Theory of nursing systems and benefits of physical activity

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Román Vázquez Ovando
Bachelor Degree in Nursing
Institution: High Specialty Hospital from Veracruz
Address: Av. 20 de Noviembre, No. 1074, Col. Centro C.P. 91700
E-mail: rom.55vazquez@gmail.com

Ernestina Méndez Cordero
Doctor in public administration and government
Institution: Nursing Faculty at Universidad Veracruzana
Address: Juan Enriquez, s/n, Esquina 20 de Noviembre, Col. Centro C.P. 91700
E-mail: ermendez@uv.mx

Graciela López Orozco
Doctor of Education
Institution: Nursing Faculty at Universidad Veracruzana
Address: Juan Enriquez, s/n, Esquina 20 de Noviembre, Col. Centro C.P. 91700
E-mail: gralopez@uv.mx

Carmen Hernández Cruz
Master in Nursing
Institution: Nursing Faculty at Universidad Veracruzana
Address: Juan Enriquez, s/n, Esquina 20 de Noviembre, Col. Centro C.P. 91700
E-mail: carmcruz@uv.mx

Jorge Arturo Alvarado Martínez
Master of Science in Nursing
Institution: High Specialty Hospital from Veracruz
Address: Av. 20 de Noviembre, No. 1074, Col. Centro C.P. 91700
E-mail: enfveralvarado@yahoo.com.mx

María Angélica Ibarra Estela
Doctor of Education
Institution: Nursing Faculty at Universidad Veracruzana
Address: Juan Enriquez, s/n, Esquina 20 de Noviembre, Col. Centro C.P. 91700
E-mail: mibarra@uv.mx

Amelia Sánchez Espinosa
Doctor of Administrative Legal Sciences and Education
Institution: Nursing Faculty at Universidad Veracruzana
Address: Juan Enriquez, s/n, Esquina 20 de Noviembre, Col. Centro C.P. 91700
E-mail: amesanchez@uv.mx
ABSTRACT
Introduction: Physical activity is the voluntary and involuntary movement that activates the respiratory and metabolic functions to produce energy expenditure during activities of daily routine and hobbies. Objective: To know the benefits of physical activity and explain how it is related to the Nursing Systems Theory. Method: Documentary-qualitative design study. Results: The benefits of physical activity can be conceptualized in a cognitive, preventive, and motivational approach. Conclusions: Nursing systems theory clearly shows how nursing care is determined by the level of physical activity and dependence of the patient to carry out daily activities.

Keywords: physical activity, self-care, nursing care, DeCS.

1 INTRODUCTION

World Health Organization (WHO) defines physical activity as any body movement produced by skeletal muscles that requires energy expenditure. Exercise is a variety of physical activity, planned, structured, repetitive and performed with a goal related to the improvement or maintenance of one or more components of physical fitness. Physical activity encompasses exercise, but also other activities that involve body movement and they are performed as part of play, work, active forms of transportation, household chores, and recreational activities (World Health Organization, n.d.). During physical activity, biochemical changes occur in the body, also, respiratory and cardiovascular systems come into operation as an adaptive response to the body's oxygen needs (Powers, 2014).

According to data from the World Health Organization since 1975, obesity has almost tripled worldwide and by 2016 more than 1.9 billion adults aged 18 or over were overweight, of which more than 650 million were obese. In developed countries, more than half of adults are physically insufficient. In the great cities of fast-growing of the developing world, inactivity is an even bigger problem. Urbanization has created several environmental factors that discourage physical activity (World Health Organization, n.d.).

World Health Organization estimates that 60% of the world's population does not do the necessary physical activity to obtain health benefits, this is due to insufficient participation in physical activity during leisure time and an increase in sedentary behaviors during work and domestic activities, as well as the increase in the use of passive means of transport such as own cars and public transport (World Health Organization, n.d.). Families with lower socioeconomic status are associated more often to active activities (Miranda et al. 2017). Individually, people with a medium socioeconomic level who do not use tobacco, alcohol or drugs, do not work, do not have children or a stable partner are identified with a high level of physical activity (Pérez et al. 2014).
In Mexico, overweight and obesity in women show an increase with respect to 2012 figures, in the three age groups, which is greater in rural than urban areas. In the adult male population, overweight and obesity increased in rural areas from 61.1% in 2012 to 67.5% in 2016 (Secretaría de Salud, 2017).

2 MYTHS ABOUT PHYSICAL ACTIVITY

Culturally, Mexicans are dominated by ignorance, therefore, health care and diseases are attributed to magical or supernatural origins (Sánchez, 2013). Reasons that discourage people from engaging in physical activity could be of customary origin, such as myths, since these act as obstacles. World Health Organization has identified some of them as mentioned below:

2.1 PERFORMING PHYSICAL ACTIVITY IS VERY EXPENSIVE

Physical activity can be done practically anywhere and does not require buying special equipment, it can be activities such as carrying wood, books, or climbing stairs instead of the elevator. The most recommended physical activity is walking and this is completely free, some urban areas have parks, promenades or other pedestrian areas ideal for walking, running or playing. It is not essential to go to the gym, swimming pool or other special sports facilities to stay physically active (World Health Organization, n.d.).

2.2 I AM BUSY AND PHYSICAL ACTIVITY TAKES A LOT OF TIME

This is the most common obstacle to physical activity (Sevil, et al. 2017) but, to improve and maintain your health, 30 minutes of moderate-intensity physical activity, 5 days a week, is enough. However, this does not mean that physical activity should be carried out for 30 minutes in a row, it can be accumulated throughout the day: example, 10 minutes of brisk walking 3 times a day, or 20 minutes in the morning and another 10 later. These activities can be incorporated into the daily routine: work, school, domestic or leisure. Simple actions like taking the stairs, cycling to work, or getting off the bus two stops before your final destination and walking the rest of the way, in this way physical activity is accumulated throughout the day (World Health Organization, n.d.).

2.3 PHYSICAL ACTIVITY IS ONLY NECESSARY IN INDUSTRIALIZED COUNTRIES

At least 60% of the world population does not perform the necessary physical activity to obtain health benefits. Physical inactivity is an independent and modifiable risk factor for common noncommunicable diseases that caused more than 35 million deaths in 2005. Noncommunicable diseases are currently the leading cause of death and disability worldwide. Notably, 80% of deaths from common noncommunicable diseases occur in low-and middle-income countries (World Health Organization, n.d.).
Increasing the level of physical activity is a social need, therefore, it requires a population, multisectoral, multidisciplinary, and culturally appropriate perspective. In 2010, the World Health Organization designed and created a catalog of "Global Recommendations on Physical Activity for Health" where part of issuing recommendations, it urges all countries to create policies and actions that create a link between frequency, the duration, intensity, type, and total amount of physical activity needed to prevent noncommunicable diseases. (World Health Organization, n.d.). It is necessary to promote Physical Activity based on the socioeconomic and cultural characteristics of each society (Villar et al. 2015).

3 RELATED STUDIES

Donnelly et al. (2018) conducted a study with 128 adult Arab men and women living in Qatar with the aim of exploring facilitators and barriers that influence physical activity and to understand what they think would be helpful in increasing physical activity.

Authors report that at the individual level the factors that influenced people's physical activity were; perceived benefits of physical activity, presence of diseases, person's will, motivation and goals, and time to exercise. At the sociocultural level, religious teachings of Islam, culture, attitude, beliefs and practices, and informal support influenced participants' physical activity. At the organizational and political level, the physical environment for exercising, accessibility of facilities, organizational support, and health information about exercise all influenced their physical activity.

Based on this, Arab men and women are aware of the importance and benefits of physical activity. They are motivated to be physically active, but in the absence of a supportive environment, their knowledge may not be reflected in actions. The creation of supportive environments at multiple levels that are conducive to physical activity is warranted.

Ramanathan et al. (2018) conducted a study with 44 key informants representing national, provincial and local organizations with a mandate to promote physical activity with the purpose of qualitatively investigate organizational capacity for physical activity promotion among Canadian organizations and the influence of ParticipACTION on capacity five years after re-launch.

Authors report that Organizational capacity in terms of partnerships and collaborations, and the general climate for physical activity promotion have improved since the relaunch of ParticipACTION. Although financial resources reduced the ability of organizations to accomplish their mandates, internal factors such as qualified employees and sponsorships, and external factors such as technological improvements in communication and information sharing helped counter this tension.
There were mixed feelings about ParticipACTION's contribution to capacity. While ParticipACTION has paid more attention to inactivity, this was perceived as a complement to the work that has been done. While some organizations saw the relaunch of ParticipACTION as a competition for funding and access to popular media, others saw it as an opportunity to carry out social marketing campaigns using ParticipACTION's products and reputation.

Based on this, according to participants, organizational capacity to promote physical activity in Canada has increased since 2007 in subtle but important ways due to a strong climate for physical activity promotion, qualified employees, and information sharing technology. Changes in organizational capacity were minimally attributed to ParticipACTION.

Rangel et al. (2017) conducted a study a study with a sample of 532 female Mexican university students with the aim of examining the effect of practicing regular physical activity, physical self-concept and psychological well-being.

Authors reported that the regular practice of physical activity, through motor competence physical attractiveness, has an indirect effect on the perception of psychological well-being in the self-acceptance dimension and this in turn, has a direct and positive effect on personal growth. In contrast, a direct effect of motor competence on self-acceptance was not found, as had been initially postulated. Based on this, the results suggest, but do not prove, that the different causal variables could influence psychological well-being.

4 NURSING AND PHYSICAL ACTIVITY

4.1 CONCEPT OF CARE ACCORDING TO FLORENCE NIGHTINGALE

It is possible to identify that the concept of care has been present in the study of nursing from its origins and to prove it, we can mention to Florence Nightingale and her famous "Environment Theory" where she used the word care to represent the help given to people to live or survive in their physical or natural environments in relation to cleanliness, uncontaminated air, rest, good nutrition and also exercise (Reyes, 2015).

4.2 THEORY OF SELF-CARE DEFICIT

Elizabeth Dorothea Orem established that nursing belongs to the group of health services that is organized to provide direct assistance to people with legitimate needs. There are many forms of direct care, this is determined by the state of health or by the nature of the health care needs (Raile, 2015).

Nursing sciences have social and interpersonal functions and they are characterized by supportive relationships between those who need care, that is, between patients and those who provide the health service. Therefore, we can mention the Dorothea Elizabeth Orem's Theory of "Self-Care Deficit" because
it is the one that fits to the relation between nursing as a discipline and physical activity as a global health problem (Raile, 2015).

The aforementioned theory is divided into three sub-theories, one of them is of great interest to understand the role of nursing in health care related to physical activity, that sub-theory is the theory of “Nursing Systems” (Figure 1). The theory of nursing systems shows the patient-nurse interaction, where the nursing actions are directed to the person according to the level of dependency of this person. This sub-theory is divided into three systems: I. Wholly compensatory system, II. Partly compensatory system and III. Supportive educative system (Raile, 2015).

The first involves performing nursing actions to patients who have a completely dependent health condition, where the nurse does everything that the patients cannot. The second system requires the patients to carry out basic self-care activities that are within their possibilities, the rest of the activities that they cannot do, are carried out by the nurse and the third system is reduced to giving guidance and health education to the patients while they are fully independent people.

This theory helps us understand the role of nursing with patients who have an ideal level of physical activity with few health problems such as overweight or obesity compared with patients with low or no level of physical activity who present health complications due to sedentary lifestyle.
5 METHOD

This investigation is of documentary, qualitative and deductive design (Hernández, 2013). A systematic search of scientific research articles was carried out in the EBSCOhost database, and an analysis and reflection of the content to obtain the conclusions of the study.

6 RESULTS

6.1 COGNITIVE APPROACH

Physical activity is a preventive method to slow cognitive decline throughout life. The population that has performed moderate or vigorous physical activity, are more likely to maintain knowledge than the physically inactive. It has been shown that young people who play sports or train have better retention (Castro & Galvis, 2018) they also maintain a more positive attitude, improve memory and problem solving through analysis, obtaining better results than young people who are not physically active, all these characteristics make individuals improve their family and social relationships, bringing a greater use of young people in their area of study or work.

This occurs because the health of people who perform physical activity as part of their routine slows down organic deterioration and it is reflected in adulthood from the age of 60 when the state of cognitive health is maintained in optimal conditions. Physical activity modifies and optimizes the cognitive processes of people, they maintain a better state of mental health, have better school and work performance and they are happier in their lives.

People who do not balance their lives, fall into a routine where they only go to work or school, in this way they begin to have a progressive cognitive deterioration that is reflected in the performance of their tasks. Engaging people in structured recreational activities contributes to their psychosocial development, and can also teach core values and work-life skills, discipline, teamwork, impartiality, and respect for others that shape the behavior of individuals and help them pursue their goals and respond appropriately to events in their own lives and society (United Nations Children's Fund, n.d.).

6.2 PREVENTION APPROACH

According to García (2018) physical activity has been shown to be a good antidepressant strategy because it helps people who are in stages of anxiety such as drug addicts when they present withdrawal syndrome, it also has a positive effect on people with suicidal attitudes and behaviors, if they feel better, these people can find a viable solution to their problems and thus avoid the suicidal act.

Physical activity is an excellent strategy that can be implemented therapeutically such as drug use rehabilitation, depression and suicidal behaviors, physiologically it helps to reduce stress, anxiety and depression levels, reasons why people do not see the need to consume any substance that helps them to
overcome loads of stress or anxiety. Practically people keep themselves busy, they interact with people who have the same interests and thus it is create a network that gives support so that they are less likely to fall into an addiction.

6.3 MOTIVATIONAL APPROACH

People with busy schedules do not consider the idea of exercise, and some of them do not even like it, but physical activity does not have to take up a lot of time and it can be a fun experience, for example, walking may be increased at feasible times, perhaps to catch the bus at the stop farthest from home, or to get off the bus one or two three blocks earlier to walk the rest of the way home.

Some activities can also be modified, perhaps instead of going to the supermarket where we already know in which areas is everything, we can go to the market where more activity is required to search and compare prices, as well as to move from one place to another and find what is desired.

6.4 PHYSIOLOGICAL APPROACH

The increase in breathing during vigorous physical activity implies an increase in the work of the heart and the force exerted by the blood through the veins, this reinforces the activity of the heart and will do maintenance functions in the veins for obese people, in this way, it reduces the risk of people suffering heart attacks among other non-communicable diseases (Aula mejor, n.d.).

7 CONCLUSIONS

Physical activity has many variants and ways of doing it, the results are always positive, it benefits us comprehensively, physically it makes us stronger and we feel good, biochemically it accelerates metabolism which reduces the level of adipose tissue and improves our figure, and from this, people's self-esteem increases and they feel good about themselves because it balances our mental health.

In many cases people only watch professional athletes but they do not imitate them, for example, people like watching soccer but few of them like practicing it, there are those who watch boxing but they do not train, so we understand that people are in their comfort zone where the mentality is that if someone does physical activity people only admire this person but themself avoid practicing said sport.

This is not an excuse, physical activity has to do with routine activities, which implies that some things that are done with the help of a device or object can be done with your own body, such as walking, changing light or slightly heavy objects, climb stairs instead of using the elevator, or prefer to ride a bicycle instead of the bus.

An important factor to take into account to contribute to the benefits of physical activity is nutrition. People have to have a healthy and balanced diet so that the body uses only the necessary
nutrients. Physical activity balances glucose and insulin levels (GPC, 2014), but excessive intake that produces more glucose than necessary should be avoided. Excessive intake will have negative effects on the physical condition of people and it will favor the appearance and increase of adipose tissue in the abdomen, arms and legs.

Regarding nursing systems, wholly compensatory system is applicable to people who need someone to completely carry out activities such as feeding, dressing, assisted bathing in bed or shower, physiological elimination, mobilization in bed and grooming, that is, the person is completely dependent, a specific example is about hospitalized patients who are in a state of unconsciousness where the nurse has to do all the basic actions for the patient because this is not able to.

Partly compensatory system is applicable to people who need assistance to eat, help to dress, support to perform a bed bath or shower, help for physiological elimination, assisted bed mobilization and help in personal grooming, that is, the patient will perform the activities as far as their possibilities allow and the nurse will carry out actions that help the patient to conclude their self-care activities, an example of this are people who have suffered a traffic accident, a cerebral vascular problem, or have frailty syndrome in the elderly, which means that they only need support to carry out their self-care activities or physical therapy.

Supportive educative system applies to people who have already regained independence or perhaps were always independent but needed guidance and education on some health issues to keep their well-being in balance, in this case the nurse works promoting and educating the patient, examples of these are the sessions on sexual and reproductive guidance, breastfeeding, newborn care., warm up, and breathing technique.
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