio and strength training, trump integrative practices. This is the case if we look at variables such as VO2 max and calorie expenditure. However, the long term physical benefits of yoga and tai chi appear to be just as good as those with conventional exercise, especially in individuals with baseline lower levels of physical fitness.

In terms of general physical health, all forms of exercise serve the purpose of creating a more well-rounded healthy lifestyle. However, where exercise fails to serve as appropriate rehabilitation for stroke and cancer treatment, yoga and tai chi are very therapeutic choices due to the mindfulness aspect and their ability to adapt to any level of difficulty.

## 2. Applicability to Geriatric Populations

The findings previously discussed have attempted to generalize to the public as a whole. While this is helpful for establishing a baseline of possible health benefits from yoga and tai chi, it does not address the issue of the practicality of these practices for geriatric individuals. We have seen that an advantage of integrative exercise beyond that of general exercise programs is that they are adaptable. Because they do not necessarily require the expectation of maximal physical exertion and, instead, focus more on the mind-body interaction, they are suitable for individuals that do not have a high baseline level of physical fitness. This makes practices such as yoga and tai chi ideal for elderly individuals because they can be adapted to any lifestyle or age- even for individuals who are wheelchair bound- while still providing all of the benefits previously discussed such as management of chronic health conditions and mental health treatment.

That said, there are a variety of studies that have been conducted on geriatric populations specifically regarding integrative exercise. Patel, Newstead, & Ferrer (2012) examined the effects of yoga on physical functioning and health-related quality of life in older adults. The goal of these researchers was to systematically review yoga compared with other forms of exercise in terms of their impact on physical functioning in older adults. Synthesis of the studies suggests that benefits of yoga may exceed those of conventional exercise interventions for self-rated health status, aerobic fitness, and strength. However, evidence was mixed for the effects on sleep and bone mineral density tests. Taken together with the studies previously discussed, I believe there is sufficient evidence to begin focusing on forms of exercise beyond conventional forms in geriatric populations. This has wider implications in society than one may initially think; by incorporating exercise programs into the lives of the elderly (and making them

accessible to all demographics of geriatric populations) we should be able to enable our parents, grandparents, and even great-grandparents to live in their communities for the duration of their lives. This implies increased productivity, health, and happiness for our loved ones as well as the ability for society to reap the benefits of the wisdom that the older generations have to offer.

With such convincing evidence for the success of these programs, I sought to research the programs that West Michigan has to offer. On the one hand, I have visited family at retirement homes in the past that did not provide ample space to exercise independently, let alone offer exercise classes that were adaptable to the residents and allowed time for community. On the other hand, my 90 year old grandmother, who lives in Spring Lake, MI, lives independently in the home she raised her children in and attends regular water aerobics classes in her neighborhood. Thinking about this stark contrast, I knew that there had to be some sort of missing link that prevented all elderly individuals from living the lifestyle that my grandmother does. I sought to find that link and bridge the gap.

My preliminary research into elderly living communities in West Michigan uncovered dozens, if not hundreds, of residences. However, research into these websites quickly showed me that, even if they did offer fitness activities, they were not highly promoted. The first program that caught my eye in a positive way was Generation Care. With locations in Grand Haven, Muskegon, and Grand Rapids, Generation Care's mission statement (as phrased on their website) is "Simply put, Generation Care exists to help transform our community by maximizing physical abilities across the lifespan. From the tiniest of humans to those in their later stages of life, we are here for every generation. We use every possible avenue to restore your physical condition to be the best it can be, and then keep you at your optimum level of health." While not a retirement facility, or even a facility specifically designed for geriatric individuals, I was drawn to the

statement of “transforming our community by maximizing physical abilities across the lifespan.” This seemed like the type of program that strived to integrate elderly individuals into our community as opposed to isolating them. Generation Care proved this to be true with a vast offering of services molded to fit the individual at any age. When beginning a relationship with the staff, a thorough evaluation will be conducted to get to the bottom of your problem. As they explain it, an individual may think that they have back pain but it is actually a foot alignment issue. A variety of professionals (from physical therapists, to physicians, to speech language pathologists) will then consider a wide variety of theoretical models for your recovery. This could be focused on muscle energy techniques, neurodevelopmental theory, exercise physiology, or a combination of multiple treatments. There is no “cookie cutter” treatment; every individual is managed on a case-by-case basis.

Services offered, however, are not solely based on recovery of an illness or physical health condition. Generation Care emphasizes the importance of wellness habits at any age; they strive to bridge the gap between therapy and lifelong wellness programs. They offer wellness programs that range from personal training and wellness coaching, group exercise, and Inspire 180 (a community-based exercise group), to individual Mysteps memberships which offer access to their facility. They also offer sports and athletic performance enhancement programs individualized for biking, dancing, running, baseball, hockey, and concussion care further evidencing their personalized level of care at any age. What drew me most to these facilities, however, were their integrative recovery services. The list includes physical therapy, aquatic therapy, neurological conditions, gender specific health, pain treatment, spine care, vestibular rehabilitation, wound care, occupational therapy, pediatric care, speech-language pathology, and Homestep which offers services to allow elderly individuals to continue living in their homes.

This comprehensive list seemingly addresses a wide variety of needs that could concern both older and younger people. What's more, they seemed sustainable; they are programs that an individual could continue as they age to manage physical conditions while promoting mental health and socialization. Lingering in the back of my mind throughout my research, however, was the question of accessibility. While reading about how to get started at Generation Care, I found three options; an individual can call the center and make an appointment with a therapist, they can call and be put in contact with a physician, or they can call their personal physician for a referral. In terms of cost, it seems as though these programs are funded by insurance which is ominous for individuals that are uninsured or unable to obtain a physician referral. While Generation Care offers outstanding services for any age of life, it is unclear whether these services are easily accessible for individuals of any economic class.

Another care center that caught my eye in the Muskegon area is LifeCircles PACE. While PACE is a national program, each location has a unique name (LifeCircles being the name of the Muskegon location.) This center is unique from Generation Care in that they describe themselves as all-inclusive care for the elderly. While they serve all of Muskegon county, they also serve portions of Ottawa and Allegan counties. They boast an alternative to traditional senior care services that are provided at their on-site day center and in-home to enable elderly individuals to continue living in their communities. LifeCircles primary focus is on preventative measure. Like Generation Care, they staff an interdisciplinary team to complete an individualized plan of care called a "Life Plan" for each individual that focuses on their specific needs. While the Day Center is open Monday-Friday, the average number of visits to the center per individual per week is two. During this time, participants participate in recreational therapy, activities and exercise programs, socialization, and spiritual care. Transportation, lunch, and

snacks are also provided on these days. Participation in the Day Center only is open to anyone over the age of 55 making it an option for middle-aged individuals with elderly parents to participate in fun, healthy activities together for little cost. However, to be a part of the full Life Circles PACE program- which includes the in-home services and health care from a 24/7 on-call medical provider- an individual must meet the Nursing Home Level of Care Determination. The Medical Director at PACE is Dr. Iris Boettcher, a board-certified geriatric medicine physician trained in hospice and palliative medicine. Dr. Allison Ilem is also on staff as a Behavior Psychologist providing evidence for the comprehensive physical and mental health care that individuals receive. Life Circles also displays a clear commitment to end of life care. There is no point after which an individual is approved for the program that they will no longer be eligible. Dr. Boettcher's training in hospice care and palliative medicine proves that an individual will retain their dignity, independence, comfort, and sense of self, up until their final days with spiritual care available if they so choose. Unlike Generation Care, Life Circles is funded by private funds and Medicare/Medicaid. For individuals that qualify, the programs costs nothing to the individual or their families.

Next door to the LifeCircles PACE Muskegon location is AgeWell. This program began as Meals on Wheels and has since evolved into a comprehensive health service to aging populations. Meals on Wheels is their service that provides home delivery of healthy food to individuals who are homebound. For individuals who are under 60 years old, the meals are \$6 each and, for those, over 60, they are donation based. AgeWell now claims to provide vital connections to keep you nourished, active, learning, and living independently. Despite a mission statement so similar to LifeCircles, their services are quite unique. In addition to Meals on Wheels, AgeWell has a wellness center that offers fitness classes, art classes, computer classes,

and enrichment programs. Fitness programs include Enhance Fitness, senior aquatics, senior stretch and strength, and tai chi. On their website, AgeWell posts a monthly schedule of these classes as well as the other classes offered in the Wellness center. Their final advertised service is elder abuse awareness. These classes are designed for elderly individuals, their families, and caregivers to recognize and respond to signs of elder abuse in the community or in living facilities and healthcare facilities. Unfortunately, AgeWell isn't privately funded but membership fees are flexible ranging from \$9/month to \$187/season depending on the package with an option for insurance coverage with Priority Health. The stark downfall of the Wellness center compared to the Day Center at LifeCircles is the lack of transportation to the classes. I speculate that this is something that could easily be ameliorated due to their offering of delivery of meals to homebound seniors and their close proximity to LifeCircles.

As I have learned, with the vast amount of geriatric facilities in West Michigan, few of them provide access to exercise programs let alone comprehensive wellness programs. A few that do are Generation Care, LifeCircles PACE, and AgeWell. These are all unique in how their programs are funded and which specific classes are offered but they are all similar in that they strive to promote comprehensive wellness in senior citizens and provide them with services that enable them to live within their communities. The creators of these programs have also all seemed to realize that we can take steps to accomplishing these goals by promoting integrative exercise programs and making them available to all individuals but particularly those in their later years. Visiting LifeCircles and AgeWell, I observed classes at each ranging from senior weight lifting to chair dancing. It is clear how committed the staff are to improving the lives of the participants but note that their biggest struggles are raising awareness of the programs and changing the stigma surrounding abilities of the elderly.



### 3. Accessibility of Yoga and Tai Chi Classes in West Michigan

I first became aware of the popularity of yoga classes in West Michigan when my mother started to regularly attend the Funky Buddha Yoga Hothouse in East Grand Rapids. I was hesitant to jump on the bandwagon at first because it seemed like the sudden popularity in the practice would be a passing fad. When she finally convinced me to attend a class with her, I was curious as to whether I would notice any benefits beyond those gained from my running regimen. With much research and personal experience to back the claims regarding the physical and mental health benefits of yoga, I began to attend classes on a regular basis. When I began research for the present study, I knew that I wanted to explore the more “mainstream” studios in the area. I was interested in whether these studios seemed to offer the benefits that I know can be gained from an integrative practice and whether they made their practice accessible to all demographics; including geriatric populations.

One studio, in particular, is located on the west side of Grand Rapids and, despite the fact that they only opened their doors two years ago, has gathered a large following. AM Yoga was started under the premise of bringing yoga into the community. Owners Ashley and Mali are former instructors at Funky Buddha Yoga Hothouse and wanted to open a studio operating under the philosophy of community. AM Yoga began entirely as donation-based classes in public sites around Grand Rapids. For the last two years, they have transitioned to primarily in-studio classes but they haven't strayed from their focus of a community-based practice. Now, Ashley and Mali have created what they term the AM community club. The goal of this is to partner with organizations and offer classes around town. Their most recent development in the Community Club is Veterans Yoga. They state that “we have a philosophy that yoga should be available to everybody, everywhere. We knew that there were large populations that were dear to our hearts

and their needs were going unmet so we partnered with Community Rebuilders to launch a yoga program for veterans to assist with symptoms of PTSD and other mental health issues.” In this program, Ashley and Mali hold free 60 minute classes each week at various locations incorporating asana, pranayama, and drishti to raise awareness of problems in health to more clearly define a solution.

In addition to this, AM Yoga has a focus on corporate involvement believing that yoga has the ability to increase productivity in the workplace. In their partnerships with businesses, a teacher will come onsite to guide teams through yoga poses, breathing techniques, and meditation to alleviate stress, increase productivity, spark creativity, and boost teamwork.

Aside from the community involvement projects and continuation of donation-based classes at local sites such as the GRAM, AM conducts many in-studio classes. Their most popular offering is the Vinyasa class which aligns powerful breath and physical movement. Yin-Vinyasa classes incorporate a vinyasa flow followed by longer-held yin poses to open and strengthen, pranayama, and meditation while AMP classes involve drills and skill work. However, the class style that drew my attention the most were the Golden classes. These are described as a slower vinyasa flow. In this type of class, you can expect to mindfully move between poses using props and having different pose variations offered if desired. This is the ideal class for anyone experiencing health or movement limitations, recovering from an illness, or looking for a place to find community, strength, and movement. Instructors state that this style of class is the perfect blend of challenge and accessibility for the new to mature yogi. While this is a specially-designed slower pace class, all of the offerings are designed to be adaptable to all levels. However, Foundations Classes are offered for anyone that would like a breakdown of the poses or are wary of jumping head-first into a Vinyasa flow.

On the surface, AM Yoga seems to offer everything that other “mainstream” studios in West Michigan seem to lack. Instead of being trendy and catering to only one demographic of individual, they express a strong desire to bring yoga to the community and have the actions to back it up. They are inviting, diverse, and evidence based and, walking into the studio, you feel welcome, regardless of your age, socioeconomic status, or level of fitness. However, there is one downfall in their philosophy that is hard to ignore. Yoga studios in Grand Rapids are notoriously pricy, and AM Yoga is no different. Unlimited class memberships are \$99 a month with discounts for seniors; \$12 drop-in classes and \$120 packs of eleven classes. It is wonderful that discounts are offered to encourage seniors to benefit from the practice but it is discouraging that it has to come at a price significantly steeper than a gym membership. While Ashley and Mali have verbally praised the benefits of yoga to all groups of people, they have not acknowledged many of the difficulties certain groups face financially. While this is true of many demographics, not just geriatric populations, there are also complications specific to the elderly when accessing yoga from a studio. While establishments such as Generation Care, LifeCircles PACE, and AgeWell have considered issues of accessibility, studios such as AM Yoga have yet to follow their lead. The primary accessibility concern aside from economic cost is transportation. It is very difficult for home-bound senior citizens to find transportation for activities such as yoga when they do not have family and friends to drive them. AM Yoga has taken steps to address issues of transportation with their veterans yoga classes by hosting these at a variety of locations. It would be reasonable for them to also hold classes in senior living communities and healthcare facilities or provide a carpool service to encourage senior citizen participation.

In addition to the issue of transportation, there is the issue of recruitment. From the populations I have discussed yoga with, I have gotten the impression that there is a stereotype

surrounding the demographics that practice yoga in West Michigan- and this does not include geriatric populations. If senior citizens are aware of the yoga offerings in the community it is typically because they have younger friends or family members that go to a studio. I believe studios such as AM Yoga should start recruiting elderly individuals through the current members at the studio or through senior citizen communities. They should present yoga as the adaptable practice that it is and advertise the benefits and community-centered aspect of the classes. This is not an issue that can be addressed quickly since it involves education on an exercise regimen that many people are wary of but there are small steps that can be taken to widen the reach of the practice.

While researching integrative exercise in the area, I have found page after page of studios that each advertise the physical benefits of the practice. While many of these studios offer discounts for seniors, it is disheartening how few of them attempt to recruit from geriatric populations or acknowledge the accessibility of the practice for all ages. What was even harder to find were Tai Chi studios in West Michigan. While both yoga and Tai Chi are ancient practices that have found a place in modern society thanks to their well-established lifestyle benefits, Tai Chi has not been popularized in society and is still something that many people do not understand.

One Tai Chi location that I have found in Grand Rapids is called From the Heart: Yoga and Tai Chi Center. Located in East Grand Rapids, From the Heart states on their website, “Integral to yoga is the practice of offering service to humanity. This can take shape as small or large actions, from carrying the groceries for your elderly neighbor to working in a poverty stricken country; all of these actions are equal in value. Because in service you can't do everything for everyone everywhere, but you can do something, for someone, somewhere. At

From the Heart, we encourage our students to offer service in any way that inspires them. As a community, we chose to offer service in the local community. We organize various service projects and fundraisers to support local organizations in the greater Grand Rapids area.” This struck me because, like AM Yoga, this seems to be a location that is focused on community engagement; not simply feeding the “yoga fad” of the community.

From the Heart offers classes not just in yoga but in Tai Chi and meditation. They describe their yoga as hatha yoga with an elegant set of alignment principles, life affirming philosophy, and heart-oriented community. Grounded in sound inner and outer body alignment, it is an all-inclusive yoga in which each student’s various abilities and limitations are deeply respected and honored. They advertise the fact that their instructors are very experienced with a deep understanding of yoga fostered through years of practice and continual study. In this sentiment are apparent similarities with AM Yoga’s Golden Class; they are both focused on acknowledging the unique limitations of each individual body and working through these.

Similarly, they describe their style of Tai Chi as from the lineage of Chui-Chu, Kai, and Yen Hoa Lee. This style originated in the north of China, moving through Vietnam to the United States. This style is attentive to detail and posture giving it a deep sense of beauty and dignity. According to From the Heart’s website, all levels are welcome and encouraged to attend these classes. One of their students, Dave B. provided a testimonial stating, “I’d gone through physical therapy but needed more, so started with Rick on Tai Chi years ago now. I saw an older gent no longer need his walker as his balance returned, saw novices become graceful and strong (no longer shaking or falling out of positions), and gradually realized this patience inducing, flexibility building, and health enhancing Tai Chi thing was special. I admit I do it if I get a cold

because I know I will feel better, I do it when I am tired because I know I will get energized, I do it because it just does something good.” Apparently, the results of Tai Chi speak for themselves and, even the public has seen the benefits this can have on geriatric populations in terms of bettering their lifestyle.

On top of yoga and tai chi, From the Heart offers meditation courses and retreats that help to expand your knowledge and deepen your practice. They demonstrate various techniques that access the deeper states of awareness within the heart. Unfortunately, like the other studios in the area, From the Heart is not entirely affordable even at its slightly lower price of \$89/month with a 10% discount for a seniors and \$16 individual classes for seniors.

It has become clear in my survey of West Michigan’s offerings of integrative exercise practices that you don’t have to look far to find a yoga studio but tai chi classes are few and far between due to their limited popularization in the media. Despite this, establishments such as AM Yoga and From the Heart: Yoga and Tai Chi Studio have paved the way for inclusive, community-involved integrative exercise practices that are adaptable to any lifestyle. Unfortunately, even though these classes are available to seniors, and even encouraged, they are not necessarily accessible. They are not affordable, they are not advertised to this demographic, and they do not offer transportation or classes in locations that home-bound elderly individuals have access to. Luckily, they are measures that can be taken by these studios to bring yoga and tai chi to demographics that can benefit from it the most and they are well on their way to making a difference in the lives of the elderly. In fact, while working on this paper, AM Yoga has developed a partnership with Metro Health that provides free classes to senior citizens in

locations that are accessible to them. This will hopefully be well-advertised and will pave the way for other studios in the city.

#### 4. Implications in Healthcare

According to Business Insider, in 2012, the percentage of the U.S. population over 60 years old was less than 20%. It is projected that, by 2050, this percentage will be between 25% and 29%. This is partially due to the aging baby boomer generation but also thanks to the advances in healthcare. However, the increase in the elderly population raises concerns about the economic implications of an aging population. Increasing average age of the U.S. population theoretically means more individuals retiring (and financing their retirement). It also implies more individuals that require more expensive and more frequent medical care. While these are reasonable concerns, it has been apparent to me in the elderly individuals I have interacted with they each have something special to offer the community. I have had conversations with individuals who have lived through pieces of history that many people only get to read about in textbooks. I have gained life lessons from grandparents who have life experiences to fill novels. I have also seen more senior citizens than I can count who are contributing to the world either still in the work force, by volunteering, or by passing on their wisdom to younger generations. I believe many of us can name at least one older person in our lives who has contributed to it in a positive way. Given this, we should not be thinking about the continuing aging population as “burdensome” or a problem to solve. We should be thinking of this as a gift to society- a group of people who have unique talents and stories to offer that we can’t get from any other generation. Yes, there are challenges that come along with any population that has unique health needs but if we focus on those needs from a preventative care standpoint as opposed to “an expensive list of problems” we can offset an economic cost and gain something from this population.



Throughout the last year, I have worked as a medical scribe in the emergency department. I have made it a point to informally observe the health outcomes and lifestyles of patients- looking particularly at their level of physical activity. I have talked with physicians about the trends that they have seen and I have spoken with primary care providers regarding their feelings about the implications of physical activity in later adulthood. One theme continues to emerge; adults who are physically active, even at low intensities, are in the emergency department less frequently and have fewer chronic health issues. Research conducted in medicine- particularly in gerontology- seems to back up my subjective findings.

To start, Schwenk, Berquist, Boulton, et al. (2019) published a study titled *The Adapted Lifestyle-Integrated Function Exercise Program for Preventing Functional Decline in Young Seniors: Development and Initial Evaluation*. The objective of their research was to develop an intervention by adapting Lifestyle-integrated Functional Exercise (aLiFE) to be more challenging and suitable for preventing functional decline in young seniors in their 60s. They evaluated the effectiveness of this programming by observing pre-post changes in balance, mobility, and physical activity. The activities involved in the intervention included activities for improving strength, neuromotor performances, and PA. The activities were practiced 3.6-6.1 days/weeks and 1.8-7.8 times/day. The majority of the 31 young seniors found the activities helpful, adaptable to individual lifestyle, appropriately difficult, and safe. Increase in daily walking time and decrease in sedentary time were non-significant but researchers concluded that aLiFE has the potential to engage young seniors in regular lifestyle-integrated activities. I believe that this research is especially pertinent given the fact that the Baby Boomer generation are entering their 60s. This study shows that it is possible to integrate exercise into lifestyle- even in individuals

who were previously sedentary- and these activities can positively impact their health and prevent functional decline.

Since research shows that there are benefits to exercise programs at any age, it is important to explore the barriers and motivating factors that are present in the lives of elderly individuals when it comes to beginning one of these programs. This was the goal of Schutzer and Graves (2016) in their article, Barriers and motivations to exercise in older adults. They state that “The predictors of adherence elucidated in younger adults are unreliable in elderly populations. Age-specific barriers and motivators unique to this cohort are relevant and must be acknowledged. The identification of reliable predictors of exercise adherence will allow healthcare providers to effectively intervene and change patterns of physical activity in sedentary elderly.” They go on to explain that persuading the elderly to become physically active is a difficult task because this age group often believe themselves to be too old or frail for physical activity. Also, many elderly individuals view physical activity as time consuming- especially when they rely on public transportation to travel to an exercise facility. Researchers have also noticed a trend in senior citizens viewing exercise as a recreational pursuit as opposed to necessary medical therapy. This may be due to health practitioners giving unclear directions when recommending exercise. When citing barriers to physical exercise, senior citizens are most likely to cite poor health as a reason for a sedentary lifestyle. The CDC has also documented a relationship between the prevalence of physical activity and neighborhood safety backing up elderly individuals claims about their physical environment being a barrier to an active lifestyle. Another relevant barrier is the amount of knowledge and the beliefs of this age group regarding exercise. Many elderly individuals believe that they get enough exercise in their daily living without needing to implement a specific exercise regimen. Taken together with the fact that

many in this age group grew up in a time when exercise was not deemed necessary for a healthy lifestyle, and it becomes difficult to encourage some people that exercise is important in preventative healthcare. This is where physician advice comes into play. Despite optimum exposure to the general public, research findings have indicated physicians are not regularly counseling their patients about exercise. Balde et al. found that only 62% of the respondents in their survey received advice about exercise from physicians. However, research has also shown that older patients respect their physician's advice and have regular contact with their family doctor. Taken together, this shows that if physicians change their approach to recommending exercise as a form of medical care, they can play a pivotal role in the initiation and maintenance of exercise behavior among older populations.

I have seen the benefits of this physician advice in my own exposure to healthcare; while working in an orthopedic-spine and pain management clinic, I have seen the initial apprehension that is present when a physician recommends physical therapy or low-intensity exercise as a treatment option. However, I have also seen how trusting patients are and how generally willing to try exercise as treatment they can be. It is eye-opening and satisfying to see patients return for follow-up and report a decrease in their pain and an overall healthier lifestyle simply by walking more frequently or by making minor changes to their day-to-day life to allow them to be more active.

It is clear that there are many unique barriers to a physically active lifestyle in geriatric populations that are not present in younger individuals. However, given the fact that the largest generation in the U.S. is approaching their 60s, now is the time to educate the public on the benefits of physical activity and usefulness this can have in integrating senior citizens in their community and giving them the best opportunity to share their gifts with younger generations.

## 5. Proposal for Improvement in West Michigan

The research on the physical health benefits of exercise have been well-established. While it has been shown that those who exercise have lower rates of heart disease and diabetes and higher cardiovascular fitness, there haven't been as many studies regarding the benefits of integrative exercise extending beyond that of general physical activity. In the present study, I defined integrative exercise as those practices that emphasize the mind-body connection. Specifically, I was interested about the benefits of yoga and tai chi. A review of the literature showed that, while cardiovascular exercise may produce greater short-term fitness outcomes, integrative exercise is shown to be equal, if not superior, in terms of long-term health. It has been implicated in management of psychosis, PTSD, addiction, and other mental health issues. It is also ideal for geriatric populations due to the adaptability of the practices.

The adaptability of integrative exercise to elderly populations is what encouraged me to investigate physical activity in this age group more generally. I found that there are many senior living facilities in West Michigan but very few that offer exercise programs or emphasize independent living. A few facilities that caught my eye were Generation Care, LifeCircles PACE, and AgeWell. These are groups that encourage physical fitness at every age and provide resources that enable seniors to remain at home in their communities. I also recognized that, while yoga is a growing "fad" in the U.S. (including West Michigan) not many studios in the area make their resources accessible to senior citizens. AM Yoga is one studio that opened under the premise of bringing yoga to the community. They offer free community classes at different locations around West Michigan, have classes called "Golden Classes" designed for individuals that desire a slower-paced yoga class or have specific physical limitation, and offer free weekly classes in the community to veterans that incorporate mindfulness practices designed for coping

with PTSD. They are also in the process of developing a partnership with Metro Health that will ameliorate many transportation difficulties faced by senior citizens. From the Heart: Yoga and Tai Chi center is one of the few locations in Grand Rapids that offer and advertise Tai Chi classes. While yoga is the most popular form of integrative exercise in the West Michigan community in terms of classes offered, From the Heart advertises their yoga classes, Tai chi classes, and meditation. Both AM Yoga and From the Heart offer discounted memberships for senior citizens but, unfortunately, their classes are still relatively expensive and not easily accessible for senior citizens who are homebound or rely on public transportation.

These issues of accessibility are important to consider especially given the fact that the percentage of the U.S. population is expected to rise so drastically in the next couple of decades. While many healthcare professionals and researchers are concerned with the rising economic cost of a large geriatric population, they could be focusing on preventative health care. There are many barriers that senior citizens cite to living a physical lifestyle but there are some that they are not even aware of; this could change if primary care doctors began encouraging physical exercise. Even for those that do encourage exercise, they are often vague about how to accomplish these goals. If senior citizens believe that they already have enough activity in their day to day life, they will not go out of their way to implement an exercise program into their regimen- especially if they do not know what is available or where to begin. That is why I believe the first step in maintaining a healthy, productive elderly population is education. Now is the time for physicians to begin realizing how much this generation has to contribute and how to keep them happy and healthy and reduce the economic cost of an aging population.

I have spent some time talking with family and friends of various ages about their views on the elderly. While many of them agree that this age group is full of unique insight and has

gifts to offer the community, they are not sure how to approach the topic of aging or even talk about getting older themselves. Having a conversation with some younger people, they almost feel as though the subject is “taboo.” They agree that there are certain forms of exercise that can be adaptive and healthy for older people but they are not sure whether there are resources available for this or how to approach preventative healthcare with older people in their lives.

For these reasons, I propose that the best way to make integrative exercise more accessible to geriatric populations in West Michigan is through education. Schools need to begin educating their students at every level about aging and preventative healthcare. Physicians need to begin educating their patients, specifically, about what a physically active lifestyle looks like, and family members need to begin educating their older relatives about adaptations to their lifestyle that will keep them happier and healthier later into adulthood. However, I recognize that these steps alone will not make the entire difference. Even if the vast majority of people desire a more active lifestyle and are willing to help their older family members adopt this lifestyle, there are still barriers that could prevent long-term changes from being made.

Locations such as Generation Care, LifeCircles PACE, and AgeWell are headed in the right direction; they have addressed issues of transportation, economic cost, and comprehensive health care for the elderly. Organizations such as AM Yoga and From the Heart have made the most of the “yoga fad” in West Michigan and have acknowledged that practices such as this provide benefits and are adaptable to people of any age group. However, they have not made the practice entirely affordable or entirely acknowledged issues of transportation. I believe that, if organizations such as these came together and combined their strengths, there would be a number of centers in West Michigan that are accessible to geriatric populations in every aspect. For example, if teachers from AM Yoga travelled to centers such as LifeCircles, there would

opportunities for senior citizens to engage in yoga classes with their younger family members which they would not be able to do if they lacked transportation to downtown Grand Rapids. Also, if yoga studios in the area began to advertise their classes to the elderly and offer free classes at retirement facilities, senior citizens could begin to realize that they are capable of these forms of exercise just as much as anyone else.

From the outside, it may seem like West Michigan has a long way to go in terms of offering integrative exercise classes to geriatric populations. However, if we observe the strengths of the resources that are available, it is possible to envision how, if these programs combine their strengths, we can change how the public view exercise in senior citizens and make these classes more accessible. If yoga studios, retirement facilities, and families begin to make changes and involve their older family members and friends and if physicians are more specific about how they educate their patients, our community will be well-prepared for coming decades and will be able to benefit from the unique gifts that the elderly have to offer.

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