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Rowena Nery Monte
University of the Philippines
Los Banos, Philippines

Correspondence
Rowena Nery Monte
University of the Philippines
Los Banos, Philippines

Exercise: An age-old treatment in the modern world

Rowena Nery Monte

Abstract
The purpose of this study was to conduct a survey to test the viability and efficacy of an exercise program compared with usual medications and medical care in improving the emotional and physical functioning of older adults. The respondents were older adults whose ages vary from fifty to seventy years old were randomized with activities to exercise, or with usual medical care; 40 participants were asked for the one-week study. Outcomes included measures of both emotional and physical functioning. Individuals who exercise regularly showed greater improvements in physical functioning than individuals in the usual medical care condition. Hence, the presence of exercise showed promise as treatment for late-life.

Keywords: Viability, efficacy, exercise, older adults

Introduction
Being physically active plays an important role in ensuring health and well being, and there is a large body of research investigating the benefits of exercise. Physical activity benefits many parts of the body – the heart, skeletal muscles, bones, blood (for example, cholesterol levels), the immune system and the nervous system – and can reduce many of the risk factors for NCDs. These risk factors include:

- Reducing blood pressure;
- Improving blood cholesterol levels;
- Lowering body mass index (BMI).

Some major diseases that are known to be the leading causes of death – cardiovascular disease, type 2 diabetes, cancers and chronic lung disease – between them account for 59% of the 57 million deaths annually and 46% of the global burden of disease – double the number of deaths from all transferable, maternal and prenatal conditions, and nutritional deficiencies combined. In less-developed countries they die at a younger age: in low- and middle-income countries, 29% of deaths occur among people under the age of 60, compared to 13% in high-income countries (WHO, 2011) [6].

Global health is being affected by three tendencies: ageing population, rapid unplanned urbanization, and globalization, all of which result in unhealthy environments and behaviors. As a result, the growing prevalence of NCDs and their risk factors has become a global issue affecting both low- and middle-income countries. Nearly 45% of the adult disease burden in these countries is now attributable to NCDs. Many low- and middle-income countries are beginning to suffer the double burden of infectious and non-infectious diseases, and health systems in these countries now have to cope with the additional costs of treating both.

It has been shown that participation in regular physical activity reduces the risk of coronary heart disease and stroke, diabetes, hypertension, colon cancer, breast cancer and depression. Additionally, physical activity is a key determinant of energy expenditure, and thus is fundamental to energy balance and weight control (Macera, *et al*, 2004) [4].

More recently, studies have found that people who spend more time each day watching television, sitting, or riding in cars have a greater chance of dying early than people who spend less time on their stuffs. Researchers speculate that sitting for hours on end may change peoples' metabolism in ways that promote obesity, heart disease, diabetes, and other chronic conditions. It is also possible that sitting is a marker for a broader sedentary lifestyle.

There was a time when there was no or rather there was a minimal need of medical supplements, namely vitamins and medicine in the form of capsules, pills, or syrup.

People do not need those supplements for they rarely get sick and do not rely on them in order to help with weight lost or to help maintain the body. These people mainly relied on good food and exercise. Even in prehistoric times pre-10,000 B.C., exercise was an essential asset in a human's daily life. Hunting is part of their day-to-day activity, and this involves much walking, running, lifting, and other strenuous activities. This, demands a high level of fitness and consists of various forms of physical activity, and thus defines human life.

During 10,000 B.C., the Neolithic Era began. This serves as the starting point of the construction of civilizations. Although they became more sedentary, exercise was still a part of their daily lives, however the amount of exercise decreased. People of this era learned how to plant, domesticate animals, and still continued to hunt. Thus, sickness was still a rare occurrence.

Many years passed and the ancient civilization of China and India began. In China, it was taken into consideration, that exercise was indeed important and highly necessary. It was recognized that inactivity has been the cause of diseases, such as organ malfunction and internal stoppages (which is very similar to cardiovascular diseases and diabetes). Due to this, gymnastics, later known as martial arts, Kung Fu became popular and was regarded as the solution for the said diseases. In addition to this, other physical activities, such as archery, badminton, dancing, fencing, and wrestling, became widely known. On the other hand, India, based on its main religion, Buddhism and Hinduism, discouraged an individual's pursuit of fitness. This is because it is their tradition and belief that they must focus improving themselves spiritually, thus neglecting physical activities. But despite their negligence they still recognized the importance of proper exercise and development of the body. Yoga was then developed. Indian philosophers recognized its health benefits. This includes proper organ function and the well-being of an individual as a whole.

Ancient Greek is well known for its high regard for physical fitness. The Greeks, namely Athens, believed development of the body was equally as important as development of the mind. Gymnastics, running, wrestling, and jumping were very popular in this era. Boys at a very young age, are made to undergo physical education and as they reach adulthood (14-16 years old) they move on to harsher training environments. Sparta, on the other hand, valued physical fitness even more than that of Athens, though lessening the training for the mind. Trainings undergone by the males were mostly for military purposes for in this era, wars were frequent. At the age of six, Spartans (males only) are already training for this very purpose. Females were also required to have a physically fit body for the purpose of upbringing strong offspring.

Similar to Greeks, the Romans also valued physical fitness. In times of war, the Romans undergone heavy training, thus they almost succeeded in conquering the whole of the Western World. However, the fitness level of the majority of the Roman population had declined. This is the start of the population being more inclined to leisure and became more materialistic. This sudden change in attitude towards physical activity has affected the later eras to come.

The Renaissance Period soon followed and in this era the society had found a new interest in the human body. Physical education soon became an outlet, and later a curriculum, for some individuals that valued fitness to encourage the rest of the population that has forgotten the importance of exercise, to be more involved in physical activities and to be informed of its benefits.

In the 20th century, two great wars took place, World War I and World War II. Because of the need for an increase in military strength, physical fitness and exercise was yet again highly valued. However, when the war had passed the society once again lost interest in maintaining a physically fit body. Technologies and new inventions started booming worldwide. Only a few individuals, those who were into sports and were concerned for their own well-being, regarded constant exercise as a necessity. Most knew the benefits of exercise but remained indifferent. Because of this, a lot of organizations, such as American Health Association (AHA), the American Medical Association (AMA), the American Association for Physical Education, Recreation, and Dance (AAPHERD), and the President's Council on Youth Fitness, in the 1950s, promoted physical fitness. Many joined these organizations, however number of inactive people increased day-by-day.

Finally, in today's time, there has been an increase in gadgets and technologies that do the work for the humans which, in the past, they had to exert effort for. The computer and internet were used before for communication in the World War, but now it is used, mostly, for leisure, like gaming, chatting, and blogging, which hinders individuals from at least going outside to stretch their already stiff muscles and joints. There are still many who remember the importance of being physically fit, but majority belong to the group where people are mostly inactive. This inactivity has also caused more problems and diseases, both physically and emotionally, compared to the era of ancient China and India. Some examples are cardiovascular diseases, joint pains, obesity, diabetes, hypertension, emotional instability, and tension syndrome. As seen in the history of physical fitness as societies advance to a time where hardships and physical burdens are lessened and people become more materialistic and attached to wealth and leisure, physical fitness drop. This includes the society's advancement in technology and the discovery of more ways to make life "easier" for the human race (Dalleck and Kravitz).

On the other hand, medical technology and drugs cover the wide range of tools and implements now being used to diagnose, treat or generally manage health. This may include medical equipment, advanced surgical or medical procedures, electronic records and medical-related software. Many of these advances have developed one's quality of life and helped lengthen life spans. However, medical technology can also present problems and complications for the patient. Knowing the risks can help patients become more knowledgeable consumers for their health and overall well-being. Many technological measures are lifesaving but each has its own risk and hazard for the patient involved. For example, surgical procedures, radiation therapy or chemotherapy can offer benefits but could lead to negative effects. This has long been true with any medical procedure since even simple aspirin can be used inappropriately; but technology should always be evaluated for risk versus compensation.

Methodology

In order to get an idea and an estimate on how the contemporary society deals with exercise and their thoughts about the importance of exercise in comparison to standard

medical drugs or treatments, a survey was prepared. The following procedure presents the recommended levels of physical activity for the older adults (50-70 years old). Forty copies of survey forms were allotted and distributed to the respondents.

Each survey form includes

- remarks and details on the target population;
- diseases or ailments in which the respondent has;
- the physical dormancy or the activity of the specific respondents; and
- the interpretation and justification for the survey forms presented.

The survey consisted of each of the following components:

Type of physical activity: The mode of participation in physical activity. The type of physical activity can take many forms: aerobic, strength, flexibility, balance, etc.

Duration: The length of time in which an activity or exercise is performed. Duration is generally expressed in minutes.

Frequency: The number of times an exercise or activity is performed. It is generally expressed in sessions or allotted settings per week.

Intensity -refers to the rate at which the activity is being performed or the magnitude of the effort required to perform an activity or exercise (scaled from 1 to 10; 1 being the lowest and 10 being the highest)

Medication: It refers to the individual's medical diagnosis and the presence of prescribed medical drug/s.

Results and Discussion

50-70 age group

Out of the forty respondents aged fifty to seventy, only 13 (32.5%) affirmed that they still engage in physical activities, whereas the remaining 27 (67.5%) respondents affirmed that they do not participate in any exercise or physical activity. Figure 1 illustrates a comparison between the population respondents who engage and who do not engage in physical activity.

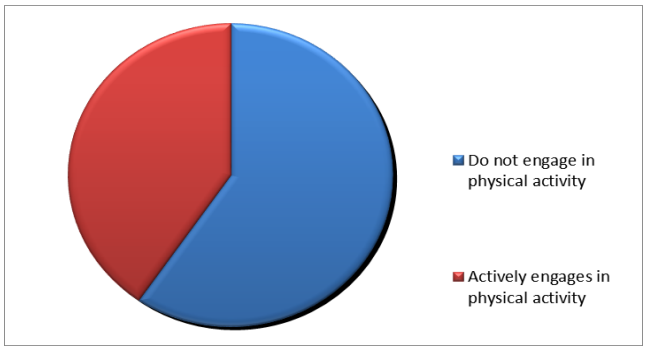

Fig 1: Respondents aged 50-70 who engaged in physical activity

The allotted time for physical activity of the age group 50-70 per week is shown in (Figure 2). The most protruding period of time allotted for physical activity among the choices was "below 30 minutes" (27.5%) followed by "30-60 minutes"(19%), "60-90 minutes"(17.5%), "beyond 150 minutes"(17%), "90-120 minutes"(16.3%) and "120-150 minutes"(11.3%), respectively. The data revealed that a fewer number of respondents allot a long period of time for physical activity (with the sole exception of the respondents who engage in beyond 150 minutes)

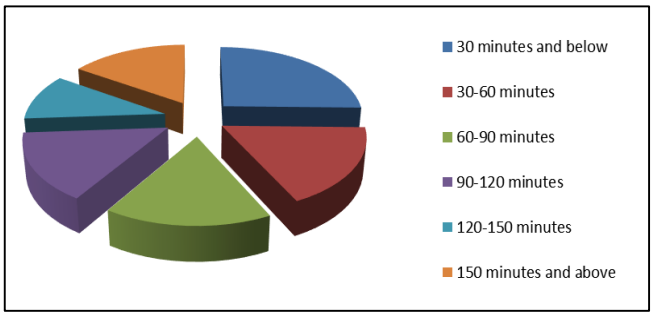

Fig 2: Allotted time for physical activity of respondents aged 50-70 in one week

In the next two figures (Figures 3 & 4), it shows the presence and absence of diseases and ailments between the respondents who engage and do not engage in physical activity. The respondents who engaged in physical activity have a lower rate of the presence of diseases (32.5%) in comparison with respondents who did not engage in physical activity (58%). From the data gathered from the two figures, it can be deduced that physical activity can diminish or reduce the rate of acquiring diseases or ailments.

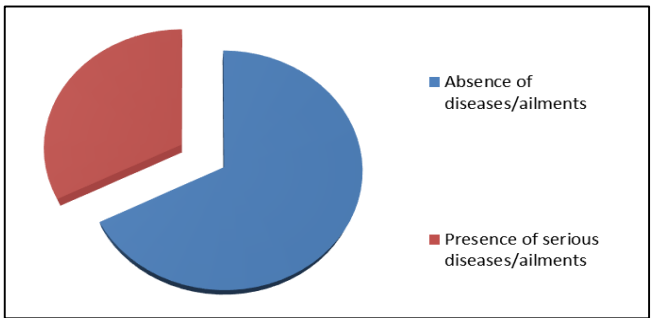

Fig 3: Presence or Absence of diseases of respondents aged 50-70 who engaged in physical activity

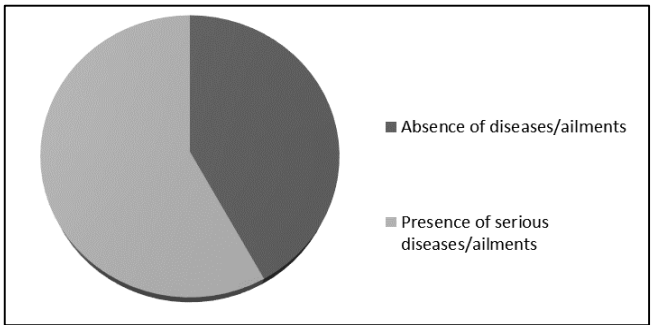

Fig 4: Presence or Absence of diseases of respondents aged 50-70 who did not engage in physical activity

Among the respondents who had a disease or an ailment, Cardiovascular Diseases (CVD) is the most dominant and overriding medical problem (compromising 42% of the respondents' population). It is followed by Diabetes, Tuberculosis, Muscle pain, and Arthritis, respectively. Other major diseases/ailments that were common within the respondent population that were not included in Figure 3 were: Joint pain, Osteoporosis, Cancer, Alzheimer's disease, among others.

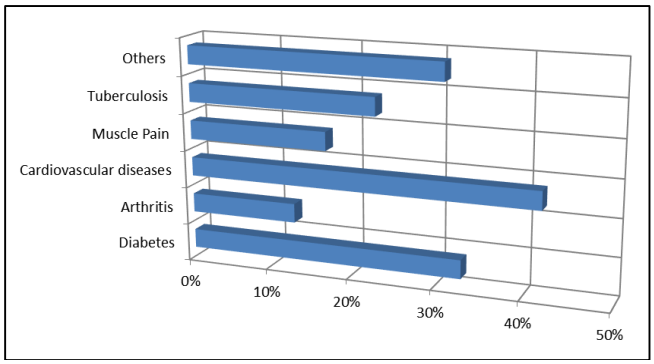

Fig 5: Primary diseases and ailments found in respondents aged 50-70

Summary and Conclusion

The benefits of physical activity have been shown to be effective among the senior citizens. Regular exercise or physical activity helps many of the body's systems function better, keeps heart disease, diabetes, and a host of other diseases at bay. The recommended guidelines for the amount of physical activity that individuals should engage in a routine basis in order to obtain and/or maintain health and wellness has been developed by varying bodies and, although they may vary on specifics, the general features are all similar.

Individuals with specific health conditions, such as cardiovascular disease and diabetes, may need to take extra precautions and seek medical advice before striving to achieve the recommended levels of physical activity for older adults. There are a number of ways older adults can accumulate appropriate physical activities per week. The recommendations can be applied to older adults with disabilities however adjustments for each individual based on their exercise capacity and specific health risks or limitations may be needed. Older adults who are inactive or who have some disease limitations will have added health benefits if moving from the category of "no activity" to "some levels" of activity. Older adults who currently do not meet the recommendations for physical activity should aim to increase duration, frequency and finally intensity as a target to achieving them.

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